OAK KNOLL MIXED USE COMMUNITY PLAN PROJECT

Supplemental Environmental Impact Report (SEIR)
SCH No. 1995103035

Prepared for
City of Oakland

August 2016

CITY OF OAKLAND

Department of Planning, Building and Neighborhood Preservation
250 Frank H. Ogawa Plaza, Suite 3315, Oakland, California, 94612-2032

COMBINED NOTICE OF AVAILABILITY AND RELEASE OF A SUPPLEMENTAL DRAFT ENVIRONMENTAL IMPACT REPORT (SEIR) AND NOTICE OF PUBLIC HEARINGS ON THE DRAFT SEIR FOR THE OAK KNOLL MIXED USE COMMUNITY PLAN PROJECT

TO: All Interested Parties

PROJECT NAME: Oak Knoll Mixed Use Community Plan Project

PROJECT LOCATION: Former Oak Knoll Naval Medical Center Property. 8750 Mountain Boulevard; bordered and accessed by Mountain Boulevard and Keller Avenue in East Oakland. APNs 043A-4675-003-21; 048-6865-002-03; 043A-4712-001; 048-6870-001; 048-6870-002; and 043A-4675-074-01

PROJECT SPONSOR: Oak Knoll Venture Acquisition LLC (OKVA)

CASE FILE NO: City File No. ER15-004; PLN-15-378; State Clearinghouse No. 1995103035

REVIEW PERIOD: **August 29, 2016 through October 12, 2016**

BACKGROUND

In 1996, the NMCO property was subject to a Final Reuse Plan, pursuant to federal military base reuse procedures. The Final Reuse Plan presented five land use alternatives for reuse of the NMCO property. In conjunction with the preparation and adoption of the Final Reuse Plan, an *Environmental Impact Statement/Environmental Impact Report (EIS/EIR) for the Disposal and Reuse of Naval Medical Center Oakland* (1998 EIS/EIR) was prepared to assess the potential environmental effects of the plan. On July 14, 1998, the Oakland City Council certified the EIS/EIR and adopted the Final Reuse Plan.

In 2015, Oak Knoll Venture Acquisition LLC (OKVA) proposed a new Oak Knoll Project on the Project Site that is addressed by the Draft Supplemental Environmental Impact Report ("SEIR") addressed by this NOA.[1] Because the 1998 EIS/EIR for the Final Reuse Plan for the property has been certified, the City was required to determine whether further CEQA environmental review is required for the current 2015 Oak Knoll Project proposal, in accordance with PRC Section 21166 and CEQA Guidelines Section 15162 and 15168. Under these sections, no further environmental review is required unless there are new or substantially more severe impacts of the project than those analyzed in the certified 1998 EIS/EIR. Because the current 2015 Oak Knoll Project could result in new and potentially substantially more severe impacts than disclosed in the 1998 EIS/EIR, the City of Oakland has prepared a new Draft SEIR.

PROJECT DESCRIPTION

The Oak Knoll Project proposes a Planned Unit Development and Preliminary Development Plan (PUD/PDP) for development of a new mixed use community of up to 935 residential units and a total of 82,000 square feet of neighborhood commercial uses in a new Village Center. The Project would establish approximately 67.6 square feet of parks and open spaces for active and passive recreation, and approximately 3.5 miles of community-wide trails that will link the site to the existing East Bay Regional Park District (EBRPD) trail system. The Project also involves the restoration and enhancement of approximately 16.7 acres of riparian areas along Rifle Range Creek and onsite tributaries, (Hospital Creek and Powerhouse Creek). A new bridge crossing of the creek is proposed. The Project proposes to relocate and rehabilitate the key historical portions of Club Knoll, a locally-designated historic resource for reuse as a community clubhouse (4,000 sq.ft) and approximately 10,000 square feet of limited commercial uses (part of the 82,000 square feet cited above). **Table 1** below summarizes the Project. The proposed Master Plan is included as **Figure 1** to this NOA.

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[1] The City considered a previous Oak Knoll Project proposal (2007) for it prepared and published for public review and comment and Draft SEIR. No Final SEIR was prepared for the previous 2007 Oak Knoll Project.

TABLE 1 - KEY OAK KNOLL PROJECT CHARACTERISTICS

Use	Characteristics
Residential	935 dwelling units
Commercial / Village Center	72,000 square feet
Open Space[1]	62.0 acres
Parks and Community Facilities[2]	5.6 acres
Restored Creek Corridor	16.7 acres
Total Site Acreage	188 acres
Creek Crossings (combined auto and pedestrian/bicycle)	1
Creek Crossings (pedestrian only)	1
Trails	3.5 miles

[1] Undisturbed Open Space and Revegetated Slope Banks; excludes Creek Corridor and Parks

[2] Includes new Community Clubhouse with 10,000 s.f. of community commercial use in the proposed relocated and rehabilitated Club Knoll building.

Development of the site would involve up to 3 million cubic yards of grading (including corrective grading required for existing unstable areas and grading associated with the proposed creek improvements). The overall intent of the grading plan is to balance the amount of cut and fill throughout the Project site so that no soil will need to be imported or exported. There are approximately 7,170 trees on the Project site, and the Project also includes the removal of approximately 4,000 trees (some of which are invasive and/or non-native), and would replant approximately 2,500 trees based on the City of Oakland Tree Ordinance.

The Project would be developed in multiple phases over approximately five to ten years, with the initial phase of work anticipated to commence in 2017, with full buildout and operation in 2024. The project includes a number of permits/approvals from the City, including but not limited to a: Rezoning, Planned Unit Development (PUD) Permit, Final Development Permit, Tree Removal Permit, Creek Protection Permit, and Vesting Tentative Map and Final Map(s).

The Project site totals 188 acres, most of which is the former 183-acre Oak Knoll Naval Medical Center Oakland (NMCO) property. Two privately-owned inholdings, the Sea West Coast Guard Federal Credit Union (Sea West) and the Seneca Center for Children and Families (Seneca), are also located on the former NMCO property but are not included within the Oak Knoll Project site.

DRAFT SEIR OVERVIEW

The Draft SEIR is intended to inform City of Oakland decision makers, other responsible agencies and the general public of the potential environmental consequences associated with the Project and identify mitigation measures that would reduce or eliminate those impacts. The Draft SEIR evaluated the program-level impacts of the proposed Project and identifies that the Project may have significant and unavoidable impacts in the following areas:

- Air Quality (operational emissions)
- Transportation and Circulation (traffic local intersections and freeway segments)

The Draft SEIR analyzes a CEQA-required No-Project Alternative and three CEQA alternatives to the Project (listed below)[2]:

- Reduced Footprint – Residential Mix
- Reduced Footprint – Low Density Small-Lot
- Hillside Low Density – Large Lot

COMPLETION AND AVAILABILITY OF THE DRAFT SEIR

The City of Oakland's Bureau of Planning issued a Notice of Preparation (NOP) for a *Revised* Draft SEIR on March 20, 2015. The City has prepared a Draft SEIR for the Oak Knoll Project Mixed Use Community Plan Project ("Project") per the requirements of the California Environmental Quality Act (CEQA) statutes (Public Resources Code [PRC] Section 21000 et seq.) and the CEQA Guidelines (California Code of Regulations 15000 et seq.). The City of Oakland is the Lead Agency for the Project and is the public agency with the greatest responsibility for considering approval of the project and/or carrying it out. This notice is being sent to Responsible Agencies and other interested parties, including persons who responded to the NOP.

Starting **Monday, August 29, 2016,** copies of the Draft SEIR may be obtained or reviewed at the City of Oakland Planning Bureau, 250 Frank H. Ogawa Plaza, Suite 2114 (second floor permit counter), Monday through Friday, 8:00 a.m. to 4:00 p.m. except Wednesdays 9:30 a.m. to 4:00 p.m. The Draft SEIR is also available for viewing or download from the City of

[2] While not required, the Draft SEIR also discusses two non-CEQA alternative scenarios: (1) Club Knoll Demolition and (2) Reduced Club Knoll Relocation.

Oakland's website: http://www2.oaklandnet.com/government/o/PBN/OurOrganization/PlanningZoning/OAK052335 or at http://www2.oaklandnet.com/government/o/PBN/OurServices/Application/DOWD009157, item 30. The appendices to the Draft SEIR (which includes information supporting the analysis in the Draft SEIR) are voluminous and are provided on a compact disc with each printed copy of the document, the City's website, and a printed copy is available for viewing at the public counter of the Oakland Planning Bureau.

PUBLIC HEARINGS ON DRAFT SEIR:

1. The Oakland Landmarks Preservation Advisory Board will conduct a public hearing on the historic resource aspects of the Draft SEIR on **September 12, 2016, at 6:00 p.m.** in Sgnt. Mark Dunakin Hearing Room (Hearing Room 1), Oakland City Hall, 1 Frank H. Ogawa Plaza, Oakland.

2. The Oakland Bicyclist and Pedestrian Advisory Commission will conduct a public hearing on the bicycle and pedestrian aspects of the Draft SEIR on **September 15, 2016, at 6:00 p.m.** in Hearing Room 3, City Hall, 1 Frank H. Ogawa Plaza.

3. The Oakland City Planning Commission will conduct a public hearing on the Draft SEIR on **October 5, 2016, at 6:00 p.m.** in Sgnt. Mark Dunakin Hearing Room (Hearing Room 1),Oakland City Hall, 1 Frank H. Ogawa Plaza, Oakland.

The City of Oakland is hereby releasing this Draft SEIR, finding it to be accurate and complete and ready for public review. Members of the public are invited to comment on the Draft SEIR. There is no fee for commenting, and all comments received will be considered by the City prior to finalizing the SEIR and making a decision on the project. In light of the SEIR's purpose to provide useful and accurate information about such factors, comments on the Draft SEIR should focus on the sufficiency of the Draft SEIR in discussing possible impacts on the physical environment, ways in which potential adverse effects might be minimized, and alternatives to the project. Comments may be made at the public hearing described above or in writing. Please address all written comments to: Heather Klein, Planner IV, City of Oakland, Bureau of Planning, 250 Frank H. Ogawa Plaza, Suite 2114, Oakland, CA 94612; (510) 238-3658 (fax); or emailed to hklein@oaklandnet.com. Comments should be received no later than **4:00 p.m. on October 12, 2016**. Please reference case number ER15-004 in all correspondence.

If you challenge the EIR or project in court, you may be limited to raising only those issues raised at the Planning Commission public hearing described above, or in written correspondence received by the Bureau of Planning on or prior to 4:00 p.m. on **October 12, 2016.**

After all comments are received, a Response to Comments/Final SEIR will be prepared and the Planning Commission will consider a recommendation on certification of the Final SEIR and the project at a meeting date to be scheduled. For further information, please contact Heather Klein **at (510) 238-3659 or at hklein@oaklandnet.com or Scott Gregory**, Contract Planner at (510) 535-6671 or by e-mail at sgregory@lamphier-gregory.com.

August 26, 2016
Case File No.: ER15-004

Robert Merkamp for Darin Ranelletti
Deputy Director, Bureau of Planning
Environmental Review Officer

LEGEND	
- - -	Property Line
NIP	Not in Project

HART | HOWERTON

OAK KNOLL

Oakland, California

FIGURE - 1

Illustrative Plan

August 25, 2016

OAK KNOLL MIXED USE COMMUNITY PLAN PROJECT

Supplemental Environmental Impact Report (SEIR)
SCH No. 1995103035

Prepared for
City of Oakland

August 2016

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CHAPTER 1
Introduction and Background

1.1 Project and Project Sponsor

Oak Knoll Acquisition Ventures LLC (OKVA) is the Project sponsor for the Oak Knoll Mixed Use Community Plan Project – a proposal to create a mixed use development of residential neighborhoods, commercial development, and open space and recreational facilities on approximately 188 acres, largely comprised of a former decommissioned Naval Medical Center Oakland (NMCO) property at Oak Knoll. The NMCO property is located approximately 9.0 miles southeast of downtown Oakland, in the South Hills area of the city, and is bounded by Mountain Boulevard / Interstate 580 (I-580) to the west, Keller Avenue to the north and east, and Sequoyah Road to the south.[1] (A map and aerial photograph of the Project site and the surrounding vicinity are provided in Chapter 3, Project Description, of this document as Figure 3-1.) The Project is referred to throughout this Draft Supplemental Environmental Impact Report (SEIR) as the "Oak Knoll Project" or the "Project." The City of Oakland is the Lead Agency for preparation of this Draft SEIR and responsible for the majority of approvals required for the Project, pursuant to CEQA Guidelines Section 15051).

The Oak Knoll Project proposes to develop up to 935 residential units of varied housing types and up to 72,000 square feet of commercial space. Key components of the Project are the restoration and enhancement of Rifle Range Creek and proposed active and passive recreational facilities. A community-wide trail system would be created to link the Oak Knoll community to the existing East Bay Regional Park District trail system and interconnect neighborhoods, parks and open spaces, public places, and a mixed use commercial / residential community core, referred to as "Village Center" along a proposed Main Street. The Project also would include a commemorative park on the eastern ridgeline of the site. The Project also proposes to relocate the Club Knoll structure, a locally-designated historic resource, from its current location and rehabilitate the building for reuse as a new community center / club house in a park setting in the central portion of the site.

OKVA currently owns approximately 167 acres of the former NMCO property. The Project would occur on this land in addition to the adjacent 15-acre Hardenstine parcel also owned by OKVA and, with approval of the City, approximately 8 additional acres within the former NMCO

[1] For purposes of the environmental documents prepared for the proposed Project, and following Oakland convention, the Oakland Estuary is a western border of Oakland, thus parallel roadways (i.e., I-580 / Mountain Boulevard, Skyline Boulevard) are considered to run north-south, and perpendicular roadways (e.g., Keller Avenue, Golf Links Road, 73rd Avenue) are considered to run east-west.

of which the City has retained ownership. The NMCO facility was closed in 1996 and its former property has been unoccupied since then, except for a credit union and administrative offices for a school located outside the Oak Knoll Project site.

A detailed description of the proposed Oak Knoll Project is provided in Chapter 3, Project Description.

1.2 Environmental Review Context

1.2.1 Previous Planning and Environmental Review

1996 Final Reuse Plan

The NMCO property was the subject of a Final Reuse Plan in 1996, pursuant to federal military base reuse procedures. The Final Reuse Plan presented five land use alternatives (including "no action") for the reuse of the NMCO property. The previous Oakland Base Reuse Authority (OBRA) adopted the Final Reuse Plan in 1996. The 1996 Final Reuse Plan is incorporated herein by reference.

1998 EIS/EIR

In 1998, the U.S. Department of the Navy and the City of Oakland prepared the *Environmental Impact Statement / Environmental Impact Report for the Disposal and Reuse of the Oak Knoll Naval Medical Center Oakland* (referred to throughout this document as "1998 EIS/EIR") to analyze the potential environmental impacts that could result from the U.S. Navy's disposal of the NMCO property and implementation of conceptual land use alternatives for reuse that could be developed on the property. The City of Oakland certified the 1998 EIS/EIR and adopted the Reuse Plan in July 1998. The Navy also used the certified document in its preparation of a Final Finding of Suitability to Transfer (FOST) in 1999. The level of analysis provided in the 1998 EIS/EIR was appropriate to evaluate the environmental effects of each reuse alternative under the National Environmental Protection Act (NEPA) and California Environmental Quality Act (CEQA).

Relationship of Project to the 1998 EIS/EIR Alternatives and Analysis

In 1998, an EIS/EIR was prepared for a master redevelopment plan for the former Oak Knoll NMCO following the community planning efforts for the redevelopment of the closed medical facility. The planning efforts, including the Base Closure Plan adopted in 1996, were conducted by a joint committee of Oakland and regional representatives for the purpose of evaluating closure and reuse of obsolete military facilities. The 1998 EIS/EIR was a "program" environmental analysis examining the potential for environmental impacts of various general development plans rather than any specific development proposal. One of these 1998 development alternatives, the 1998 Maximum Capacity Alternative, was chosen by the City as the preferred alternative analyzed in the 1998 EIS/EIR.

The 1998 Maximum Capacity Alternative included 584 residential units, 300,000 square feet of office development and 100,000 square feet of commercial retail, a small (9 hole, par 3) golf course, 32 acres of publicly accessible open space and 44,000 square feet of other active recreation space (including reuse of Club Knoll).

The currently proposed Oak Knoll Project increases the number of residential units to 935 but removes all 300,000 square feet of office development, and decreases the commercial floor area to 82,000 square feet (72,000 sq.ft. in a Village Center and 10,000 sq.ft in a relocated and reused Club Knoll described further below). The Oak Knoll Project proposes approximately 5.6 acres of parks, including recreational facilities and trails and a new community clubhouse, while removing the previously proposed golf course. A total approximately 62 acres of open space is also proposed by the current Project. The current Project also proposes to relocate and rehabilitate the key historical portions of Club Knoll, locating it within a proposed park within the central portion of the Project site.

The 1998 EIS/EIR analyzed four conceptual redevelopment plan alternatives for base reuse. Of those four, the Maximum Capacity Alternative analyzed in the 1998 EIS/EIR, while different in certain aspects, is most similar to the proposed Oak Knoll Project with regard to land use, density/intensity, land use layout and potential environmental impacts. The 1998 Maximum Capacity Alternative reflects the conceptual development pattern of the adopted 1996 Final Reuse Plan, which was also incorporated into the City of Oakland's 1998 General Plan Land Use and Transportation Element (LUTE) land use map. The currently proposed Oak Knoll Project and the 1998 Maximum Capacity Alternative entail a mixed use development of residential, mixed use commercial, and open space/recreation uses. A comparison of the proposed Project characteristics and the 1998 Maximum Capacity Alternative characteristics is presented in Section 4.0, *Introduction to the Environmental Analysis*.

The currently proposed Oak Knoll Project is the specific, project-level development plan proposal for reuse of the NMCO property. It is considered by the City to be the "single project" (as defined by CEQA, Section 15378) that is the "final community reuse plan for the site" referred to in the General Plan LUTE (p. 209) and that is informed by the adopted 1996 Reuse Plan and the Maximum Capacity Alternative analyzed in the 1998 EIS/EIR. The City intended to use the 1998 EIS/EIR for all project approvals required to implement the Reuse Plan. Additionally, consistent with discussion in Oakland's 1998 General Plan LUTE regarding the development of Oak Knoll, the City envisioned that a master developer would further detail and implement a specific, project-level development plan for the site. OKVA intends to serve as the master developer for the entire Project, and intends to subdivide the Project site into development blocks that will be sold to "merchant" builders in stages or phases.

The certified 1998 EIS/EIR prepared for the NMCO property provides the environmental analysis upon which the currently proposed Oak Knoll Project may rely (except where CEQA would require further analysis for all or certain topics). OKVA has designed the proposed Project to generally not exceed the impacts that would have resulted from the Maximum Capacity Alternative analyzed in the 1998 EIS/EIR. As a result, further environmental review for the

proposed Project is required only as specified in Section 21166 of the State Public Resources Code (PRC) and Section 15168 of the CEQA Guidelines (discussed below under *CEQA Context*).

The currently proposed Oak Knoll Project is expected to have "generally similar environmental effects which can be mitigated in similar ways" as those identified for the Maximum Capacity Alternative in the 1998 EIS/EIR (CEQA Guidelines Section 15168[a]). The Oak Knoll Project is considered a "subsequent activity" referred to in CEQA Guidelines Section 15168(c) and has been "examined in light of the program [as analyzed in the 1998 EIS/EIR)] to determine whether an additional environmental document must be prepared."

1.2.2 CEQA Context

Scoping and Assessing the Need for Further Environmental Review

Request for Environmental Review, Notice of Preparation (NOP), and Scoping

In 2014, OKVA submitted to the City of Oakland a request for environmental review of the proposed Oak Knoll Project. The City determined, for the reasons described above, that the Project should be analyzed pursuant to Section 21166 of the PRC and CEQA Guidelines 15162 and 15163. This determination was based on the City's review of OKVA's request, combined with the existence of a previously-certified environmental impact report prepared for redevelopment alternatives considered for the NMCO property, and provisions of the California Environmental Quality Act (CEQA) and CEQA Guidelines. The City also considered its preparation in 2007 of an Initial Study and Draft Supplemental EIR for a previously-proposed Oak Knoll Mixed Use Community Plan Project. Taken together, this previously considered information enabled the City to determine whether the currently proposed Project would trigger the need for supplemental environmental review pursuant to PRC Section 21166 and CEQA Guidelines 15162 and 15163.

On March 20, 2015, the City published a Notice of Preparation (NOP) to prepare an SEIR for the current Oak Knoll Project. No Initial Study was prepared. The City sent the NOP to governmental agencies and to organizations and persons interested in the current Oak Knoll Project. The NOP invited public comment on the scope of the proposed Project during a 30-day public review and comment period and specifically requested that agencies with regulatory authority over any aspect of the Project describe that authority and identify the relevant environmental issues that should be addressed in this Draft SEIR. (The NOP is provided as **Appendix A** to this Draft SEIR.)

During the 30-day public review and comment period, the City held public scoping sessions on April 13, 2015 before the Oakland Landmark Preservation Advisory Board (LPAB), and on April 15, 2015 before the Oakland Planning Commission. All comments received in response to the NOP are also provided in **Appendix A** to this Draft SEIR. The analysis presented in this Draft SEIR addresses all comments received that pertain to the potential environmental effects of the proposed Project under CEQA.

Standard for Determining if Further Environmental Review is Required

Since an EIR already has been certified for the redevelopment of the Oak Knoll site (the 1998 EIS/EIR), the standard for determining whether further CEQA review is required is established by PRC Section 21166 and CEQA Guidelines Section 15162. PRC Section 21166 applies to the proposed Project because in-depth CEQA review has already occurred for a conceptual project (the 1998 Maximum Capacity Alternative) on the NMCO property, and the time for challenging the sufficiency of the 1998 EIS/EIR has passed. Repeating a substantial portion of the EIR process, such as preparation and public review of a subsequent or supplemental environmental impact report, is warranted if and to the extent that the project meets any of the following stated conditions:

1) **Substantial** changes to the project or **substantial** changes to circumstances, or new information of **substantial** importance; which

2) require **major revisions** to the EIR; **and**

3) result in **new significant** environmental effects or a **substantial increase** in the severity of previously identified significant effects. (PRC Section 21166; CEQA Guidelines Sections 15162 and 15163.)

The findings for each of these standards must be based on substantial evidence (CEQA Guidelines Sections 15162). Further, the findings in PRC Section 21166 provide the basis for focusing the scope of the issues to be addressed in a subsequent or supplemental EIR. As a result of the scoping sessions held by the Planning Commission and LPAB, the City determined that it was appropriate to prepare an SEIR to identify the potential effects of the proposed Project.

This Draft SEIR assesses whether the proposed Project would or would not have significant impacts based on a comparison of the proposed Project to current conditions. Further, this Draft SEIR assesses whether the proposed Project would or would not have new significant impacts not previously identified for the Maximum Capacity Alternative analyzed in the 1998 EIS/EIR. An assessment of the proposed Project impacts that would result if compared to pre-closure conditions on the NMCO property are not used to determine whether or not the proposed Project will result in new significant impacts because as of the time of SEIR preparation, the NMCO property had been closed for numerous years (see further discussion under *Environmental Baseline Under CEQA* in Section 4, *Introduction to the Environmental Analysis*).

Pursuant to PRC Section 21166 and CEQA Guidelines Section 15162, the analysis in this Draft SEIR also considers whether substantial changes to circumstances or new information of substantial importance exist that could result in the proposed Project having a new significant impact not previously identified for the Maximum Capacity Alternative in the 1998 EIS/EIR.

1.3 Supplemental EIR

1.3.1 Use and Availability of this Draft SEIR

Consistent with CEQA, this SEIR is a public information document, and its key purpose is for use by governmental agencies and the public to identify and evaluate potential environmental consequences of a proposed Project, to recommend mitigation measures to lessen or eliminate adverse impacts, and to examine feasible alternatives to the Project. The City, as Lead Agency for this SEIR, will review and consider the information contained in this Draft SEIR prior to taking action on the Project.

The City's actions on the Project include several required discretionary permits and approvals necessary before development of the Project could proceed. The currently anticipated City and other agency permits and approvals that may be required for the Project are described at the end of Chapter 3, *Project Description*, of this document. In addition, the Project may rely on or require review and approval by a number of public agencies and jurisdictions that have authority over specific aspects of the Project.

Copies of this Draft SEIR are available at the City of Oakland, Bureau of Planning, at the address indicated on the notice located on the inside cover of this document, as well as other locations noted on the notice. The Draft SEIR is available for public review for the period identified on the notice located inside the front cover of this document. During this review period, written comments on the Draft SEIR may be submitted to the City at the address indicated on the notice. Responses to all comments received on the environmental analysis in this Draft SEIR and submitted within the specified review period will be included in the Final SEIR.

1.3.2 Organization of the Draft SEIR

This Draft SEIR document is organized as follows:

Chapter 2, Summary – Chapter 2 summarizes the Project and the conclusions of this Draft SEIR document. A summary table is included and organized to allow the reader to easily reference the analysis of potentially significant effects, proposed mitigation measures, and any residual environmental impacts after implementation of mitigation measures – for the 1998 Maximum Capacity Alternative and the proposed Project. A summary of the Alternatives and the environmentally superior alternative addressed in this Draft SEIR is also provided. The Summary Chapter also identifies areas of controversy regarding the Project that were known to the City as of publication of this Draft SEIR.

Chapter 3, Project Description – This chapter describes the proposed Project in detail. Specifically, with text and graphics, Chapter 3 describes the Project site, characteristics, phasing, and the objectives of the Project. City-required project approvals identified as of publication of this Draft SEIR, and other agencies that may have review or approval responsibilities for any aspect of the Project, are identified in Chapter 3.

Chapter 4, Environmental Setting, Impacts, Standard Conditions of Approval, and Mitigation Measures – Chapter 4 includes the detailed environmental analysis for all topics under CEQA. The chapter includes an introductory discussion of the approach to the environmental analysis. This chapter also describes the 1998 Maximum Capacity Alternative analyzed in the 1998 EIS/EIR as compared to the proposed Project.

The body of Chapter 4 is organized by topical "Sections" (e.g., "4.1 Aesthetics") comprised of a *Setting* discussion and an *Impacts and Mitigation Measures* discussion. Specifically presented are existing conditions and regulatory framework, the environmental impacts (project and cumulative impacts) that could result from the Project, the applicable City of Oakland Standard Conditions of Approval (SCAs) and SCA implementation measures, and recommended mitigation measures that would reduce or eliminate the identified adverse impacts. The CEQA thresholds and criteria used to assess the significance of adverse environmental effects are identified, and the significance of the impact both prior to and following implementation of mitigation measures is reported. Recommendations not required for purposes of mitigating CEQA impacts are also identified to the extent that they further City goals.

Chapter 5, Alternatives – Chapter 5 describes and evaluates a range of alternatives to the proposed Project that are intended to reduce or avoid significant environmental effects identified in Section 4. A summary table is provided that presents the impacts identified for each alternative relative to those identified for the Project.

Chapter 6, Impact Overview – Chapter 6 summarizes the significant and unavoidable impacts and cumulative impacts identified throughout Chapter 4 and describes the Project's potential for inducing growth. The chapter also summarizes the findings for environmental topics found to have "no impact" or a less-than-significant impact.

Chapter 7, Report Preparation – Chapter 7 identifies the preparers of this Draft SEIR. Persons and documents consulted during preparation of the analysis herein are listed at the end of each analysis section in Chapter 4 and in the appendices to the document.

Appendices – A series of appendices to the document is provided and includes supporting background information most relevant to the impact analyses provided in this document. A CD of the 1998 EIS/EIR and key sponsor-prepared technical studies supporting the Draft SEIR analysis is also considered part of the appendices and is included inside the back cover of this Draft SEIR.

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CHAPTER 2
Summary

2.1 Project Overview[1]

The City of Oakland has prepared this Draft Supplemental Environmental Impact Report (SEIR) for the Oak Knoll Project Mixed Use Community Plan Project ("Project") per the requirements of the California Environmental Quality Act (CEQA) statutes (Public Resources Code [PRC] Section 21000 et seq.) and the CEQA Guidelines (California Code of Regulations 15000 et seq.). This Draft SEIR is a supplemental analysis to the certified 1998 *Environmental Impact Statement / Environmental Impact Report for the Disposal and Reuse of the Oak Knoll Naval Medical Center Oakland*, prepared by the U.S. Department of the Navy and the City of Oakland.

The Oak Knoll Project proposes a Planned Unit Development and Preliminary Development Plan (PUD/PDP) for development of a new mixed use community of up to 935 residential units and a total of 82,000 square feet of neighborhood commercial uses in a new Village Center. The Project would establish approximately 67.6 square feet of parks and open spaces for active and passive recreation, and approximately 3.5 miles of community-wide trails that will link the site to the existing East Bay Regional Park District (EBRPD) trail system. The Project also involves the restoration and enhancement of approximately 16.7 acres of riparian areas along Rifle Range Creek and onsite tributaries, (Hospital Creek and Powerhouse Creek). A new bridge crossing of the creek is proposed. The Project proposes to relocate and rehabilitate the key historical portions of Club Knoll, a locally-designated historic resource for reuse as a community clubhouse (4,000 sq.ft) and approximately 10,000 square feet of limited commercial uses (part of the 82,000 square feet cited above).

Development of the site would involve up to 3 million cubic yards of grading (including corrective grading required for existing unstable areas and grading associated with the proposed creek improvements). The overall intent of the grading plan is to balance the amount of cut and fill throughout the Project site so that no soil will need to be imported or exported. There are approximately 7, 170 trees on the Project site, and the Project also includes the removal of approximately 4,000 trees (some of which are invasive and/or non-native), and would replant approximately 2,500 trees based on the City of Oakland Tree Ordinance.

[1] This *Project Summary* is intended to also be used as a stand-alone summary of the proposed Project, and therefore summarizes information also presented in detail in Chapter 3 (Project Description) of this Draft SEIR.

The Project would be developed in multiple phases over approximately five to ten years, with the initial phase of work anticipated to commence in 2017, with full buildout and operation in 2024. The project includes a number of permits/approvals from the City, including but not limited to a: Rezoning, Planned Unit Development (PUD) Permit, Final Development Permit, Tree Removal Permit, Creek Protection Permit, and Vesting Tentative Map and Final Map(s).

The Project site totals 188 acres, most of which is the former 183-acre Oak Knoll Naval Medical Center Oakland (NMCO) property. Two privately-owned inholdings, the Sea West Coast Guard Federal Credit Union (Sea West) and the Seneca Center for Children and Families (Seneca), are also located on the former NMCO property but are not included within the Oak Knoll Project site.

2.2 Environmental Impacts, Standard Conditions of Approval, and Mitigation Measures

Table 2-1 at the end of this chapter (starting on page 2-4), states all of the impacts, City of Oakland standard conditions of approval (SCAs), and mitigation measures identified in this Draft SEIR for the Project. The table also includes the SCA Implementation Measures identified to further implement the SCAs, as well as states the level of significance each impact after recommended mitigation measures are implemented. While not required to address CEQA impacts, Table 2-1 includes Recommendations discussed in the Draft SEIR.

Significant Impacts

This Draft SEIR identifies for the significant and unavoidable impacts associated with the Air Quality (operational average daily emissions) and Transportation and Circulation (intersection operations and freeway segments)

2.3 Alternatives

Chapter 5 of this Draft SEIR presents the comparative assessment of a range of reasonable CEQA alternatives to the Project. The CEQA alternatives include the CEQA required No Project alternative, in addition to that are analyzed in detail or discussed in this Draft SEIR are listed below:

- **Alternative A—Reduced Footprint Residential Mix:** This alternative reduces the total number of residential units from 935 to 601 (334 units) and would cluster all residential development, roads and infrastructure in the flatter areas of the site, preserving the steeper and ridgeline areas in open space. Alternative A would also reduce the commercial/retail component of the project from approximately 82,000 square feet to approximately 36,000 square feet. This alternative proposes leaving Club Knoll in its current location and reusing it for 15 multi-family residential units

- **Alternative B—Reduced Footprint Low Density Small Lot:** This alternative reduces the total number of residential units from 935 to 551 (384 units) and, like Alternative A, would cluster all residential development, roads and infrastructure in the flatter areas of

the site. Alternative B also would retain Club Knoll in its existing location and reuse for 15 multi-family residential units. This alternative has no retail/commercial component.

- **Alternative C—Hillside Low Density Large Lot:** This alternative would develop approximately the same fare of the site as the proposed Project, but would reduce the total number of residential units from 935 to 349 (586 units), creating largely single family detached units on large lots. It also proposes affordable housing in stacked flats that would be developed on the City-owned parcel (which are not proposed by the other Alternatives or the proposed Project. This alternative would contain no retail/commercial component. Club Knoll would be retained in its current location and reused for 5 multi-family residential units (as opposed to 15 units envisioned for the other Alternatives).

While not required for the CEQA analysis, this Draft SEIR also discusses non-CEQA alternatives to the treatment of Club Knoll: a *Club Knoll Demolition* scenario and a *Reduced Club Knoll Relocation* scenario

Environmentally Superior Specific Plan Alternative

Alternative C—Hillside Low Density Large Lot is identified as the CEQA-required environmentally superior alternative to the Project, after considering the No Project Alternative, as CEQA requires. It is superior because, when compared to the proposed Project and all other alternatives, it would avoid more of the significant impacts identified for the Project. Specifically, Alternative C would avoid nine of the 16 significant and unavoidable traffic intersection impacts identified with the Project.

2.4 Areas of Controversy Raised During Scoping

As required by the state CEQA Guidelines, the scope of this Draft SEIR includes all environmental issues to be resolved and all areas of controversy relevant to the physical environment known to the Lead Agency (City of Oakland), including those issues and concerns identified by the City, and by other agencies, organizations, and individuals in response to the City's Notice of Preparation (NOP) published on March 20, 2015. Areas of potential controversy or interest regarding the Project, based on the number of public comments received, address Aesthetics (largely development on the East Ridge), Club Knoll (demolition and reuse), Traffic/Transportation (project and cumulative effects on local intersections), and Alternatives (particularly regarding Club Knoll), Cumulative setting, in addition to potential effects and consideration to Seneca

The NOP is included as **Appendix A** to this Draft SEIR, and the comments received in response to the NOP are included in **Appendix B**.

TABLE 2-1
SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, MITIGATION MEASURES AND RESIDUAL IMPACTS
COMPARISON OF THE 2015 OAK KNOLL PROJECT AND FINDINGS OF THE 1998 EIR/EIS

Impacts, Criterion, and Significance Prior to Mitigation	Mitigation Measures and/or Standard Condition of Approval (SCA)	Significance after Mitigation or SCA	Comparison to 1998 EIR/EIS Findings[1]
4.1 Aesthetics			
Impact AES-1: The proposed Project could adversely affect an existing scenic vista or substantially damage scenic resources within a state or locally designated scenic highway. (Criteria a and b) (Potentially Significant)	**SCA AES-2:** Landscape Plan **Replacement Mitigation Measure AES-1** (modifies and expands 1998 EIS/EIR Mitigation 1)**:** *Intent.* The intent of this Replacement Mitigation Measure AES-1 is to require that new single family homes on the Eastern Ridge that are silhouetted against the sky from public viewing points identified in this Draft SEIR (whether the homes are to be built on graded flat or sloped lots) shall be custom designed utilizing appropriate techniques to minimize the appearance of a monotonous row of skylined development visible from off-site vantage points. *Requirements*. The homes on the Eastern Ridge of the Oak Knoll Project site that will be silhouetted against the sky from off-site public viewing points identified in this Draft SEIR shall be individually designed by architects to meet client needs. The Oak Knoll Design Guidelines, as supplemented by this mitigation measure, require that the architects meet the community standards while providing flexibility to enable site specific alternatives for each lot. While not each of the specific principles will be applicable to each lot or building, the whole of this mitigation measure in concert with the Oak Knoll Design Guidelines direct the architect to combine form, bulk, scale, texture, and color in a manner which ensures the overall building and site design will meet City standards. The project applicant shall demonstrate alignment with the applicable standards through the Design Review and Final Development Plan (FDP) approval process prior to the issuance of any building permit for these lots. The Preliminary Development Plan (PDP) for the Oak Knoll Project shall incorporate the following measures to be applied at the time of approval of an FDP for single family homes on the Eastern Ridge, which include applicable methods and techniques specified primarily in the *Oakland Interim Design Review Manual for One- and Two-Unit Residence*s (2005). These measures that shall specifically be implemented, as applicable, to each development lot proposed for the custom homes on the Eastern Ridge to ensure careful siting and design of new construction on custom home lots and to require specified landscaping on the lots. . **A. General Site Design** (1) Design structures to minimize the appearance of an monotonous row of ridgetop development visible from off-site vantage points; clustering structures is one appropriate technique.	LTS	No New Significant Impact; **Mitigation Measure Replaced**.

[1] Impacts/effects, mitigation measures and residential effects from the 1998 EIS/EIR for the Maximum Capacity Alternative are included in Appendix HH to this Draft SEIR.

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, MITIGATION MEASURES AND RESIDUAL IMPACTS
COMPARISON OF THE 2015 OAK KNOLL PROJECT AND FINDINGS OF THE 1998 EIR/EIS

Impacts, Criterion, and Significance Prior to Mitigation	Mitigation Measures and/or Standard Condition of Approval (SCA)	Significance after Mitigation or SCA	Comparison to 1998 EIR/EIS Findings[1]
4.1 Aesthetics (cont.)			
Impact AES-1 (cont.)	(2) On sloped lots, use courtyards and other spaces to organize building volumes and create transitions from house to land. Avoid filling up side yards with concrete stairs or paved areas that limit landscape and potential usable space. Maintain openness between structures to the extent feasible given the lot configurations and sizes. Avoid long and high building walls close to side lot lines. Provide sufficient side yard setbacks, especially at the front and rear elevations, to allow plantings between the structures to help the perceived mass. (3) On sloped lots, major shifts in siting from the neighborhood pattern may be warranted to help break-up continuous walls of downslope facades and minimize their collective bulk. (4) On sloped lots, step building massing with terrain. Step or slope rooflines with the terrain and avoid large gables on downslope lots. (5) On sloped lots, position the building on the site to minimize height on the downslope side. (6) At the time of FDP approval for each custom lot created on the Eastern Ridge, designate a "buildable development zone" and a "landscape zone" for each sloped lot which shall be delineated to minimize loss of existing vegetation and ensure existing and new vegetation around and between new structures, except as limited for wildfire risk management. **B. Building Design** (1) Where applicable, adhere to all special height restrictions and measuring methods for buildings and retaining walls on sloped lots on the Eastern Ridge, which are established in Sections 17.108.020(B) and 17.09.040 of the Oakland Planning Code, as consistent with the approved PUD for the project, pursuant to Section 17.122.110c. (2) Use materials and colors having naturalistic quality that will blend into the surrounding landscape. (3) Avoid blank or under-designed walls from the street. Use multiple materials and/or detailing to break up walls and make large surfaces seem smaller. (4) On front elevations on upslope lots, emphasize eave lines/roof planes as visually dominant features, group windows horizontally within all planes and at building corners. (5) On sloped lots, break the building into multiple volumes with staggered setbacks to reflect the irregularity of hillside terrain.		

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, MITIGATION MEASURES AND RESIDUAL IMPACTS
COMPARISON OF THE 2015 OAK KNOLL PROJECT AND FINDINGS OF THE 1998 EIR/EIS

Impacts, Criterion, and Significance Prior to Mitigation	Mitigation Measures and/or Standard Condition of Approval (SCA)	Significance after Mitigation or SCA	Comparison to 1998 EIR/EIS Findings[1]
4.1 Aesthetics (cont.)			
Impact AES-1 (cont.)	(6) On sloped lots, place floor levels close to and/or partially inset into grade to avoid or minimize tall skirt walls and other tall support structures. Deemphasize skirt walls where they cannot be avoided, as follows: a) Incorporate a strong horizontal molding or cap at the top of the skirt wall; b) Change materials and/or colors at the skirt wall to contrast with primary building volume c) Outwardly taper the skirt wall to create a buttress effect d) Recess skirt wall from the face of the upper floors (7) On rear elevations on downslope lots, symmetrically organize windows, decks (etc.) within individual building masses and aligned floor-to-floor, and incorporate windows that appear as "punch-outs" with adequate wall space between windows and balcony columns that read as a lighter open frame. (8) Provide strong shadow patterns on downslope elevations. (9) Consider the visual impact on neighborhood appearance and natural in the siting and design of long fences. Fences should not be dominant visual elements on hillsides. Tall fences around the property perimeter are often discouraged. (10) Discourage placement of antennas on roofs. **C. Landscaping and Open Space** (1) Maintain ample open space between houses or cluster development to increase open space areas as feasible given lot sizes and configuration to assist in reducing building bulk. (2) Incorporate landscaping that is consistent with the more natural appearing vegetation on the surrounding hills to provide some screening and shade for new buildings. (3) At the skirt walls, intersperse native species' of trees and/or other landscaping with City-approved, non-native species. (4) Use irregular plant spacing and plant trees in undulating groups to achieve a grove effect. Especially consider native, fire-resistant species such as coast live oaks, etc. Plant shrubs of varying heights and sizes among trees. (Guideline 10.8, text and figure)		

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, MITIGATION MEASURES AND RESIDUAL IMPACTS
COMPARISON OF THE 2015 OAK KNOLL PROJECT AND FINDINGS OF THE 1998 EIR/EIS

Impacts, Criterion, and Significance Prior to Mitigation	Mitigation Measures and/or Standard Condition of Approval (SCA)	Significance after Mitigation or SCA	Comparison to 1998 EIR/EIS Findings[1]
4.1 Aesthetics (cont.)			
Impact AES-1 (cont.)	(5) On sloped portions of lots, either maintain natural topography or use a series of stepped terrace/retaining walls to create grade transition between the street and the houses. (6) Fully landscape all graded surfaces and buffer the structure using quantities of vegetation beyond the basic landscaping requirements of the Oak Knoll Design Guidelines Aim for a natural appearance on graded slopes. (7) Plant feature trees to diffuse building mass. (8) Preference should be given to planting and encouraging the growth of desirable low-combustion plant types found in the area. Contrived, non-native landscaping, such as cactus gardens, extreme plant shaping, etc., are inappropriate. Whenever removal of ordinance protected live trees, especially oaks and oak woodlands, is necessary, they shall be replaced by planting, prior to building occupancy, of trees, elsewhere on the property within view from public vantage points. *Implementation. P*rior to the issuance of any single family residential building permit for the Project, the applicant shall submit FDP project plans that specify "detailed building and landscaping plans and elevations" pursuant to the City's Planned Unit Development (PUD) procedures for review and approval of Final Development Plans (Chapter 17.140 of the Oakland Planning Code), as well as the City's Residential Design Review and approval process (Chapter 17.136 of the Oakland Planning Code). The City Planning Commission will review the FDP and determine whether it conforms to the approved PDP and Oak Knoll Design Guidelines and to these enhanced design measures.		
Impact AES-2: The Project would not substantially degrade the existing visual character or quality of the site and its surroundings. (Criterion c) (Less than Significant with SCA / Beneficial)	**SCA AES-1:** Graffiti Control No Mitigation Measure Required	LTS / Beneficial	No New Significant Impact; No Mitigation Measures Identified.
Impact AES-3: The proposed Project would not create a new source of substantial light or glare which would substantially and adversely affect day or nighttime views in the area. (Criterion d) (Less than Significant with SCA)	**SCA AES-3:** Lighting No Mitigation Measure Required	LTS	No New Significant Impact; No Mitigation Measures Identified.
Impact AES-4: The proposed Project would not cast shadow that substantially impairs the beneficial use of any public or quasi-public park, lawn, garden, or open space. (Criterion g) (Less than Significant)	No Mitigation Measure Required	LTS	No New Significant Impact; **Not Previously Analyzed**; No Mitigation Measures Identified.

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, MITIGATION MEASURES AND RESIDUAL IMPACTS
COMPARISON OF THE 2015 OAK KNOLL PROJECT AND FINDINGS OF THE 1998 EIR/EIS

Impacts, Criterion, and Significance Prior to Mitigation	Mitigation Measures and/or Standard Condition of Approval (SCA)	Significance after Mitigation or SCA	Comparison to 1998 EIR/EIS Findings[1]
4.1 Aesthetics (cont.)			
Impact AES-5: The proposed Project would not cast shadow on a historic resource such that the shadow would materially impair the resource's historical significance. (Criterion h) (Less than Significant)	No Mitigation Measure Required	LTS	No New Significant Impact; **Not Previously Analyzed**; No Mitigation Measures Identified.
Impact AES-6: The proposed Project would not result in a significant cumulative aesthetics impact when considering the combined effect of the Project, and past, present, approved, pending, and reasonably foreseeable future projects. (Less than Significant with SCAs)	**SCA AES-1:** Graffiti Control **SCA AES-2:** Landscape Plan **SCA AES-3:** Lighting	LTS	No New Significant Impact. No Mitigation Measures Identified.
4.2 Air Quality			
Impact AIR-1: Demolition and construction associated with the Project would not result in average daily emissions that would exceed the City's construction significance thresholds of 54 pounds per day of ROG, NOX, or $PM_{2.5}$ or 82 pounds per day of PM_{10}. (Criterion a) (Less than Significant with SCA)	**SCA AIR-1:** Construction-Related Air Pollution Controls (Dust and Equipment Emissions) No mitigation measure required	LTS	No New Significant Impact, No Mitigation Measure Identified
Impact AIR-2: Operation of the Project would result in operational average daily emissions of more than 54 pounds per day of ROG, NOX, or $PM_{2.5}$ or 82 pounds per day of PM_{10}; or result in maximum annual emissions of 10 tons per year of ROG, NOX, or $PM_{2.5}$ or 15 tons per year of $PM_{10.}$ (Criterion b) (Significant and Unavoidable)	**SCA TRA-4:** Parking and Transportation Demand Management **SCA GHG-1:** Greenhouse Gas (GHG) Reduction Plan **SCA GHG-2:** Green Building Requirements – Bay Friendly Landscape **New Mitigation Measure AIR-2.1: Use Low and Super-compliant VOC Architectural Coatings in Maintaining Buildings through CC&Rs.** While Regulation 8 Rule 3 of the BAAQMD places limits on the VOC content of paint and other architectural coatings, use of lower VOC coatings available to consumers can further reduce operational ROG emissions. Low- and Super-Compliant VOC paints are manufactured and sold by numerous companies. "Low-VOC" refers to paints that meet the more stringent regulatory limits in South Coast AQMD Rule 1113; however, many manufacturers have reformulated to levels well below these limits. These are referred to as "Super-Compliant" Architectural Coatings (http://www.aqmd.gov/home/regulations/compliance/architectural-coatings/super-compliant-coatings).	SU	No New Significant Impact, **New Mitigation Measures Identified.**

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, MITIGATION MEASURES AND RESIDUAL IMPACTS
COMPARISON OF THE 2015 OAK KNOLL PROJECT AND FINDINGS OF THE 1998 EIR/EIS

Impacts, Criterion, and Significance Prior to Mitigation	Mitigation Measures and/or Standard Condition of Approval (SCA)	Significance after Mitigation or SCA	Comparison to 1998 EIR/EIS Findings[1]
4.2 Air Quality (cont.)			
Impact AIR-2 (cont.)	**New Mitigation Measure AIR-2.2: Promote use of Green Consumer Products.** To reduce ROG emissions associated with the project, the project sponsor and/or future developer(s) shall provide education for residential and commercial tenants concerning green consumer products. Prior to receipt of any certificate of final occupancy and every five years thereafter, the project sponsor and/or future developer(s) shall work with the City of Oakland to develop electronic correspondence to be distributed by email annually to residential and/or commercial tenants of each building on the project site that encourages the purchase of consumer products that generate lower than typical VOC emissions. The correspondence shall encourage environmentally preferable purchasing.		
Impact AIR-3: Traffic associated with the development of the proposed Project would not contribute to carbon monoxide (CO) concentrations exceeding the California Ambient Air Quality Standards (CAAQS) of nine parts per million (ppm) averaged over eight hours and 20 ppm for one hour. (Criterion c) (Less than Significant)	None Required	LTS	No New Significant Impact, No Mitigation Measure Identified.
Impact AIR-4: Construction and operation of the Project would not generate substantial levels of toxic air contaminants (TACs). (Criterion d) (Less than Significant with SCAs)	**SCA AIR-1:** Construction-Related Air Pollution Controls (Dust and Equipment Emissions) **SCA AIR-2:** Exposure to Air Pollution (Toxic Air Contaminants) No mitigation measure required	LTS	No New Significant Impact Identified, No Mitigation Measure Identified.
Impact AIR-5: Construction of the Project would not expose proposed sensitive receptors to substantial levels of toxic air contaminants (TACs). (Criterion e) (Less than Significant with SCAs)	**SCA AIR-1:** Construction-Related Air Pollution Controls (Dust and Equipment Emissions) **SCA AIR-2:** Exposure to Air Pollution (Toxic Air Contaminants) No mitigation measure required	LTS	No New Significant Impact Identified, No Mitigation Measure Identified
Impact AIR-6: The Project would not create objectionable odors that would affect a substantial number of people. (Criterion f) (Less than Significant)	None Required	LTS	No New Significant Impact Identified, No Mitigation Measure Identified

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, MITIGATION MEASURES AND RESIDUAL IMPACTS
COMPARISON OF THE 2015 OAK KNOLL PROJECT AND FINDINGS OF THE 1998 EIR/EIS

Impacts, Criterion, and Significance Prior to Mitigation	Mitigation Measures and/or Standard Condition of Approval (SCA)	Significance after Mitigation or SCA	Comparison to 1998 EIR/EIS Findings[1]
4.3 Biological Resources			
Impact BIO-1: The Project could have a substantial adverse effect, either directly or through habitat modifications, on any plant or animal species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service. (Criterion a) (Potentially Significant).	**SCA BIO-1:** Tree Removal during Breeding Bird Season **SCA BIO-2:** Bird Collision Reduction Measures *New Mitigation Measures Listed Below* **Special-Status[2] Plant Species** **Recommendation BIO-1:** The following measures should be implemented prior to construction to avoid or minimize impacts to Oakland star-tulip within the Project site. a) A qualified botanist shall flag the location of Oakland star tulip plants during the flowering period prior to site grading. Under the direction of the qualified botanist, bulbs shall be harvested from at least 50 percent the Oakland star tulip plants within the Project site following flowering and withering of leaves. b) Harvested bulbs shall be 1) stored for reintroduction into suitable habitat within upland woodland portions the creek restoration area of the Project site; or 2) made available to a reputable organization for reintroduction into suitable locations near the Project vicinity, such the East Bay Regional Park District, East Bay Chapter of the California Native Plant Society, UC Berkeley Botanical Garden, or Merritt College Horticultural Department. c) If plants are reintroduced within the Project site, the Project sponsor shall prepare a Monitoring Plan for relocated / transplanted Oakland star-tulip plants within the Project site. The plan shall detail methods and location for relocating or reintroducing Oakland star-tulip population, monitoring methods and maintenance for successful establishment, and reporting protocols. The recommended success criteria for relocated plants is 0.5:1 ratio [number of plants established : number of plants impacted] after two years. d) Contingency measures should be included in the plan if it appears the success criterion will not be met after two years. e) The plan shall be developed in consultation with the appropriate agencies prior to the start of local construction activities. f) Monitoring reports shall include photo-documentation, planting specifications, a site layout map, descriptions of materials used, and justification for any deviations from the monitoring plan.	LTS	No New Significant Impact, but **New Mitigation Measures Identified**

[2] The definition for "special-status" species considered under the proposed Project is much broader than defined in the 1998 EIS/EIR and includes species that are listed and receive specific protection defined in federal or state endangered species legislation, as well as species not formally listed as Threatened or Endangered, but designated as "Rare" or "Sensitive" on the basis of adopted policies and expertise of state resource agencies or organizations, or policies adopted by local agencies such as counties, cities, and special districts to meet local conservation objectives. This term is described in detail under the *Special-Status Species* section of the *Project Setting* in Chapter 4.3, *Biological Resources*, in Chapter 4 of this Draft SEIR.

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, MITIGATION MEASURES AND RESIDUAL IMPACTS
COMPARISON OF THE 2015 OAK KNOLL PROJECT AND FINDINGS OF THE 1998 EIR/EIS

Impacts, Criterion, and Significance Prior to Mitigation	Mitigation Measures and/or Standard Condition of Approval (SCA)	Significance after Mitigation or SCA	Comparison to 1998 EIR/EIS Findings[1]
4.3 Biological Resources (cont.)			
Impact BIO-1 (cont.)	***Special-Status Animal Species*** **SCA Implementation Measure BIO-1.1:** To further implement SCA BIO-1 during construction, to the extent feasible, grading and building or structure relocation or demolition (i.e., Club Knoll Garage) shall not occur during the bird breeding season of February 1 to August 15. If such activities must occur during the bird breeding season, areas where ground disturbance or building relocation or demolition will occur shall be surveyed by a qualified biologist to verify the presence or absence of nesting raptors or other birds. Surveys shall be conducted within 15 days prior to the start of work and shall be submitted to the City for review and approval. If the survey indicates the potential presence of nesting raptors or other birds protected under federal or state regulations, the biologist, in consultation with the City, shall determine an appropriately sized buffer around the nest in which no work will be allowed to ensure no significant impacts and will maintain that buffer until the young have successfully fledged. The size of the nest buffer will be based on the nesting species and its sensitivity to disturbance. In general, buffer sizes of 200 feet for raptors and 50 feet for other birds should suffice to prevent disturbance to birds nesting in the urban environment. **New Mitigation Measure BIO-1.1:** A preconstruction habitat assessment for special-status bats shall be conducted by a qualified biologist in advance of tree removal and building demolition within the Project site to characterize potential bat habitat and identify potentially active roost sites. Should the preconstruction survey find no bat habitat or potential bat roosting sites then no further action is required. Should potential roosting habitat or active bat roosts be found in trees to be removed or buildings to be relocated or demolished (i.e. Club Knoll Garage) under the project, the Project sponsor shall implement avoidance and minimization measures. Bats utilize trees and buildings differently depending on the species and the time of year. Tree and building specific measures are outlined below. These measures include the following, subject to modification and augmentation by the terms of applicable permits issued by the CDFW: a) To avoid impacts to tree roosting bats, trees and snags should be removed between October 1 and March 31, which is outside of the maternity roosting season, when female bats aggregate to give birth and raise their young. b) If tree removal must occur between April 1 and September 30, and the bat roost habitat assessment identified suitable or potentially occupied roosts within the Project Area, a preconstruction bat survey should be performed by a qualified bat biologist no more than 14 days prior to tree removal to determine if potential roost structures are occupied. Surveys may include acoustic monitoring to identify		

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, MITIGATION MEASURES AND RESIDUAL IMPACTS
COMPARISON OF THE 2015 OAK KNOLL PROJECT AND FINDINGS OF THE 1998 EIR/EIS

Impacts, Criterion, and Significance Prior to Mitigation	Mitigation Measures and/or Standard Condition of Approval (SCA)	Significance after Mitigation or SCA	Comparison to 1998 EIR/EIS Findings[1]
4.3 Biological Resources (cont.)			
Impact BIO-1 (cont.)	species within suspected roost sites. If special-status bat species or maternity roosts are detected during these surveys, appropriate species and roost specific avoidance and protection measures will be developed in consultation with CDFW. Such measures may include postponing the removal of trees or snags until the end of the maternity roosting season, implementing exclusionary work buffers, or other compensatory mitigation. c) Removal of trees or snags with potential bat roosting habitat or active bat roost sites shall occur only when no rain is forecast for three days, when daytime temperatures are at least 50 [illegible] Separate removal process: two i. On the first day of tree removal and under supervision of the qualified biologist, branches and limbs not containing cavities or fissures in which bats could roost, shall be cut only using chainsaws. ii. On the following day and under the supervision of the qualified biologist, the remainder of the tree may be removed, either using chainsaws or other equipment (e.g. excavator or backhoe). iii. All felled trees should remain on the ground for at least 24 hours prior to chipping, off-site removal, or other processing to allow any bats to escape. d) Irrespective of the time of year, all buildings or structures should be surveyed for active bat roosts or signs of roosting (guano, urine staining, dead bats) by a qualified bat biologist no more than 14 days prior to removal to determine if the building or structure is used for roosting. If evidence of roosting is present, the qualified bat biologist will determine, if possible, the type of roost and species. If special-status bat species or maternity or hibernation roosts are detected during these surveys, appropriate species and roost specific avoidance and protection measures will be developed in consultation with CDFW. Such measures may include postponing the removal of buildings or structures, exclusionary work buffers, or other compensatory mitigation. e) If surveys identify active bat roosts are found on or in the immediate vicinity of the Project site where tree removal and building demolition is planned, a no disturbance buffer shall be established around these roost sites until they are determined to be no longer active by the qualified bat biologist. The size of the no disturbance buffer would be determined by the qualified bat biologist in conjunction with CDFW and would depend on existing screening around the roost site (such as dense vegetation or a building), the roost type, species present, as well as the type of construction activity which would occur around the roost site. f) The qualified biologist shall be present during tree removal and building relocation or demolition if potential bat roosting habitat is present or if such work is to occur in the vicinity of any identified active bat roosts.		

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, MITIGATION MEASURES AND RESIDUAL IMPACTS
COMPARISON OF THE 2015 OAK KNOLL PROJECT AND FINDINGS OF THE 1998 EIR/EIS

Impacts, Criterion, and Significance Prior to Mitigation	Mitigation Measures and/or Standard Condition of Approval (SCA)	Significance after Mitigation or SCA	Comparison to 1998 EIR/EIS Findings[1]
4.3 Biological Resources (cont.)			
Impact BIO-1 (cont.)	g) Relocation or demolition of buildings containing or suspected to contain potential bat roosting habitat or active bat roosts shall be dismantled under the supervision of the qualified bat biologist. If relocation or demolition of buildings containing active non-maternity roosting bats is necessary, a permitted bat biologist will perform a roost exclusion by installation of one-way exits and modification of the roost to render it unsuitable. Under no circumstances will active maternity roosts be disturbed until the roost disbands at the completion of the maternity roosting season. **New Mitigation Measure BIO-1.2:** A preconstruction survey for San Francisco dusky-footed woodrat middens shall be conducted by a qualified wildlife biologist prior to the start of construction in suitable habitat within the Project site. Middens identified during surveys shall be flagged as a sensitive resource and avoided during construction, if feasible. Should avoidance of woodrat middens within the Project site not be feasible, the Project sponsor, shall consult with CDFW regarding a qualified biologist dismantling of the middens by hand for relocation outside of the Project site. If approved by CDFW, a qualified wildlife biologist shall dismantle only middens within the Project site that would be disturbed by construction activities. If young are encountered during dismantling of the midden, any removed material shall be replaced and a 50-foot no-disturbance buffer shall be established around the active midden. The buffer shall remain until young are weaned and are able to disperse on their own accord (typically for a period of 14 days). All removed midden substrate shall be collected and relocated to suitable woodland habitat outside of the Project footprint. Appropriate personal protective equipment (e.g., respirator, gloves, and Tyvek suit) shall be used while dismantling and relocating woodrat nest material to protect against disease carried by rodents (e.g. hantavirus). **SCA Implementation Measure BIO-1.2:** To further implement SCA BIO-1, a Project-specific Worker Environmental Awareness Program (WEAP) training shall be developed and implemented by a qualified biologist and attended by all Project construction personnel prior to beginning work onsite. The training could consist of a recorded presentation that could be reused for new personnel throughout the duration of construction. The WEAP training shall generally include but not be limited to the following: a) Applicable State and federal laws, environmental regulations, Project permit conditions, and penalties for non-compliance; b) Special-status plant and animal species with potential to occur on or in the vicinity of the Project site, avoidance and protection measures, and a protocol for encountering such species including a communication chain;		

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, MITIGATION MEASURES AND RESIDUAL IMPACTS
COMPARISON OF THE 2015 OAK KNOLL PROJECT AND FINDINGS OF THE 1998 EIR/EIS

Impacts, Criterion, and Significance Prior to Mitigation	Mitigation Measures and/or Standard Condition of Approval (SCA)	Significance after Mitigation or SCA	Comparison to 1998 EIR/EIS Findings[1]
4.3 Biological Resources (cont.)			
Impact BIO-1 (cont.)	c) Known sensitive resource areas in the Project site which are to be avoided and/or protected (e.g. tree to be retained under the Project) as well as approved Project work areas; d) Preconstruction surveys and biological monitoring requirements associated with each phase of work and restrictions for working nearby sensitive resources within the Project site; and e) Best Management Practices (BMPs) and their location on the Project site for erosion control, pursuant to SCA HYD-1 (Erosion and Sedimentation Control Plan for Construction).		
Impact BIO-2: The Project could have a substantial adverse effect on riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service. (Criterion b) (Potentially Significant)	**SCA BIO-3:** Creek Protection Plan **SCA Implementation Measure BIO-3.1:** To further implement SCA BIO-3, buildings adjacent to Powerhouse Creek must be constructed at least 15 feet from the parcel line that is adjacent to the creek, or at least 20 feet from the established top of creek bank. Alternatively, the Project shall set aside a "Building-free Powerhouse Creek Corridor" that is least 80 feet wide for the total length of Powerhouse Creek. The final total length of the altered Rifle Range Creek channel must be equal to or greater than the existing length of creek channel. **SCA HYD-1:** Erosion and Sedimentation Control Plan for Construction **SCA HYD-2:** State Construction General Permit **New Mitigation Measure BIO-2:** The Project sponsor shall mitigate for temporary disturbance of riparian habitat and oak woodland in support of the Project through restoration or preservation / enhancement of riparian habitat or oak woodland at a ratio of 2:1 (restored/preserved area : impacted area) through one of the following options: 1. Planting replacement trees. 2. Establishing a restrictive covenant or similar instrument to protect existing riparian woodland habitat. The Project sponsor shall prepare a Habitat Mitigation and Monitoring Plan (HMMP) for riparian and oak woodland habitat restored under the Project. The HMMP would be subject to approval by the entity with jurisdiction over the restored areas (City of Oakland). The HMMP shall include a detailed description of restoration/enhancement/preservation actions proposed such as a planting plan, a weed control plan to prevent the spread of invasive and non-native species within restored areas, and erosion control measures to be installed around the restored area following mitigation planting in order to avoid or	LTS	No New Significant Impact, **Previous Mitigation Measures Replaced**

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, MITIGATION MEASURES AND RESIDUAL IMPACTS
COMPARISON OF THE 2015 OAK KNOLL PROJECT AND FINDINGS OF THE 1998 EIR/EIS

Impacts, Criterion, and Significance Prior to Mitigation	Mitigation Measures and/or Standard Condition of Approval (SCA)	Significance after Mitigation or SCA	Comparison to 1998 EIR/EIS Findings[1]
4.3 Biological Resources (cont.)			
Impact BIO-2 (cont.)	minimize sediment runoff into the adjacent creeks; restoration performance criteria for each restored area that establish success thresholds over a specific amount of time, as determined by regulatory agencies with jurisdiction of the affected areas; and proposed monitoring/maintenance program to evaluate the restoration performance criteria, under which progress of restored areas are tracked to ensure survival of the mitigation plantings. The program shall document overall health and vigor of mitigation plantings throughout the monitoring period and provide recommendations for adaptive management as needed to ensure the site is successful, according to the established performance criteria. An annual report documenting the results and providing recommendations for improvements throughout the year shall be provided to the regulatory agencies. 3. Paying an in-lieu fee to a natural resource agency or a non-profit organization that would use the fees to protect or enhance oak woodland habitat of the region. If an in-lieu fee is used for mitigation, there must be a direct nexus between the amount of fees paid and mitigation required in terms of oak tree replacement and oak woodland preservation. The amount of the in-lieu fee shall be determined either by calculating the value of the land with oak woodland habitat proposed for removal, or by some other calculation developed by a qualified biologist in collaboration with the City of Oakland. This alternate calculation shall reflect differences in the quality of habitat proposed for removal, and may consider the cost of comparable habitat (fee title or easement) in nearby areas.		
Impact BIO-3: The Project would not have a substantial adverse effect on federally protected wetlands or other waters (as defined by section 404 of the Clean Water Act) or state protected wetlands or waters, through direct removal, filling, hydrological interruption, or other means. (Criterion c) (Less than Significant with SCAs)	**SCA BIO-3:** Creek Protection Plan **SCA Implementation Measure BIO-3.1** *(to further implement SCA BIO-3)* (see above) **SCA HYD-1:** Erosion and Sedimentation Control Plan for Construction **SCA HYD-2:** State Construction General Permit No Mitigation Measure Required	LTS	No New Significant Impact, No New Mitigation Measures Identified
Impact BIO-4: The Project would not substantially interfere with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. (Criterion d) (Less than Significant with SCAs)	**SCA BIO-4:** Dewatering/Diversion No Mitigation Measure Required	LTS	No New Significant Impact, No New Mitigation Measures Identified

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, MITIGATION MEASURES AND RESIDUAL IMPACTS
COMPARISON OF THE 2015 OAK KNOLL PROJECT AND FINDINGS OF THE 1998 EIR/EIS

Impacts, Criterion, and Significance Prior to Mitigation	Mitigation Measures and/or Standard Condition of Approval (SCA)	Significance after Mitigation or SCA	Comparison to 1998 EIR/EIS Findings[1]
4.3 Biological Resources (cont.)			
Impact BIO-5: The Project would not fundamentally conflict with the City of Oakland Tree Protection Ordinance (Oakland Municipal Code (OMC) Chapter 12.36) by removal of protected trees under certain circumstances. (Criterion f) (Less than Significant with SCAs)	**SCA BIO-5:** Tree Permit **SCA HYD-8:** Vegetation Management on Creekside Properties No Mitigation Measure Required **Recommendation BIO-2:** The following measures should be implemented during relocation of existing trees within the Project site or introduction of new trees to the Project site through mitigation plantings to prevent the spread of *Phytophthora ramorum*, the pathogen that causes SOD. Before working: • Provide crews with sanitations kits. (Sanitation kits should contain the following: Chlorine bleach [10/90 mixture bleach to water], or Clorox Clean-up®, scrub-brush, metal scraper, boot brush and plastic gloves). • Ensure that work crews have properly cleaned and sanitized pruning gear, trucks and chippers prior to entering the Project Area. • Clean and sanitize shoes, pruning gear and other equipment before working in an area with susceptible species (i.e. coast live oak, canyon live oak, and California bay). While working: • When possible, conduct all tree work on P. ramorum-infected and susceptible species during the dry season (June - October). The pathogen is most likely to spread during periods of high rainfall especially in Spring (April and May). Working during wet conditions should be avoided. • If working in wet conditions cannot be avoided, keep equipment on paved or dry surfaces and avoid mud. • Work in disease-free areas before proceeding to suspected-infestation areas. • All debris from California bay trees, the primary vector of the pathogen, shall be mulched and spread in place, moved to a sunny dry area free of coast live oak, or disposed of offsite in a permitted disposal facility in accordance with state and federal regulations. • When removing California bay trees, all mulch and debris shall be segregated from other species when chipping, and all pruning gear and equipment, including chippers and trucks shall be cleaned and sanitized before working on coast live oaks.	LTS	No New Significant Impact, No New Mitigation Measures Identified

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, MITIGATION MEASURES AND RESIDUAL IMPACTS
COMPARISON OF THE 2015 OAK KNOLL PROJECT AND FINDINGS OF THE 1998 EIR/EIS

Impacts, Criterion, and Significance Prior to Mitigation	Mitigation Measures and/or Standard Condition of Approval (SCA)	Significance after Mitigation or SCA	Comparison to 1998 EIR/EIS Findings[1]
4.3 Biological Resources (cont.)			
Impact BIO-5 (cont.)	After working: • Use all reasonable methods to clean and sanitize personal gear and crew equipment before leaving a P. ramorum-infested site. Scrape, brush and/or hose off accumulated soil and mud from clothing, gloves, boots and shoes. Remove mud and plant debris, especially California bay, by blowing it out or power washing chipper trucks, chippers, buckets trucks, fertilization and soil aeration equipment, cranes, and other vehicles. • Restrict the movement of soil and leaf litter under California bay trees as spores are most abundant on California bay leaves. Contaminated soil, particularly mud, and plant debris on vehicle tires, workers boots, shovels, chippers, stump grinders, trenchers, etc., may result in pathogen spread if moved to a new, uninfested site. Thoroughly clean all equipment and remove or wash off soil, mud, and plant debris from these items before use at another site. If complete on-site sanitation is not possible, complete the work at a local power wash facility. • Tools used in tree removal/pruning may become contaminated and should be cleaned thoroughly with a scrub brush and disinfected with Lysol® spray, a 70% or greater solution of alcohol, or a Clorox® solution (1 part Chlorox® to 9 parts water or Clorox Clean-up®). When planting: • Replanting should occur in the early fall when the pathogen is less active, and in order to take advantage of seasonal rains. Replanting activities should avoid late winter and spring. • Planting sites for susceptible species including coast live oak and canyon live oak should be selected in areas that are at least 20 yards away from California bay trees, brush and/or plant material. • California bay shall not be used as mulch for new plantings. • Small, non-protected (less than 9 inches diameter) California bay trees and brush should be cleared within a 20-yard or greater buffer where feasible to protect susceptible oak trees that are selected for preservation.		
Impact BIO-6: The Project would not fundamentally conflict with the City of Oakland Creek Protection Ordinance (OMC Chapter 13.16) intended to protect biological resources. (Criterion g) (Less than Significant with SCAs)	**SCA BIO-3:** Creek Protection Plan **SCA HYD-1:** Erosion and Sedimentation Control Plan for Construction **SCA HYD-2:** State Construction General Permit No mitigation measures required	LTS	No New Significant Impact, No New Mitigation Measures Identified

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, MITIGATION MEASURES AND RESIDUAL IMPACTS
COMPARISON OF THE 2015 OAK KNOLL PROJECT AND FINDINGS OF THE 1998 EIR/EIS

Impacts, Criterion, and Significance Prior to Mitigation	Mitigation Measures and/or Standard Condition of Approval (SCA)	Significance after Mitigation or SCA	Comparison to 1998 EIR/EIS Findings[1]
4.3 Biological Resources (cont.)			
Impact BIO-7: The Project, in combination with other past, present, existing, approved, pending, and reasonably foreseeable future projects within and around the Project area, would not have a considerable contribution to any cumulative impacts related to biological resources. (Potentially Significant)	**SCA BIO-1:** Tree Removal during Breeding Bird Season **SCA Implementation Measure BIO-1.1** *(to further implement SCA BIO-1)* (see above) **SCA Implementation Measure BIO-1.2** *(to further implement all BIO SCAs and BIO mitigation measures)* **SCA BIO-2:** Bird Collision Reduction Measures **SCA BIO-3:** Creek Protection Plan **SCA BIO-4:** Dewatering/Diversion **SCA BIO-5:** Tree Permit **SCA HYD-1:** Erosion and Sedimentation Control Plan for Construction **SCA HYD-2:** State Construction General Permit **SCA HYD-8:** Vegetation Management on Creekside Properties **New Mitigation Measure BIO-1.1** (see above) **New Mitigation Measure BIO-1.2** (see above) **New Mitigation Measure BIO-2** (see above) **Recommendation BIO-1** (see above) **Recommendation BIO-2** (see above)	LTS	No New Significant Impact, **New Mitigation Measures Identified, Previous Mitigation Measures Replaced**
4.4 Cultural Resources			
Impact CUL-1: Relocation and Rehabilitation of Club Knoll could result in a substantial adverse change in the significance of a historical resource by adversely affecting the character-defining features that convey its historic significance and justify its inclusion in the City of Oakland's Local Register of Historic Resources. (Criterion a) (Potentially Significant)	**New Mitigation Measure CUL-1.1: *HABS Documentation.*** *Prior to approval of a construction-related permit for Club Knoll*, the Project sponsor shall document Club Knoll according to the Historic American Building Survey (HABS) standards, which requires: a) Drawings: A full set of measured drawings depicting the building. Consideration may be given to using 3D laser scanning at an appropriate resolution to aid in the creation of the drawings. b) Photographs: Photographs with large-format negatives of exterior and interior views of the existing building. Photocopies with large-format negatives, or high resolution digital copies of historic photographs. Consideration may be given to the use of high resolution digital photography in lieu of large-format negatives. If digital photography is selected, photo quality should meet the standards outlined in the National Register Photo Policy Factsheet updated 5/15/2013.	LTS	No New Significant Impact; New Mitigation Measures Identified.

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, MITIGATION MEASURES AND RESIDUAL IMPACTS
COMPARISON OF THE 2015 OAK KNOLL PROJECT AND FINDINGS OF THE 1998 EIR/EIS

Impacts, Criterion, and Significance Prior to Mitigation	Mitigation Measures and/or Standard Condition of Approval (SCA)	Significance after Mitigation or SCA	Comparison to 1998 EIR/EIS Findings[1]
4.4 Cultural Resources (cont.)			
Impact CUL-1 (cont.)	c) Written data: A historical report in Outline Format. d) A qualified architectural historian or historical architect meeting the qualifications in the Secretary of the Interior's Professional Qualification Standards shall oversee the preparation of the plans, photographs and written data. e) The documentation shall be submitted for review and approval by qualified staff of the City of Oakland Bureau of Planning, Oakland Cultural Heritage Survey (OCHS). f) The documentation shall be filed with the Oakland Cultural Heritage Survey, the Oakland History Room at the Oakland Public Library, and the Northwest Information Center at Sonoma State University, the repository for the California Historical Resources Information System. **New Mitigation Measure CUL-1.2 Baseline Building Conditions Study (Structural).** Prior to approval of a construction-related permit for Club Knoll, the Project sponsor shall prepare a Baseline Building Conditions Study to establish the baseline condition of the building and determine what kind of stabilization might be necessary to relocate the building. Specifically: a) A preservation architect and a structural engineer, as defined in the Carey & Co. report dated May 3, 2016, shall undertake an existing condition study of Club Knoll. b) The documentation shall take the form of written descriptions and visual illustrations, including of those physical characteristics of Club Knoll that convey its historic significance and must be protected and preserved, and recommendations for any structural reinforcement, stabilization, or protection before the relocation or any other alteration. c) The Project sponsor shall implement work in accordance with the approved plan. **New Mitigation Measure CUL-1.3: Relocation Travel Route.** Prior to approval of a construction-related permit for Club Knoll, the Project sponsor shall prepare a Relocation Travel Route Plan for review and approval by qualified staff of the City of Oakland Bureau of Planning, OCHS. Specifically, the plan shall: a) Show the location of the proposed travel route from the existing Club Knoll location to the new location. b) Identify and locate on-site covered, secured and enclosed storage areas where components of Club Knoll may be temporarily stored before or during relocation, if required.		

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, MITIGATION MEASURES AND RESIDUAL IMPACTS
COMPARISON OF THE 2015 OAK KNOLL PROJECT AND FINDINGS OF THE 1998 EIR/EIS

Impacts, Criterion, and Significance Prior to Mitigation	Mitigation Measures and/or Standard Condition of Approval (SCA)	Significance after Mitigation or SCA	Comparison to 1998 EIR/EIS Findings[1]
4.4 Cultural Resources (cont.)			
Impact CUL-1 (cont.)	c) Identify how the relocation site will be prepared to accept the relocated components of Club Knoll, including but not limited to grading and construction of the foundation. d) The Project sponsor shall implement work in accordance with the approved plan. **New Mitigation Measure CUL-1.4: Building Features Inventory and Plan.** Prior to approval of a construction-related permit for Club Knoll, the Project sponsor shall prepare a Building Features Inventory and Plan for review and approval by qualified staff of the City of Oakland Bureau of Planning, OCHS. Specifically, the inventory shall include the following, without limitation: *Character-defining Features* a) Identify the character-defining features of Club Knoll to be relocated, specifying features that cannot be repaired, are deteriorated or damaged beyond repair and will need to be replaced. b) Describe how the character-defining features will be treated and cleaned to remove graffiti and/or mold. *Existing and Proposed Building Plans* c) Provide a complete set of schematic floor and roof plans and elevations showing existing conditions (which may come from the HABS report in Mitigation Measure CUL-1.1 or Baseline Building Conditions Study for Mitigation Measure CUL-1.2). The existing floor plans should identify elements and spaces proposed for demolition, as well as the location of where the building will be cut into moveable components (horizontally and vertically). d) Provide a complete set of schematic proposed floor plans identifying new walls, insertions, and other alterations proposed to interior spaces. e) The existing and proposed building plans shall be prepared by a qualified preservation architect and structural engineer. *Materials Compatibility* f) Tests shall be conducted of the exterior stucco and interior plaster to ensure new materials match the original. *Qualifications* g) Identify the vendors and subcontractors to undertake restoration and relocation work. The contractor responsible for the relocation and rehabilitation work shall be experienced in the Secretary of the Interior's Standards.		

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, MITIGATION MEASURES AND RESIDUAL IMPACTS
COMPARISON OF THE 2015 OAK KNOLL PROJECT AND FINDINGS OF THE 1998 EIR/EIS

Impacts, Criterion, and Significance Prior to Mitigation	Mitigation Measures and/or Standard Condition of Approval (SCA)	Significance after Mitigation or SCA	Comparison to 1998 EIR/EIS Findings[1]
4.4 Cultural Resources (cont.)			
Impact CUL-1 (cont.)	h) The Project sponsor shall implement work in accordance with the approved plans and requirements. **New Mitigation Measures CUL-1.5: Specific Relocation/Rehabilitation Measures.** Ongoing, during the relocation activities for Club Knoll. The Project sponsor shall incorporate the following mitigation measures into a final Club Knoll relocation work plan which it shall submit for review and approval by qualified staff of the City of Oakland Bureau of Planning, OCHS: a) Ensure that all temporary work to shore and brace the building will be reversible, additive, and shall not destroy any surviving historic fabric in the building. b) Ensure that a preservation architect and a structural engineer, as defined in the Carey & Co. report dated May 3, 2016, will be on site to monitor dismantlement and reassembly of Club Knoll. c) New additions and adjacent or related new construction will be undertaken in such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired d) Ensure components and parts of the building dismantled during the relocation process are catalogued, protected, stored in a secure area, if necessary, and reassembled in their original location on the relocated building. e) Ensure that the proposed steel frame and new interior systems will not be visible in the relocated building, except as necessary for life safety or in newly installed kitchen, bathrooms, elevators, or similar systems. f) Ensure that protective barriers or buffers are provided to further protect the building from potential damage by construction activities from new construction around the relocated building, including the operation of construction equipment. g) Ensure that if original wood floor material is found beneath more recent finishes, it shall be inspected for soundness and as much as possible shall be retained. Any deteriorated wood flooring shall be replaced with in-kind material. h) Ensure all work, including improvements in compliance with the American Disabilities Act (ADA), will adhere to the Secretary of the Interior's Standards for the Treatment of Historic Properties, using the Rehabilitation Standards. i) Ensure character-defining features that are not deteriorated beyond repair, including historic windows and surviving window hardware, are preserved during dismantling, and properly installed and reassembled in their original location. j) Ensure the foundation is constructed such that the building, at the exterior stair location on the west elevation, is raised above to the surrounding finished grade.		

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, MITIGATION MEASURES AND RESIDUAL IMPACTS
COMPARISON OF THE 2015 OAK KNOLL PROJECT AND FINDINGS OF THE 1998 EIR/EIS

Impacts, Criterion, and Significance Prior to Mitigation	Mitigation Measures and/or Standard Condition of Approval (SCA)	Significance after Mitigation or SCA	Comparison to 1998 EIR/EIS Findings[1]
4.4 Cultural Resources (cont.)			
Impact CUL-2: Demolition of the Club Knoll Garage would not result in a substantial adverse change of an historical resource. (Criterion a) (Less than Significant)	No Mitigation Measure Required	LTS	No New Significant Impact, No Mitigation Measures Identified
Impact CUL-3: The Project could result in significant impacts to unknown archaeological resources. (Criterion b) (*Less than Significant with SCAs*)	**SCA CUL-1:** Archaeological and Paleontological Resources – Discovery During Construction. **SCA CUL-2:** Archaeologically Sensitive Areas – Pre-Construction Measures. No Mitigation Measure Required	LTS	No New Significant Impact, No Mitigation Measures Identified
Impact CUL-4: The Project could directly or indirectly destroy a unique paleontological resource or site or unique geologic feature. (Criterion c) (*Less than Significant with SCAs*)	**SCA CUL-1:** Archaeological and Paleontological Resources – Discovery During Construction. No Mitigation Measure Required	LTS	No New Significant Impact, No New Mitigation Measures Identified
Impact CUL-5: The Project could disturb human remains, including those interred outside of formal cemeteries (Criterion d). (Less than Significant with SCAs)	**SCA CUL-3:** Human Remains – Discovery During Construction. No Mitigation Measure Required	LTS	No New Significant Impact, No New Mitigation Measures Identified
Impact CUL 6: The Project, in combination with other past, present, existing, approved, pending and reasonably foreseeable future projects, would not result in a significant impact to historic or cultural resources. (Potentially Significant)	**SCA CUL-1:** Archaeological and Paleontological Resources – Discovery During Construction **SCA CUL-2:** Archaeologically Sensitive Areas – Pre-Construction Measures. **SCA CUL-3:** Human Remains – Discovery During Construction. **New Mitigation Measure CUL-1.1:** HABS Documentation (see above) **New Mitigation Measure CUL-1.2:** Baseline Building Conditions Study (Structural) (see above) **New Mitigation Measure CUL-1.3:** Relocation Travel Route (see above) **New Mitigation Measure CUL-1.4:** Building Features Inventory and Plan (see above) **New Mitigation Measures CUL-1.5:** Specific Relocation/Rehabilitation Measures (see above)	LTS	No New Significant Impact, **New Mitigation Measures Identified.**

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, MITIGATION MEASURES AND RESIDUAL IMPACTS
COMPARISON OF THE 2015 OAK KNOLL PROJECT AND FINDINGS OF THE 1998 EIR/EIS

Impacts, Criterion, and Significance Prior to Mitigation	Mitigation Measures and/or Standard Condition of Approval (SCA)	Significance after Mitigation or SCA	Comparison to 1998 EIR/EIS Findings[1]
4.5 Geology and Soils			
Impact GEO-1: The Project could expose people or structures to substantial risk of loss, injury, or death involving strong seismic ground shaking. (Criterion a.2) (Less than Significant with SCAs)	**SCA GEO-1:** Soils Report. **SCA GEO-2:** Seismic Hazards Zone (Landslide/Liquefaction). **SCA Implementation Measure GEO-2.1:** To further implement SCA GEO-2, the Project applicant shall implement the following measures, as applicable, based on the site-specific geotechnical report to be developed pursuant to SCA GEO-2: The contact between the Jurassic Volcanics and the Knoxville Formation should be further examined during grading for the Project to determine if supplemental corrective grading measures are needed to address potential engineering issues, such as weak sheared material or a groundwater barrier. If the determination is affirmative, the Project applicant shall identify and implement required additional corrective grading measures.	LTS	No New Significant Impact, Previous Mitigation Replaced by Current SCAs
Impact GEO-2: The Project could expose people or structures to substantial risk of loss, injury, or death involving seismic-related ground failure, including liquefaction, lateral spreading, subsidence or collapse. (Criterion a.3) (Less than Significant with SCAs)	**SCA GEO-1:** Soils Report. **SCA GEO-2:** Seismic Hazards Zone (Landslide/Liquefaction). **SCA Implementation Measure GEO-2.2:** To further implement SCA GEO-2, the Project applicant shall implement these following corrective measures to repair existing unstable site conditions, as applicable, based on the site-specific geotechnical report to be developed pursuant to SCA GEO-2: *Liquefaction* - To address potential effects of liquefaction, the project could implement any one or more of the following, as necessary: a) Avoid development within 50 feet of the potential liquefaction zone, as designated by the State seismic hazard zones map; b) Conduct in-situ treatment, such as dynamic compaction; c) Perform remedial grading measures, such as removal and replacement of a portion or all of the potentially liquefiable soil with engineered fill; and d) Ensure placement of a compacted fill cap over the potential liquefaction zones, potentially with use of geogrid reinforced fill. e) Employ foundation design measures, such as deep foundations that extend through the potential liquefaction zone. *Lateral Spreading* – To address potential effects of lurching and lateral spreading, the project could include any one or more of the following, as necessary: f) Ensure that, if a setback of improvements from creek banks is used to reduce the susceptibility to lurching and lateral spreading in areas identified along Rifle Range Creek, improvements should be set back outside an upward 4:1 (horizontal:vertical) projection from the toe of the creek bank;	LTS	No New Significant Impact, No Mitigation Measure Identified.

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, MITIGATION MEASURES AND RESIDUAL IMPACTS
COMPARISON OF THE 2015 OAK KNOLL PROJECT AND FINDINGS OF THE 1998 EIR/EIS

Impacts, Criterion, and Significance Prior to Mitigation	Mitigation Measures and/or Standard Condition of Approval (SCA)	Significance after Mitigation or SCA	Comparison to 1998 EIR/EIS Findings[1]
4.5 Geology and Soils (cont.)			
Impact GEO-2 (cont.)	g) Key and bench where fills are placed on sloping ground; and h) Use drilled pier foundation systems designed to accommodate expected lateral loads for structures situated on slopes, as determined on case-by-case basis. **SCA GEO-4:** Oakland Area Geologic Hazard Abatement District - GHAD		
Impact GEO-3: The Project could expose people or structures to substantial risk of loss, injury, or death involving landslides. (Criterion a.4) (Less than Significant with SCAs)	**SCA GEO-1:** Soils Report. **SCA GEO-2:** Seismic Hazards Zone (Landslide/Liquefaction). **SCA Implementation Measures GEO-2.3:** To further implement SCA GEO-2, the Project applicant shall implement these following corrective measures to repair existing unstable site conditions, as applicable, based on the site-specific geotechnical report to be developed pursuant to SCA GEO-2: a) Removal of existing fill, colluvium and slide debris to expose rock (in specific upland areas of the site); b) Removal of existing fill and compressible soil to expose stiff native material (generally throughout the central area of the site); and c) Reconstruct specific slopes with select granular fills and/or geogrid reinforced fill, based on final design slope stability analysis (focusing on creek bank slopes and upland fill slopes). *Seismically-Induced Landslides* – To address potential effects of seismically-induced landslides, the project shall: d) Ensure properly engineered cut and fill slopes, stabilization of landslides, and/or creation of sufficient buffers between identified landslide areas and development areas, as determined on case-by-case basis. *Landslides and Slope Instability* **–** To address potential effects of landslides and slope instability, the project shall (in addition to implementation of Mitigation Measure GEO-3 regarding slope stability): e) Where development encroaches into the mapped landslide areas, conduct remedial grading as determined on case-by-case basis; f) Minimize potential for adverse impacts from soil creep by benching through surficial soils during fill placement and by design of drill pier foundation systems to accommodate lateral loads from soil creep, as determined on case-by-case basis;	LTS	No New Significant Impact, No Mitigation Measure Required; Previous Mitigation Placed with SCA.

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, MITIGATION MEASURES AND RESIDUAL IMPACTS
COMPARISON OF THE 2015 OAK KNOLL PROJECT AND FINDINGS OF THE 1998 EIR/EIS

Impacts, Criterion, and Significance Prior to Mitigation	Mitigation Measures and/or Standard Condition of Approval (SCA)	Significance after Mitigation or SCA	Comparison to 1998 EIR/EIS Findings[1]
4.5 Geology and Soils (cont.)			
Impact GEO-3 (cont.)	g) Limit graded slopes for the project to within the following preliminary criteria although findings of further design-level geotechnical exploration and use of specific treatments (such as geogrid reinforced fill slopes and use of higher strength fill material based on laboratory testing) may support fill slopes that exceed these preliminary criteria: h) Remove existing fills located within the development area and replace them with engineered fill; existing fill materials that are free of deleterious debris may be placed onsite as engineered fill; i) Use of heavy duty or larger-track mounted excavators or removal of bedrock to the depth of planned utilities (and replacement with engineered fill) may be required for trenching in localized areas of deeper bedrock cuts that may generate oversized material (i.e. rocks larger than one foot in diameter); and j) In the eastern hilltop area of the site, larger-track mounted excavators may be needed to excavate rock at depths of 10 feet or more below original grade, and overexcavation during mass grading of street sections in areas of deeper cuts to depths below the level of proposed utilities may be appropriate. **SCA GEO-4:** Oakland Area Geologic Hazard Abatement District – GHAD		
Impact GEO-4: The Project could result in substantial soil erosion or loss of topsoil, creating substantial risks to life, property, or creeks/waterways. (Criterion b) (Less than Significant with SCAs)	**SCA GEO-3:** Construction-Related Permit(s). No Mitigation Measure Required	LTS	No New Significant Impact, No Mitigation Measure Identified.
Impact GEO-5: The Project could occur on expansive soils, creating substantial risks to life and property. (Criterion c) (Less than Significant with SCAs)	**SCA GEO-1:** Soils Report. No Mitigation Measure Required	LTS	No New Significant Impact, No Mitigation Measure Identified.
Impact GEO-6: The Project could be located above a well, pit, swamp, mound, tank vault, unmarked sewer line, a landfill for which there is no approved closure and post-closure plan, or unknown fill soils, creating substantial risks to life or property. (Criteria d and e) (Potentially Significant)	**New Mitigation Measure GEO-3:** If during construction activities previously unidentified conditions such as wells, pits, swamps, mounds, tank vaults, unmarked sewer lines, suspected landfill areas, or unknown fill soils are encountered, construction in the immediate area shall cease until the City of Oakland Fire Department Hazardous Materials Unit or other applicable oversight agency has been notified. If there is any indication that the condition includes hazardous materials or waste or otherwise creates a substantial risk to life or property, then the lead agency shall direct any appropriate remediation measures, consistent with any and all applicable laws and regulations. Construction can resume at the discretion of the oversight agency.	LTS	No New Significant Impact, New Mitigation Measure Identified.

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, MITIGATION MEASURES AND RESIDUAL IMPACTS
COMPARISON OF THE 2015 OAK KNOLL PROJECT AND FINDINGS OF THE 1998 EIR/EIS

Impacts, Criterion, and Significance Prior to Mitigation	Mitigation Measures and/or Standard Condition of Approval (SCA)	Significance after Mitigation or SCA	Comparison to 1998 EIR/EIS Findings[1]
4.5 Geology and Soils (cont.)			
Impact GEO-7: The Project would not have a considerable contribution to cumulative impacts related to geology and soils, considering the combined effect of the Project and past, present, approved, pending, and reasonably foreseeable future projects in the area and citywide. (Potentially Significant)	**SCA GEO-1:** Soils Report. **SCA GEO-2:** Seismic Hazards Zone (Landslide/Liquefaction). **SCA Implementation Measure GEO-2.1** *(to further implement SCA GEO-2)* (see above) **SCA Implementation Measure GEO-2.2** *(to further implement SCA GEO-2)* (see above) **SCA Implementation Measure GEO-2.3** *(to further implement SCA GEO-2)* (see above) **SCA GEO-3:** Construction-Related Permit(s). **SCA GEO-4:** Oakland Area Geologic Hazard Abatement District (GHAD). **New Mitigation Measure GEO-3** (see above) **SCA BIO-3:** Creek Protection Plan	LTS	No New Significant Impact, **New Mitigation Measure Identified.**
4.6 Greenhouse Gas Emissions and Climate Change			
Impact GHG-1: The proposed Project would produce greenhouse gas emissions that exceed both 1,100 metric tons of CO2e per year and 4.6 metric tons of CO2e per service population annually in Phase 1 only. (Criterion a) (Less than Significant with SCAs).	**SCA AIR-1:** Construction related Air Pollutant Controls) **SCA GHG-1:** Greenhouse Gas Reduction Plan (GGRP) **SCA GHG-2:** Green Building Requirements – Bay Friendly Landscape **SCA TRA-4:** Transportation and Parking Demand Management Program **SCA UTIL-6:** Water Efficient Landscapes (WELO) No mitigation measures required	LTS	No New Significant Impact, No Mitigation Measures Identified.
Impact GHG-2: The proposed Project would not conflict with an applicable plan, policy or regulation of an appropriate regulatory agency adopted for the purpose of reducing greenhouse gas emissions (Criterion b). (Less than Significant with SCAs)	**SCA AIR-1:** Construction related Air Pollutant Controls) **SCA TRA-4:** Transportation and Parking Demand Management Program **SCA GHG-1:** Greenhouse Gas Reduction Plan (GGRP) **SCA GHG-2:** Green Building Requirements – Bay Friendly Landscape **SCA UTIL-6:** Water Efficient Landscapes (WELO) No Mitigation Measure Required	LTS	No New Significant Impact, No Mitigation Measures Identified.

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, MITIGATION MEASURES AND RESIDUAL IMPACTS
COMPARISON OF THE 2015 OAK KNOLL PROJECT AND FINDINGS OF THE 1998 EIR/EIS

Impacts, Criterion, and Significance Prior to Mitigation	Mitigation Measures and/or Standard Condition of Approval (SCA)	Significance after Mitigation or SCA	Comparison to 1998 EIR/EIS Findings[1]
4.7 Hazards and Hazardous Materials			
Impact HAZ-1: The Project would include the routine transport, use and disposal of hazardous materials during construction and operation, but would not create a significant hazard to the public or the environment. (Criterion a) (Less than Significant with SCAs)	**SCA HAZ-1:** Hazardous Materials Related to Construction **SCA HAZ-2:** Site Contamination **SCA HAZ-3:** Hazardous Materials Business Plan **SCA HAZ-4:** Fire Safety Phasing Plan	LTS	No New Significant Impact, No Mitigation Measures Identified.
Impact HAZ-2: The Project would not create a significant hazard to the public or environment through an upset or accident involving the release of hazardous materials. (Criterion b) (Less than Significant with SCAs)	**SCA HAZ-1:** Hazardous Materials Related to Construction **SCA HYD-2:** State Construction General Permit **SCA HAZ-4:** Fire Safety Phasing Plan	LTS	No New Significant Impact, No Mitigation Measures Identified.
Impact HAZ-3: The Project would not result in the new storage or use of acutely hazardous materials near sensitive receptors, and would not as a result create a significant hazard to the public. (Criterion c) (Less than Significant with SCAs)	**SCA HAZ-1:** Hazardous Materials Related to Construction **SCA HAZ-3:** Hazardous Materials Business Plan	LTS	No New Significant Impact, No Mitigation Measures Identified.
Impact HAZ-4: The Project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. (Criterion d) (Less than Significant with SCAs)	**SCA HAZ-1:** Hazardous Materials Related to Construction **SCA HAZ-2:** Site Contamination **SCA HAZ-3:** Hazardous Materials Business Plan	LTS	No New Significant Impact, No Mitigation Measures Identified.
Impact HAZ-5: The Project would be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and could, but would not, result in a safety hazard to the public or environment. (Criterion e) (Less than Significant with SCAs)	**SCA HAZ-1:** Hazardous Materials Related to Construction **SCA HAZ-2:** Site Contamination **SCA Implementation Measure HAZ-2.1:** To further implement SCA HAZ-4, prior to issuance of demolition, grading, or building permits, the project sponsor shall submit the results of any CLRRA site assessment work required by DTSC. The Fire Prevention Bureau's Hazardous Materials Division shall review and provide a determination on the completeness of the reports for the City's purposes. **SCA Implementation Measure HAZ-2.2:** To further implement SCA HAZ-2, if DTSC determines that remediation pursuant to a CLRRA response plan is required, the project sponsor must: a) Summit documentation confirming that any remaining environmental assessment and remediation required by DTSC will be performed under the oversight of DTSC or other regulatory agencies, and will be conducted by qualified professionals with experience in soil and groundwater contamination remediation.	LTS	No New Significant Impact, No Mitigation Measures Identified.

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, MITIGATION MEASURES AND RESIDUAL IMPACTS
COMPARISON OF THE 2015 OAK KNOLL PROJECT AND FINDINGS OF THE 1998 EIR/EIS

Impacts, Criterion, and Significance Prior to Mitigation	Mitigation Measures and/or Standard Condition of Approval (SCA)	Significance after Mitigation or SCA	Comparison to 1998 EIR/EIS Findings[1]
4.7 Hazards and Hazardous Materials (cont.)			
Impact HAZ-5 (cont.)	b) The project sponsor shall submit a Soil Management Plan that has been reviewed and approved by DTSC or other appropriate regulatory agency. That plan shall outline required procedures for handling and disposing impacted soil. All disposal and transportation of contaminated soil shall be done in accordance with applicable state and federal laws and regulations. All contaminated soil determined to be hazardous or non-hazardous waste must be adequately profiled for acceptable disposal before it can be removed from the site. The project sponsor shall ensure that impacted soil is handled in accordance with the approved Soil Management Plan. c) If groundwater contamination is discovered at level in excess of applicable regulatory thresholds used by DTSC or other appropriate regulatory agency, ensure that groundwater pumped from the subsurface shall be contained onsite prior to treatment and disposal to ensure environmental and, if any, health issues are resolved pursuant to oversight agencies. d) If soil vapor contamination is discovered at levels that DTSC determines require remediation, and the source of the vapor is not removed pursuant to DTSC supervision, engineering controls shall be utilized, which include impermeable barriers to mitigate vapor intrusion into the building. e) The project sponsor shall provide written verification that the appropriate State, Federal or County authorities, including but not limited to DTSC and the Alameda County Public Health Department, have granted all required clearances and confirmed that all applicable standards, regulations, and conditions are in compliance, for all existing contamination at the site. f) The project sponsor shall provide evidence from the City's Fire Department, Office of Emergency Services, indicating compliance with the City of Oakland Hazardous Material Assessment and Reporting Program, pursuant to City Ordinance No. 12323. g) Prior to issuance of any demolition permits for buildings containing lead-based paint, the project sponsor shall demonstrate to the satisfaction of the Office of Fire Department, Office of Emergency Services, that the site has been investigated for the presence of lead will be handled and disposed of safely conduct during demolition.		

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, MITIGATION MEASURES AND RESIDUAL IMPACTS
COMPARISON OF THE 2015 OAK KNOLL PROJECT AND FINDINGS OF THE 1998 EIR/EIS

Impacts, Criterion, and Significance Prior to Mitigation	Mitigation Measures and/or Standard Condition of Approval (SCA)	Significance after Mitigation or SCA	Comparison to 1998 EIR/EIS Findings[1]
4.7 Hazards and Hazardous Materials (cont.)			
Impact HAZ-5 (cont.)	**SCA Implementation Measure HAZ-2.3**: To further implement SCA HAZ-2, pursuant to the Soils Management Plan required in SCA Implementation Measure HAZ-2.2b, the contractor shall cease any earthwork activities upon discovery of any suspect soils (e.g., petroleum odor and/or discoloration) during construction. The contractor shall notify DTSC and retain a qualified environmental firm to collect soil samples to confirm the level of contamination that may be present. If contamination is found to be present, any further proposed groundbreaking activities within areas of identified or suspected contamination shall be conducted according to a site specific health and safety plan, prepared by a licensed professional. The contractor shall follow all procedural direction given by DTSC to ensure that suspect soils are isolated, protected from runoff, and disposed of in accordance with transportation laws and the requirements of the licensed receiving facility. **SCA Implementation Measure HAZ-2.4**: To further implement SCA HAZ-2, if the assessment required by DTSC under CLRRA finds presence of lead-based paint at levels not suitable for residential use in proposed residential areas or for commercial use in other areas, the project sponsor shall develop and implement a lead-based paint response plan under CLRRA. The plan shall: a) Develop a removal specification approved by a Certified Lead Project Designer. b) Ensure that all removal workers are properly trained. c) Contain all work areas to prohibit off-site migration of paint chip debris. d) Remove all peeling and stratified lead-based paint from the Club Knoll building and any other existing non-building surfaces to the degree necessary to safely and properly complete relocation or demolition activities according to recommendations of the survey. The relocation contractor shall be responsible for the proper containment and disposal of intact lead-based paint on all equipment to be cut and/or removed during relocation or demolition. e) Provide on-site personnel and area air monitoring during all removal activities to ensure that workers and the environment are adequately protected by the control measures used. f) Clean up and/or vacuum paint chips with a high efficiency particulate air (HEPA) filter. g) Collect, segregate, and profile waste for disposal determination. h) Properly dispose of all waste.	LTS	No New Significant Impact, No Mitigation Measures Identified.

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, MITIGATION MEASURES AND RESIDUAL IMPACTS
COMPARISON OF THE 2015 OAK KNOLL PROJECT AND FINDINGS OF THE 1998 EIR/EIS

Impacts, Criterion, and Significance Prior to Mitigation	Mitigation Measures and/or Standard Condition of Approval (SCA)	Significance after Mitigation or SCA	Comparison to 1998 EIR/EIS Findings[1]
4.7 Hazards and Hazardous Materials (cont.)			
Impact HAZ-6: The Project would include more than two emergency access routes for streets exceeding 600 feet in length. (Criterion f) (Less than Significant)	None Required.	LTS	No New Significant Impact, No New Mitigation Measures Required.
Impact HAZ-7: The Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. (Criterion i) (Less than Significant)	None Required.	LTS	No New Significant Impact, No New Mitigation Measures Required.
Impact HAZ-8: The Project would not 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. (Criterion j) (Less than Significant with SCA)	**SCA HAZ-4:** Fire Safety Phasing Plan **SCA HAZ-5** (Wildfire Prevention Area – Vegetation Management) **SCA Implementation Measure HAZ-4.1:** To further implement SCA HAZ-4: Fire Safety: The project sponsor and construction contractor shall ensure that during Project construction, all construction vehicles and equipment will be fitted with spark arrestors to minimize accidental ignition of dry construction debris and surrounding dry vegetation.	LTS	No New Significant Impact, No Mitigation Measures Identified.
Impact HAZ-9: The Project would not have a considerable contribution to any cumulative impacts related to hazards and hazardous materials, considering the combined effect of the Project, and past, present, approved, pending, and reasonably foreseeable future projects in the area and citywide. (Less than Significant with SCAs)	**SCA HAZ-1:** Hazardous Materials Related to Construction **SCA HAZ-2:** Site Contamination **SCA Implementation Measure HAZ-2.1** *(to further implement SCA HAZ-2)* (see above) **SCA Implementation Measure HAZ-2.2** *(to further implement SCA HAZ-2)* (see above) **SCA Implementation Measure HAZ-2.3** *(to further implement SCA HAZ-2)* (see above) **SCA Implementation Measure HAZ-2.4** *(to further implement SCA HAZ-2)* (see above) **SCA HYD-2:** State Construction General Permit **SCA HAZ-3:** Hazardous Materials Business Plan **SCA HAZ-4:** Fire Safety Phasing Plan **SCA Implementation Measure HAZ-4.1** *(to further implement SCA HAZ-4)* (see above) **SCA HAZ-5:** Wildfire Prevention Area – Vegetation Management	LTS	No New Significant Impact, No Mitigation Measures Identified.

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, MITIGATION MEASURES AND RESIDUAL IMPACTS
COMPARISON OF THE 2015 OAK KNOLL PROJECT AND FINDINGS OF THE 1998 EIR/EIS

Impacts, Criterion, and Significance Prior to Mitigation	Mitigation Measures and/or Standard Condition of Approval (SCA)	Significance after Mitigation or SCA	Comparison to 1998 EIR/EIS Findings[1]
4.8 Hydrology and Water Quality			
Impact HYD-1: Runoff from the proposed Project would be different from existing conditions; however, the Project would not violate any water quality standards or waste discharge requirements. (Criteria a and g) (Less than Significant with SCAs)	**SCA HYD-1:** Erosion and Sedimentation Control Plan for Construction **SCA HYD-2:** State Construction General Permit **SCA HYD-3:** Drainage Plan for Post-Construction Stormwater Runoff on Hillside Properties **SCA HYD-4**: Site Design Measures to Reduce Stormwater Runoff **SCA HYD-5:** Source Control Measures to Limit Stormwater Pollution **SCA HYD-6:** NPDES C.3 Stormwater Requirements for Regulated Projects **SCA HYD-7**: Architectural Copper **SCA BIO-3**: Creek Protection Plan **SCA BIO-4**: Creek Dewatering/Diversion **SCA HAZ-1:** Hazardous Materials Related to Construction **SCA HAZ-2:** Site Contamination **SCA UTIL-6:** Water Efficient Landscapes (WELO) No Mitigation Measure Required	LTS	No New Significant Impact, No Mitigation Measures Identified.
Impact HYD-2: The Project would not substantially deplete groundwater supplies or interfere with groundwater recharge. (Criterion b) (Less than Significant with SCA)	**SCA BIO-4:** Creek Dewatering/Diversion No Mitigation Measure Required	LTS	No New Significant Impact, No Mitigation Measures Identified.
Impact HYD-3: The Project would not result in substantial erosion or siltation on- or off-site that would affect the quality of receiving waters. (Criteria c and g) (Less than Significant with SCAs)	**SCA HYD-1:** Erosion and Sedimentation Control Plan for Construction **SCA HYD-2:** State Construction General Permit **SCA HYD-3:** Drainage Plan for Post-Construction Stormwater Runoff on Hillside Properties **SCA HYD-4**: Site Design Measures to Reduce Stormwater Runoff **SCA HYD-5:** Source Control Measures to Limit Stormwater Pollution **SCA HYD-6:** NPDES C.3 Stormwater Requirements for Regulated Projects **SCA HYD-8:** Vegetation Management on Creekside Properties No Mitigation Measure Required	LTS	No New Significant Impact, No Mitigation Measures Identified.

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, MITIGATION MEASURES AND RESIDUAL IMPACTS
COMPARISON OF THE 2015 OAK KNOLL PROJECT AND FINDINGS OF THE 1998 EIR/EIS

Impacts, Criterion, and Significance Prior to Mitigation	Mitigation Measures and/or Standard Condition of Approval (SCA)	Significance after Mitigation or SCA	Comparison to 1998 EIR/EIS Findings[1]
4.8 Hydrology and Water Quality			
Impact HYD-4: The Project would not result in substantial flooding on or off-site. (Criterion d) (Less than Significant with SCAs)	**SCA HYD-3:** Drainage Plan for Post-Construction Stormwater Runoff on Hillside Properties **SCA HYD-4**: Site Design Measures to Reduce Stormwater Runoff **SCA HYD-5:** Source Control Measures to Limit Stormwater Pollution **SCA HYD-6:** NPDES C.3 Stormwater Requirements for Regulated Projects **SCA BIO-3:** Creek Protection Plan No Mitigation Measure Required	LTS	No New Significant Impact, No Mitigation Measures Identified.
Impact HYD-5: The Project would not create or contribute substantial runoff which would exceed the capacity of existing or planned stormwater drainage systems or would be an additional source of polluted runoff. (Criteria e and f) (Less than Significant with SCAs)	**SCA HYD-3:** Drainage Plan for Post-Construction Stormwater Runoff on Hillside Properties **SCA HYD-4**: Site Design Measures to Reduce Stormwater Runoff **SCA HYD-5:** Source Control Measures to Limit Stormwater Pollution **SCA HYD-6:** NPDES C.3 Stormwater Requirements for Regulated Projects	LTS	No New Significant Impact, No Mitigation Measures Identified.
Impact HYD-6: The Project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course, or increasing the rate or amount of flow, of a creek, river, or stream in a manner that would result in substantial erosion, siltation, or flooding, both on- or offsite. (Criterion letter "l") (Less Than Significant with SCAs)	**SCA HYD-1:** Erosion and Sedimentation Control Plan for Construction **SCA HYD-2:** State Construction General Permit **SCA HYD-3:** Drainage Plan for Post-Construction Stormwater Runoff on Hillside Properties **SCA HYD-4**: Site Design Measures to Reduce Stormwater Runoff **SCA HYD-5:** Source Control Measures to Limit Stormwater Pollution **SCA HYD-6:** NPDES C.3 Stormwater Requirements for Regulated Projects **SCA HYD-7**: Architectural Copper **SCA BIO-3**: Creek Protection Plan **SCA BIO-4**: Creek Dewatering/Diversion No Mitigation Measure Required	LTS	No New Significant Impact, No Mitigation Measures Identified.
Impact HYD-7: The Project would not fundamentally conflict with the City of Oakland Creek Protection Ordinance (OMC Chapter 13.16) intended to protect hydrologic resources. (Criterion m) (Less than Significant with SCAs)	**SCA BIO-3**: Creek Protection Plan No Mitigation Measure Required	LTS	No New Significant Impact, No Mitigation Measures Identified.

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, MITIGATION MEASURES AND RESIDUAL IMPACTS
COMPARISON OF THE 2015 OAK KNOLL PROJECT AND FINDINGS OF THE 1998 EIR/EIS

Impacts, Criterion, and Significance Prior to Mitigation	Mitigation Measures and/or Standard Condition of Approval (SCA)	Significance after Mitigation or SCA	Comparison to 1998 EIR/EIS Findings[1]
4.8 Hydrology and Water Quality			
Impact HYD-8: The Project would not have a considerable contribution to any cumulative impacts related to hydrology and water quality, considering the combined effect of the Project and past, present, approved, pending, and reasonably foreseeable future projects in the relevant geographic area. (Less than Significant with SCAs)	**SCA HYD-1:** Erosion and Sedimentation Control Plan for Construction **SCA HYD-2:** State Construction General Permit **SCA HYD-3:** Drainage Plan for Post-Construction Stormwater Runoff on Hillside Properties **SCA HYD-4**: Site Design Measures to Reduce Stormwater Runoff **SCA HYD-5:** Source Control Measures to Limit Stormwater Pollution **SCA HYD-6:** NPDES C.3 Stormwater Requirements for Regulated Projects **SCA HYD-7**: Architectural Copper **SCA HYD-8:** Vegetation Management on Creekside Properties **SCA BIO-3:** Creek Protection Plan **SCA BIO-4:** Dewatering/Diversion **SCA HAZ-1:** Hazardous Materials Related to Construction **SCA HAZ-2:** Site Contamination **SCA UTIL-6:** Water Efficient Landscapes (WELO) No Mitigation Measure Required	LTS	No New Significant Impact, No Mitigation Measures Identified.
4.9 Land Use and Planning			
Impact LU-1: The proposed Project would not divide an established community. (Criterion a) (Less than Significant)	No Mitigation Measure Required	LTS	No New Significant Impact, No Mitigation Measures Identified.
Impact LU-2: The proposed Project would not result in a fundamental conflict between adjacent or nearby land uses. (Criterion b) (Less than Significant)	No Mitigation Measure Required	LTS	No New Significant Impact, No Mitigation Measures Identified.
Impact LU-3: The Project would not conflict with any applicable land use plan, policy, or the regulation of an agency with jurisdiction over the Project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect. (Criterion c) (Less than Significant)	No Mitigation Measure Required	LTS	No New Significant Impact, No Mitigation Measures Identified.

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, MITIGATION MEASURES AND RESIDUAL IMPACTS
COMPARISON OF THE 2015 OAK KNOLL PROJECT AND FINDINGS OF THE 1998 EIR/EIS

Impacts, Criterion, and Significance Prior to Mitigation	Mitigation Measures and/or Standard Condition of Approval (SCA)	Significance after Mitigation or SCA	Comparison to 1998 EIR/EIS Findings[1]
4.9 Land Use and Planning (cont.)			
Impact LU-4: The proposed Project, in combination with other past, present, existing, approved, pending, and reasonably foreseeable future projects within and around the Project area, would not result in an adverse cumulative impact to land use and planning. (Less than Significant)	No Mitigation Measure Required	LTS	No New Significant Impact, No Mitigation Measures Identified.
4.10 Noise and Vibration			
Impact NOI-1: Construction of the proposed Project would not result in substantial temporary or periodic increases in ambient noise or vibration levels in the Area above existing levels or in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. (Criteria a, b, and h) (Less than Significant with SCAs)	**SCA NOI-1:** Construction Days/Hours. **SCA NOI-2:** Construction Noise. **SCA NOI-3:** Extreme Construction Noise **SCA NOI-4:** Project-Specific Construction Noise Reduction Measures. **SCA NOI-5:** Construction Noise Complaints. **SCA NOI-8:** Exposure to Vibration. **SCA NOI-9:** Vibration Impacts on Adjacent Historic Structures or Vibration-Sensitive Activities. No Mitigation Measure Required	LTS	No New Significant Impact; **Previous Mitigation Measures Replaced with SCAs**.
Impact NOI-2: The proposed Project would not increase operational noise levels in the project vicinity to levels in excess of standards established in the Oakland Noise Ordinance (Oakland Planning Code Section 17.120.050) regarding operational noise. (Criterion c) (Less than Significant with SCA)	**SCA NOI-7:** Operational Noise No Mitigation Measure Required	LTS	No New Significant Impact, No New Mitigation Measures Identified.
Impact NOI-3: The proposed Project would not propose land uses in conflict with the land use compatibility guidelines of the Oakland General Plans. (Criterion f) (Less than Significant with SCA)	**SCA NOI-6:** Exposure to Community Noise	LTS	No New Significant Impact, No new Mitigation Measures Identified.
Impact NOI-4: The proposed Project would not expose persons to interior Ldn or CNEL greater than 45 dBA for residential dwellings to noise levels in excess of standards established in the Oakland Noise Ordinance and Planning Code or the California Noise Insulation Standards. (Criterion e) (Less than Significant with SCAs)	**SCA NOI-6:** Exposure to Community Noise No Mitigation Measure Required	LTS	No New Significant Impact, No New Mitigation Measures Identified.

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, MITIGATION MEASURES AND RESIDUAL IMPACTS
COMPARISON OF THE 2015 OAK KNOLL PROJECT AND FINDINGS OF THE 1998 EIR/EIS

Impacts, Criterion, and Significance Prior to Mitigation	Mitigation Measures and/or Standard Condition of Approval (SCA)	Significance after Mitigation or SCA	Comparison to 1998 EIR/EIS Findings[1]
4.10 Noise and Vibration (cont.)			
Impact NOI-5: The proposed Project would not generate noise resulting in a 5 dBA permanent increase in ambient noise levels in the project vicinity, above existing levels without the Project. (Criterion d) (Less than Significant)	No Mitigation Measure Required	LTS	No New Significant Impact, No New Mitigation Measure Identified.
Impact NOI-6: Traffic generated by the proposed Project, in combination with traffic from past, present, existing, approved, pending and reasonably foreseeable future projects, would not substantially increase ambient noise levels in the Project Area; and construction and operational noise levels from the Project combined with noise levels from past, present, existing, approved, pending and reasonably foreseeable future projects, could increase ambient noise, but to less than significant levels. (Less than Significant with SCAs)	**SCA NOI-1:** Construction Days/Hours. **SCA NOI-2:** Construction Noise. **SCA NOI-3:** Extreme Construction Noise **SCA NOI-4:** Project-Specific Construction Noise Reduction Measures. **SCA NOI-5:** Construction Noise Complaints. **SCA NOI-6:** Exposure to Community Noise **SCA NOI-7:** Operational Noise. **SCA NOI-8:** Exposure to Vibration. **SCA NOI-9:** Vibration Impacts on Adjacent Historic Structures or Vibration-Sensitive Activities.	LTS	No New Significant Impact, No New Mitigation Measure Identified.
Impact NOI-7: The proposed Project would not have stationary noise sources (such as rooftop mechanical equipment and back-up generators) that, in combination with traffic generated by the proposed Project; and from past, present, existing, approved, pending and reasonably foreseeable future projects would result in a significant cumulative impact. (Criterion d, cumulative, combined sources) (Less than Significant with SCAs)	**SCA NOI-6:** Exposure to Community Noise **SCA NOI-7:** Operational Noise.	LTS	No New Significant Impact, No New Mitigation Measure Identified.
4.11 Population and Housing			
Impact POPU-1: The Project would not induce substantial population growth in a manner not contemplated in the General Plan, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extensions of roads or other infrastructure), such that additional infrastructure is required but the impacts of such were not previously considered or analyzed. (Criterion a) (Less than Significant)	No Mitigation Measure Required	LTS	No New Significant Impact, No Mitigation Measure Identified.

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, MITIGATION MEASURES AND RESIDUAL IMPACTS
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Impacts, Criterion, and Significance Prior to Mitigation	Mitigation Measures and/or Standard Condition of Approval (SCA)	Significance after Mitigation or SCA	Comparison to 1998 EIR/EIS Findings[1]
4.12 Public Services and Recreation			
Impact PSR-1: The proposed Project would result in an increase in demand for fire protection and emergency medical response services that would not require new or physically altered fire protection facilities in order to maintain acceptable performance objectives. (Criterion a.1) (Less than Significant with SCAs)	**SCA PSR-1:** Compliance with Other Requirements **SCA HAZ-4:** Fire Safety Plan **SCA HAZ-5:** Wildfire Prevention Area – Vegetation Management No Mitigation Measure Required	LTS	No New Significant Impact, No Mitigation Measure Identified.
Impact PSR-2: The proposed Project would not result in an increase in demand for police services that would not require new or physically altered police facilities in order to maintain acceptable performance objectives. (Criterion a.2) (Less than Significant)	**Recommendation PSR-1:** As part of the City's standard development review process, the Project sponsor should submit the Project plans for Crime Prevention through Environmental Design (CPTED) review by the Oakland Police Department and Bureau of Planning staff. The Project should consider design features included on the City's CPTED Checklists for residential, commercial, and civic uses. The Project sponsor shall incorporate the Police Department's recommendations into the final Project design and shall implement the design measures. CPTED review and recommendations may address points of access to the Project site or adjacent parcels, adequate public lighting, landscaping and buffering that provides visual access, particularly in parks, open spaces, and pedestrian and bicycle facilities, etc.	LTS	No New Significant Impact; **Previous Mitigation Measure Not Applicable;** No New Mitigation Measures Identified.
Impact PSR-3: The proposed Project would not result in new students for local schools at a level that would require new or physically altered school facilities to maintain acceptable performance objectives. (Criterion a.3) (Less than Significant)	No Mitigation Measure Required	LTS	No New Significant Impact; **Previous Mitigation Measure No Longer Applicable**; No New Mitigation Measures Identified.
Impact PSR-4: The proposed Project would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated. (Criterion b) (Less than Significant with SCAs)	No Mitigation Measure Required	LTS	No New Significant Impact, No Mitigation Measure Identified.
Impact PSR-5: The proposed Project would include new recreational facilities; however, the construction and long-term use of these facilities would not have an adverse physical effect on the environment. (Criterion c) (Less than Significant with SCAs)	**SCA AIR-1:** Construction-Related Air Pollution Controls (Dust and Equipment Emissions) **SCA BIO-1:** Tree Removal during Breeding Bird Season **SCA BIO-3:** Creek Protection Plan **SCA BIO-4:** Dewatering/Diversion **SCA CUL-2:** Archaeological and Paleontological Resources – Discovery During Construction.	LTS	No New Significant Impact; No Mitigation Measures Identified.

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, MITIGATION MEASURES AND RESIDUAL IMPACTS
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Impacts, Criterion, and Significance Prior to Mitigation	Mitigation Measures and/or Standard Condition of Approval (SCA)	Significance after Mitigation or SCA	Comparison to 1998 EIR/EIS Findings[1]
4.12 Public Services and Recreation (cont.)			
Impact PSR-5 (cont.)	**SCA CUL-3:** Archaeologically Sensitive Areas – Pre-Construction Measures. **SCA GEO-3:** Construction-Related Permit(s). **SCA HYD-1:** Erosion and Sedimentation Control Plan for Construction **SCA HYD-2:** State Construction General Permit **SCA NOI-1:** Construction Days/Hours. **SCA NOI-2:** Construction Noise. **SCA NOI-4:** Project-Specific Construction Noise Reduction Measures. **SCA NOI-5:** Construction Noise Complaints. **SCA PSR-1:** Compliance with Other Requirements **SCA TRA-1:** Construction Activity in the Public Right-of-Way		
Impact PSR-6: The proposed Project, in combination with other past, present, existing, approved, pending, and reasonably foreseeable future projects within and around the Project area, would not result in an adverse cumulative increase in demand for public services or recreational facilities. (Less than Significant with SCAs)	**SCA AIR-1:** Construction-Related Air Pollution Controls (Dust and Equipment Emissions) **SCA BIO-1:** Tree Removal during Breeding Bird Season **SCA BIO-3:** Creek Protection Plan **SCA BIO-4:** Dewatering/Diversion **SCA CUL-2**: Archaeological and Paleontological Resources – Discovery During Construction **SCA CUL-3:** Archaeologically Sensitive Areas – Pre-Construction Measures; Provision B: Construction ALERT Sheet **SCA GEO-3:** Construction-Related Permit(s) **SCA HAZ-4:** Fire Safety Plan **SCA HAZ-5:** Wildfire Prevention Area – Vegetation Management **SCA HYD-1:** Erosion and Sedimentation Control Plan for Construction **SCA HYD-2:** State Construction General Permit **SCA NOI-1:** Construction Days/Hours. **SCA NOI-2:** Construction Noise. **SCA NOI-3:** Extreme Construction Noise	LTS	No New Significant Impact; Previous Project Mitigation Measures (Police and Schools) No Longer Applicable; No Mitigation Measures Identified.

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, MITIGATION MEASURES AND RESIDUAL IMPACTS
COMPARISON OF THE 2015 OAK KNOLL PROJECT AND FINDINGS OF THE 1998 EIR/EIS

Impacts, Criterion, and Significance Prior to Mitigation	Mitigation Measures and/or Standard Condition of Approval (SCA)	Significance after Mitigation or SCA	Comparison to 1998 EIR/EIS Findings[1]
4.12 Public Services and Recreation (cont.)			
Impact PSR-6 (cont.)	**SCA NOI-4:** Project-Specific Construction Noise Reduction Measures. **SCA NOI-5:** Construction Noise Complaints. **SCA PSR-1:** Compliance with Other Requirements **Recommendation PSR-1:** (see above) **SCA TRA-1** (Construction Activity in the Public Right-of-Way).		
4.13 Transportation and Traffic			
Impact TRANS-1: Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized I-580 Eastbound On Ramp/Seminary Avenue/Kuhnle Avenue (intersection #2) and after project completion, this intersection would continue to satisfy the MUTCD peak hour volume traffic signal warrant during the PM peak hour (Criterion f). This intersection operates at LOS E during the AM and PM peak hours, and meets the peak hour signal warrant during the PM peak hour under Existing conditions. (Significant and Unavoidable)	**Mitigation Measure TRANS-1:** Implement the following measures at the I-580 Eastbound On-Ramp/Seminary Avenue/Kuhnle Avenue intersection: a) Signalize intersection providing actuated operations, with split phasing on all approaches to maximize the green time within each cycle for the southbound turning movements, and b) Coordinate the signal timing at this intersection with the adjacent intersection at I-580 Westbound Off-Ramp/Mountain Boulevard/Kuhnle Avenue (intersection #3, signalization proposed as part of Mitigation Measure TRANS-2). This intersection is under the jurisdiction of Caltrans so any equipment or facility upgrades must be approved by Caltrans prior to installation. To implement this measure, the following shall be submitted to the City of Oakland's Transportation Services Division and Caltrans for review and approval: • Plans, Specifications, and Estimates (PS&E) to modify intersection. All elements shall be designed to City and Caltrans standards in effect at the time of construction and all new or upgraded signals should include these enhancements. All other facilities supporting vehicle travel and alternative modes through the intersection should be brought up to both City standards and Americans with Disabilities Act (ADA) standards (according to Federal and State Access Board guidelines) at the time of construction. Current City Standards call for the elements listed below: - 2070L Type Controller with cabinet assembly - GPS communications (clock) - Accessible pedestrian crosswalks according to Federal and State Access Board guidelines with signals (audible and tactile) - Countdown pedestrian head module switch out - City standard ADA wheelchair ramps	SU	**New Significant Impact; Intersection Not Previously Analyzed; New Mitigation Measures Identified.**

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, MITIGATION MEASURES AND RESIDUAL IMPACTS
COMPARISON OF THE 2015 OAK KNOLL PROJECT AND FINDINGS OF THE 1998 EIR/EIS

Impacts, Criterion, and Significance Prior to Mitigation	Mitigation Measures and/or Standard Condition of Approval (SCA)	Significance after Mitigation or SCA	Comparison to 1998 EIR/EIS Findings[1]
4.13 Transportation and Traffic (cont.)			
Impact TRANS-1 (cont.)	- Video detection on existing (or new, if required) - Mast arm poles, full actuation (where applicable) - Polara push buttons (full actuation) - Bicycle detection (full actuation) - Pull boxes - Signal interconnect and communication with trenching (where applicable), or through (E) conduit (where applicable)- 600 feet maximum - Conduit replacement contingency - Fiber Switch - PTZ Camera (where applicable) - Transit Signal Priority (TSP) equipment consistent with other signals along corridor • Signal timing plans for the signals in the coordination group		
Impact TRANS-2: Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized I-580 Westbound Off Ramp/Mountain Boulevard/Kuhnle Avenue (intersection #3) and after project completion, this intersection would continue to satisfy the MUTCD peak hour volume traffic signal warrant during the PM peak hour (Criterion f).This intersection operates at LOS F during the AM and PM peaks, and meets the peak hour signal warrant during the PM peak hour under Existing conditions. (Significant and Unavoidable)	**Mitigation Measure TRANS-2:** Implement the following measures at the I-580 Westbound Off-Ramp/Mountain Boulevard/Kuhnle Avenue intersection: a) Signalize intersection providing actuated operations, with split phasing on the east-west approaches (Mountain Boulevard/I-580 Westbound Off-Ramp) and permitted phasing on north-south (Kuhnle Avenue), and b) Coordinate the signal timing at this intersection with the adjacent intersection at I-580 Eastbound On-Ramp/Seminary Avenue/Kuhnle Avenue (intersection #2, signalization proposed as part of Mitigation Measure TRANS-2). This intersection is under the jurisdiction of Caltrans so any equipment or facility upgrades must be approved by Caltrans prior to installation. To implement this measure, the following shall be submitted to the City of Oakland's Transportation Services Division and Caltrans for review and approval: • PS&E to modify intersection as detailed in Mitigation Measure TRANS-1 • Signal timing plans for the signals in the coordination group This improvement is included in the Southeast Oakland Area TIF Program. Upon acceptance by the City, the applicant shall: • Pay the applicable Southeast Oakland TIF fee, or	SU	**New Significant Impact; Intersection Not Previously Analyzed; New Mitigation Measures Identified.**

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, MITIGATION MEASURES AND RESIDUAL IMPACTS
COMPARISON OF THE 2015 OAK KNOLL PROJECT AND FINDINGS OF THE 1998 EIR/EIS

Impacts, Criterion, and Significance Prior to Mitigation	Mitigation Measures and/or Standard Condition of Approval (SCA)	Significance after Mitigation or SCA	Comparison to 1998 EIR/EIS Findings[1]
4.13 Transportation and Traffic (cont.)			
Impact TRANS-2 (cont.)	• Install the improvements and obtain a credit against its applicable TIF obligations and/or obtain reimbursement from monies collected under the Southeast Oakland TIF program for the amount the installation cos exceeds its TIF obligations; or • Some combination of the above two mitigation methods.		
Impact TRANS-3: Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized I-580 Eastbound Off Ramp/Fontaine Street /Keller Avenue (intersection #12) which would meet the peak hour signal warrant (Criterion f) during the AM and PM peak hours under Existing Plus Project conditions. (Significant and Unavoidable)	**Mitigation Measure TRANS-3:** Implement the following measures at the I-580 Eastbound Off-Ramp/Fontaine Street/Keller Avenue intersection: a) Restripe westbound Keller Avenue approach to provide one left-turn lane and one shared through/right-turn lane, b) Signalize intersection providing actuated operations, with protected left-turn phasing on the westbound Keller Avenue approach, and c) Coordinate the signal timing at this intersection with the adjacent intersection at Mountain Boulevard/Keller Avenue (intersection #13, signalization proposed as part of Mitigation Measure TRANS-4) and I-580 Westbound Off-Ramp/Mountain Boulevard/Shone Avenue (intersection #16, signalization proposed as part of Mitigation Measure TRANS-5). This intersection is under the jurisdiction of Caltrans so any equipment or facility upgrades must be approved by Caltrans prior to installation. To implement this measure, the following shall be submitted to the City of Oakland's Transportation Services Division and Caltrans for review and approval: • PS&E to modify intersection as detailed in Mitigation Measure TRANS-1 • Signal timing plans for the signals in the coordination group This improvement is included in the Southeast Oakland Area TIF Program. Upon acceptance by the City, the applicant shall: • Pay the applicable Southeast Oakland TIF fee, or • Install the improvements and obtain a credit against its applicable TIF obligations and/or obtain reimbursement from monies collected under the Southeast Oakland TIF program for the amount the installation cos exceeds its TIF obligations; or • Some combination of the above two mitigation methods.	SU	No New Significant Impact or Changes**, New Mitigation Measures Identified.**

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, MITIGATION MEASURES AND RESIDUAL IMPACTS
COMPARISON OF THE 2015 OAK KNOLL PROJECT AND FINDINGS OF THE 1998 EIR/EIS

Impacts, Criterion, and Significance Prior to Mitigation	Mitigation Measures and/or Standard Condition of Approval (SCA)	Significance after Mitigation or SCA	Comparison to 1998 EIR/EIS Findings[1]
4.13 Transportation and Traffic (cont.)			
Impact TRANS-4: Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized Mountain Boulevard/Keller Avenue (intersection #13) and after project completion, this intersection would continue to satisfy the MUTCD peak hour volume traffic signal warrant during the AM and PM peak hours (Criterion f). This intersection meets the peak hour signal warrant during the AM and PM peak hours under Existing conditions. (Potentially Significant)	**Mitigation Measure TRANS-4:** Implement the following measures at the Mountain Boulevard/Keller Avenue intersection: a) Restripe eastbound Keller Avenue approach to provide one shared left-turn/through lane and one shared through/right-turn lane, b) Restripe westbound Keller Avenue approach to provide one shared left-turn/through lane and one right-turn lane, c) Restripe southbound Mountain Boulevard Avenue approach to provide one left-turn lane and one right-turn lane, d) Signalize intersection providing actuated operations, with split phasing on the east-west approaches (Keller Avenue) and permitted phasing on north-south (Mountain Boulevard) approaches, and e) Coordinate the signal timing at this intersection with the adjacent intersections at I-580 Eastbound Off-Ramp/Fontaine Street/Keller Avenue (intersection #12, signalization proposed as part of Mitigation Measure TRANS-3) and I-580 Westbound Off-Ramp/Mountain Boulevard/Shone Avenue (intersection #16, signalization proposed as part of Mitigation Measure TRANS-5). To implement this measure, the following shall be submitted to the City of Oakland's Transportation Services Division and Caltrans for review and approval: • PS&E to modify intersection as detailed in Mitigation Measure TRANS-1 • Signal timing plans for the signals in the coordination This improvement is included in the Southeast Oakland Area TIF Program. Upon acceptance by the City, the applicant shall: • Pay the applicable Southeast Oakland TIF fee, or • Install the improvements and obtain a credit against its applicable TIF obligations and/or obtain reimbursement from monies collected under the Southeast Oakland TIF program for the amount the installation cos exceeds its TIF obligations; or • Some combination of the above two mitigation methods.	LTS	No New Significant Impact or Changes.

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, MITIGATION MEASURES AND RESIDUAL IMPACTS
COMPARISON OF THE 2015 OAK KNOLL PROJECT AND FINDINGS OF THE 1998 EIR/EIS

Impacts, Criterion, and Significance Prior to Mitigation	Mitigation Measures and/or Standard Condition of Approval (SCA)	Significance after Mitigation or SCA	Comparison to 1998 EIR/EIS Findings[1]
4.13 Transportation and Traffic (cont.)			
Impact TRANS-5: Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized I-580 Westbound Off Ramp/Mountain Boulevard/Shone Avenue (intersection #16) which would meet the peak hour signal warrant (Criterion f) during the AM and PM peak hours under Existing Plus Project conditions. (Significant and Unavoidable)	**Mitigation Measure TRANS-5:** Implement the following measures at the I-580 Westbound Off-Ramp/Mountain Boulevard/Shone Avenue intersection: a) Restripe the I-580 westbound off-ramp approach to provide one left-turn lane and one shared left-turn/right-turn lane and re-stripe Mountain Boulevard to provide two receiving lanes, b) Signalize intersection providing actuated operations, with split phasing on the east-west approaches (I-580 Westbound Off-Ramp/Shone Avenue) and permitted phasing on north-south (Mountain Boulevard) approaches, and c) Coordinate the signal timing at this intersection with the adjacent intersections at I-580 Eastbound Off-Ramp/Fontaine Street/Keller Avenue (intersection #12, signalization proposed as part of Mitigation Measure TRANS-3) and Mountain Boulevard/Keller Avenue (intersection #13, signalization proposed as part of Mitigation Measure TRANS-4). This intersection is under the jurisdiction of Caltrans so any equipment or facility upgrades must be approved by Caltrans prior to installation. To implement this measure, the following shall be submitted to the City of Oakland's Transportation Services Division and Caltrans for review and approval: • PS&E to modify intersection as detailed in Mitigation Measure TRANS-1 • Signal timing plans for the signals in the coordination This improvement is included in the Southeast Oakland Area TIF Program. Upon acceptance by the City, the applicant shall: • Pay the applicable Southeast Oakland TIF fee, or • Install the improvements and obtain a credit against its applicable TIF obligations and/or obtain reimbursement from monies collected under the Southeast Oakland TIF program for the amount the installation cos exceeds its TIF obligations; or • Some combination of the above two mitigation methods.	SU	No New Significant Impact or Changes**, New Mitigation Measures Identified.**
Impact TRANS-6: Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized Mountain Boulevard/Golf Links Road (intersection #40) which would meet the peak hour signal warrant (Criterion f) during the AM peak hour under Existing Plus Project conditions. (Significant and Unavoidable)	**Mitigation Measure TRANS-6:** Implement the following measures at the Mountain Boulevard/Golf Links Road intersection: a) Restripe the eastbound Golf Links Road approach to provide one left-turn lane and one shared left-turn/through/right-turn lane, and restripe Mountain Boulevard to provide two receiving lanes for a minimum of 100 feet, b) Signalize intersection providing actuated operations, with split phasing on the east-west approaches (Golf Links Road) and permitted phasing on north-south (Mountain Boulevard/Oakland Zoo Entrance) approaches, and	SU	No New Significant Impact but **Updated Mitigation Measure Identified.**

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, MITIGATION MEASURES AND RESIDUAL IMPACTS
COMPARISON OF THE 2015 OAK KNOLL PROJECT AND FINDINGS OF THE 1998 EIR/EIS

Impacts, Criterion, and Significance Prior to Mitigation	Mitigation Measures and/or Standard Condition of Approval (SCA)	Significance after Mitigation or SCA	Comparison to 1998 EIR/EIS Findings[1]
4.13 Transportation and Traffic (cont.)			
Impact TRANS-6 (cont.)	c) Coordinate the signal timing at this intersection with the adjacent intersections at Golf Links Road/I-580 Eastbound Off-Ramp/98th (#38) and Golf Links Road/ I-580 Westbound Ramps (#39) intersections. The Golf Links Road/I-580 ramp-terminal intersections are under the jurisdiction of Caltrans so any equipment or facility upgrades must be coordinated and approved by Caltrans prior to installation. To implement this measure, the following shall be submitted to the City of Oakland's Transportation Services Division and Caltrans for review and approval: • PS&E to modify intersection as detailed in Mitigation Measure TRANS-1 • Signal timing plans for the signals in the coordination This improvement is included in the Southeast Oakland Area TIF Program. In the absence of any applicable Southeast Oakland TIF for this improvement, the applicant shall install the improvements and may seek any applicable credits against its Citywide TIF obligations and/or reimbursement from monies collected under the Citywide TIF program for the amount the installation cost exceeds its Citywide TIF obligations or fair share contribution.		
Impact TRANS-7: Traffic generated by the Oak Knoll Project would increase the volume-to-capacity ratio by 0.03 or more along the following freeway segments which would operate at LOS F (Significance Threshold G) under Existing Plus Project conditions (Significant and Unavoidable): • I-580 Eastbound/SR 13 Southbound On-Ramp Junction (segment #2) • I-580 Eastbound/Edwards Avenue Off-Ramp Junction (segment #4) • I-580 Eastbound between Edwards Avenue and Keller Avenue (segment #5) • I-580 Eastbound/Keller Avenue Off-Ramp Junction (segment #6)	**Mitigation Measure TRANS-7:** No feasible mitigation measures are available that would mitigate the project impacts on the freeway segments.	SU	**New Significant Impact; Significant and Unavoidable, No feasible Mitigation Measure Identified**

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, MITIGATION MEASURES AND RESIDUAL IMPACTS
COMPARISON OF THE 2015 OAK KNOLL PROJECT AND FINDINGS OF THE 1998 EIR/EIS

Impacts, Criterion, and Significance Prior to Mitigation	Mitigation Measures and/or Standard Condition of Approval (SCA)	Significance after Mitigation or SCA	Comparison to 1998 EIR/EIS Findings[1]
4.13 Transportation and Traffic (cont.)			
Impact TRANS-8: Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized I-580 Eastbound On Ramp/Seminary Avenue/Kuhnle Avenue (intersection #2) and after project completion this intersection would continue to satisfy the MUTCD peak hour volume traffic signal warrant during the AM and PM peak hours (Criterion f) under 2040 Plus Project conditions. (Significant and Unavoidable)	**Mitigation Measure TRANS-8:** Implement Mitigation Measure TRANS-1.	SU	**New Significant Impact; Intersection Not Previously Analyzed. New Mitigation Measures Identified.**
Impact TRANS-9: Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized I-580 Westbound Off Ramp/Mountain Boulevard/Kuhnle Avenue (intersection #3) and after project completion, this intersection would continue to satisfy the MUTCD peak hour volume traffic signal warrant during the AM and PM peak hours (Criterion f) under 2040 Plus Project conditions. (Significant and Unavoidable)	**Mitigation Measure TRANS-9:** Implement Mitigation Measure TRANS-2.	SU	**New Significant Impact; Intersection Not Previously Analyzed. New Mitigation Measures Identified.**
Impact TRANS-10: Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized I-580 Eastbound Off Ramp/Fontaine Street /Keller Avenue (intersection #12) which would meet the peak hour signal warrant (Criterion f) during the AM and PM peak hours under 2040 Plus Project conditions. (Significant and Unavoidable)	**Mitigation Measure TRANS-10:** Implement Mitigation Measure TRANS-3.	SU	**New Significant Impact**. **New Mitigation Measure Identified.**
Impact TRANS-11: Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized Mountain Boulevard/Keller Avenue (intersection #13) and after project completion, this intersection would continue to satisfy the MUTCD peak hour volume traffic signal warrant during the AM and PM peak hours (Criterion f) under 2040 Plus Project conditions. (Less than Significant after Mitigation)	**Mitigation Measure TRANS-11:** Implement Mitigation Measure TRANS-4.	LTS	No New Significant Impact or Changes. **New Mitigation Measure Identified.**

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, MITIGATION MEASURES AND RESIDUAL IMPACTS
COMPARISON OF THE 2015 OAK KNOLL PROJECT AND FINDINGS OF THE 1998 EIR/EIS

Impacts, Criterion, and Significance Prior to Mitigation	Mitigation Measures and/or Standard Condition of Approval (SCA)	Significance after Mitigation or SCA	Comparison to 1998 EIR/EIS Findings[1]
4.13 Transportation and Traffic (cont.)			
Impact TRANS-12: Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized I-580 Westbound Off Ramp/Mountain Boulevard/ Shone Avenue (intersection #16) which would meet the peak hour signal warrant (Criterion f) during the AM and PM peak hours under 2040 Plus Project conditions. (Significant and Unavoidable)	**Mitigation Measure TRANS-12:** Implement Mitigation Measure TRANS-5.	SU	New Significant Impact or Changes. **New Mitigation Measure Identified.**
Impact TRANS-13: Traffic generated by the Oak Knoll Project would increase the average intersection delay by more than four seconds at the signalized International Boulevard/98th Avenue (Intersection #27), which would operate at LOS E (Criterion c) during the PM peak hour under 2040 No Project conditions. (Significant and Unavoidable)	**Mitigation Measure TRANS-13:** No feasible mitigation measures are available that would mitigate the project impact at the International Boulevard/98th Avenue (intersection #27).	SU	**New Significant Impact. Intersection Not Previously Analyzed. No feasible Mitigation Measure Identified.**
Impact TRANS-14: Traffic generated by the Oak Knoll Project would increase the average intersection delay and degrade the LOS from LOS C to LOS E (Criterion a) at the signalized Golf Links Road/I-580 Eastbound Off-Ramp/98th Avenue (Intersection #38), during the PM peak hour. (Significant and Unavoidable)	**Mitigation Measure TRANS-14:** Implement the following measures at the Golf Links Road/I-580 Eastbound Off-Ramp/98th Avenue intersection: a) Extend the shared through/right-turn lane on the I-580 eastbound off-ramp to provide a minimum 450 feet of storage length, and b) Reconfigure Golf Links Road between the I-580 eastbound off-ramp and the I-580 westbound ramps to provide two left-turn lanes and one through lane along eastbound Golf Links Road and one left-turn lane and one shared left-turn/ through lane along westbound Golf Links Road. These improvements are not currently included in any RIF program. The project applicant would pay the City for a fair share contribution to these improvements. Payment of its fair share would mitigate the project's contribution to the cumulative impact.	SU	**New Significant Impact. Intersection not Previously Analyzed. New Mitigation Measure Identified.**
Impact TRANS-15: Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized Mountain Boulevard/Golf Links Road (intersection #40) which would meet the peak hour signal warrant (Criterion f) during the AM and PM peak hours under 2040 Plus Project conditions. (Significant and Unavoidable)	**Mitigation Measure TRANS-15:** Implement Mitigation Measure TRANS-6 and the following measure: a) Widen I-580 westbound off-ramp to provide one shared left-turn/through lane and two right-turn lanes (minimum 300 feet of storage length) approaching the intersection. These improvements are not currently included in any TIF program. If, at the time the improvements are needed to mitigate the impact, signal warrants have been met, and Caltrans has approved the improvements to their facilities, then the project applicant shall fully fund and construct the improvements, and may seek reimbursement for the portion that is beyond their fair share contribution, from other potentially available funding sources.	SU	No New Significant Impact but **Updated Mitigation Measure Identified**.

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, MITIGATION MEASURES AND RESIDUAL IMPACTS
COMPARISON OF THE 2015 OAK KNOLL PROJECT AND FINDINGS OF THE 1998 EIR/EIS

Impacts, Criterion, and Significance Prior to Mitigation	Mitigation Measures and/or Standard Condition of Approval (SCA)	Significance after Mitigation or SCA	Comparison to 1998 EIR/EIS Findings[1]
4.13 Transportation and Traffic (cont.)			
Impact TRANS-16: Traffic generated by the Oak Knoll Project would increase the volume-to-capacity ratio by 0.03 or more along the following freeway segments which would operate at LOS F (Criterion g) under 2040 Plus Project conditions (Significant prior to Mitigation): • I-580 Eastbound/SR 13 Southbound On-Ramp Junction (segment #2) • I-580 Eastbound between Edwards Avenue and Keller Avenue (segment #5) • I-580 Eastbound/Keller Avenue Off-Ramp Junction (segment #6) • I-580 Westbound/Seminary Avenue Off-Ramp Junction (segment #23) • I-580 Westbound/Seminary Avenue Off-Ramp Junction (segment #24)	**Mitigation Measure TRANS-16:** No feasible mitigation measures are available that would mitigate the project impacts on the freeway segments.	SU	**New Significant Impact. Intersection Not Previously Analyzed. No feasible Mitigation Measure Identified.**
Consistency with Adopted Policies, Plans or Programs Supporting Alternative Transportation The proposed Project would not conflict with adopted City policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities.	**SCA TRA-4:** Transportation and Parking Demand Management. **SCA TRA-2:** Bicycle Parking	LTS	No New Significant Impact; No Mitigation Measures Identified.
Construction-Period Impacts There may be short-term temporary, adverse effects on the circulation system during construction of each project phase but these would not rise to the level of a significant impact due to their temporary nature.	**SCA TRA-1:** Construction Activity in the Public Right-of-Way.	LTS	No New Significant Impact; No Mitigation Measures Identified
Pedestrian Safety	**Recommendation TRANS-1:** Provide high-visibility crosswalks across Mountain Boulevard at Creekside Parkway, across Mountain Boulevard at Sequoyah Road, across Keller Avenue at Creekside Parkway, and at the unsignalized and uncontrolled movements at intersections within the site, consistent with City of Oakland's guidelines in place at the time of final design.	Not a CEQA Impact	

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, MITIGATION MEASURES AND RESIDUAL IMPACTS
COMPARISON OF THE 2015 OAK KNOLL PROJECT AND FINDINGS OF THE 1998 EIR/EIS

Impacts, Criterion, and Significance Prior to Mitigation	Mitigation Measures and/or Standard Condition of Approval (SCA)	Significance after Mitigation or SCA	Comparison to 1998 EIR/EIS Findings[1]
4.13 Transportation and Traffic (cont.)			
Bus Rider Safety	**Recommendation TRANS-2**: Improve the following existing bus stops in the vicinity of the project site to provide bus shelter, bench, wayfinding information, pedestrian scale lighting and minimum 80 foot red curb. • Mountain Boulevard/Creekside Parkway • Mountain Boulevard/Sequoya Road • Keller Avenue/Creekside Parkway **Recommendation TRANS-3**: Provide sidewalk along southbound Mountain Boulevard to close the existing gap between the Oak Knoll Heights exit driveway and the existing bus stop at Sequoyah Road.	Not a CEQA Impact	
Vehicles Miles of Travel	**SCA TRA-4:** Transportation and Parking Demand Management.	Not a CEQA Impact	NA
4.14 Utilities and Service Systems			
Impact UTIL-1: Sanitary wastewater generated by construction and operation of the proposed Project would not exceed wastewater treatment requirements of the San Francisco Bay Regional Water Quality Control Board nor result in a determination by the wastewater treatment provider that it does not have adequate capacity to serve the Project's projected demand. (Criteria a and d) (Less than Significant with SCAs)	**SCA UTIL-4:** Sanitary Sewer System No Mitigation Measure Required	LTS	No New Significant Impact; No Mitigation Measures Identified.
Impact UTIL-2: Construction and operation of the proposed Project would result in construction of new storm water drainage facilities or expansion of existing facilities, but the construction of which would not cause significant environmental effects. (Criterion b) (Less than Significant with SCAs)	**SCA AIR-1:** Construction-Related Air Pollution Controls (Dust and Equipment Emissions) **SCA BIO-1:** Tree Removal During Bird Breeding Season **SCA BIO-3:** Creek Protection Plan **SCA BIO-4:** Dewatering/Diversion **SCA CUL-2:** Archaeological and Paleontological Resources – Discovery During Construction. **SCA CUL-3:** Archaeologically Sensitive Areas – Pre-Construction Measures. **SCA GEO-3:** Construction-Related Permit(s). **SCA HYD-1:** Erosion and Sedimentation Control Plan for Construction **SCA HYD-2:** State Construction General Permit	LTS	No New Significant Impact; No Mitigation Measures Identified.

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, MITIGATION MEASURES AND RESIDUAL IMPACTS
COMPARISON OF THE 2015 OAK KNOLL PROJECT AND FINDINGS OF THE 1998 EIR/EIS

Impacts, Criterion, and Significance Prior to Mitigation	Mitigation Measures and/or Standard Condition of Approval (SCA)	Significance after Mitigation or SCA	Comparison to 1998 EIR/EIS Findings[1]
4.14 Utilities and Service Systems (cont.)			
Impact UTIL-2 (cont.)	**SCA NOI-1:** Construction Days/Hours. **SCA NOI-2:** Construction Noise. **SCA NOI-4:** Project-Specific Construction Noise Reduction Measures. **SCA NOI-5:** Construction Noise Complaints. **SCA TRA-1**: Construction Activity in the Public Right-of-Way. **SCA UTIL-5:** Storm Drain System No Mitigation Measure Required		
Impact UTIL-3: The water demand generated by the proposed Project would not exceed water supplies available to serve the Project from existing entitlements and resources, but would result in construction of water facilities and expansion of existing facilities, construction of which would not cause significant environmental effects. (Criterion c) (Less than Significant with SCA)	**SCA UTIL-6:** Water Efficient Landscapes (WELO) **SCA GHG-2:** Green Building Requirements – Bay Friendly Landscape **SCA AIR-1:** Construction-Related Air Pollution Controls (Dust and Equipment Emissions) **SCA BIO-1:** Tree Removal During Bird Breeding Season **SCA BIO-3:** Creek Protection Plan **SCA BIO-4:** Dewatering/Diversion **SCA CUL-2:** Archaeological and Paleontological Resources – Discovery During Construction. **SCA CUL-3:** Archaeologically Sensitive Areas – Pre-Construction Measures. **SCA GEO-3:** Construction-Related Permit(s). **SCA HYD-1:** Erosion and Sedimentation Control Plan for Construction **SCA HYD-2:** State Construction General Permit **SCA NOI-1:** Construction Days/Hours. **SCA NOI-2:** Construction Noise. **SCA NOI-4:** Project-Specific Construction Noise Reduction Measures. **SCA NOI-5:** Construction Noise Complaints. **SCA TRA-1**: Construction Activity in the Public Right-of-Way. No Mitigation Measure Required	LTS	No New Significant Impact or Changes. Previous Mitigation not Required. No New Mitigation Measure Identified.

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, MITIGATION MEASURES AND RESIDUAL IMPACTS
COMPARISON OF THE 2015 OAK KNOLL PROJECT AND FINDINGS OF THE 1998 EIR/EIS

Impacts, Criterion, and Significance Prior to Mitigation	Mitigation Measures and/or Standard Condition of Approval (SCA)	Significance after Mitigation or SCA	Comparison to 1998 EIR/EIS Findings[1]
4.14 Utilities and Service Systems (cont.)			
Impact UTIL-4: The Project would be served by a landfill with sufficient permitted capacity to accommodate the Project's solid waste disposal needs and would not require the construction of landfill facilities or expansion of existing facilities, construction of which could cause significant environmental effects nor would it violate applicable federal, state, and local statutes and regulations related to solid waste. (Criteria e and f) (Less than Significant with SCAs)	**SCA UTIL-1:** Construction and Demolition Waste Reduction and Recycling **SCA UTIL-3:** Recycling Collection and Storage Space No Mitigation Measure Required		No New Significant Impact or Changes. **Previous Mitigation not Required.** No New Mitigation Measure Identified.
Impact UTIL-5: The proposed Project would not violate applicable federal, state and local statutes and regulations relating to energy standards nor would it result in a determination by the energy provider that it would not have adequate capacity to serve the Project's projected demand. (Criteria g and h) (Less than Significant)	**SCA GHG-1:** Greenhouse Gas (GHG) Reduction Plan **SCA GHG-2:** Green Building Requirements – Bay Friendly Landscape No Mitigation Measure Required	LTS	No New Significant Impact; No Mitigation Measures Identified.
Impact UTIL-6: The Project would not have a considerable contribution to any cumulative impacts related to utilities and service systems, considering the combined effect of the Project, and past, present, approved, pending, and reasonably foreseeable future projects in the area and citywide. (Less than Significant with SCAs)	**SCA AIR-1:** Construction-Related Air Pollution Controls (Dust and Equipment Emissions) **SCA BIO-1:** Tree Removal During Bird Breeding Season **SCA BIO-3:** Creek Protection Plan **SCA BIO-4:** Dewatering/Diversion **SCA CUL-2:** Archaeological and Paleontological Resources – Discovery During Construction. **SCA CUL-3:** Archaeologically Sensitive Areas – Pre-Construction Measures. **SCA GEO-3:** Construction-Related Permit(s). **SCA GHG-1:** Greenhouse Gas (GHG) Reduction Plan **SCA GHG-2:** Green Building Requirements – Bay Friendly Landscape **SCA HYD-1:** Erosion and Sedimentation Control Plan for Construction **SCA HYD-2:** State Construction General Permit **SCA NOI-1:** Construction Days/Hours. **SCA NOI-2:** Construction Noise.	LTS	No New Significant Impact. Previous Mitigation not Required**.** No New Mitigation Measure Identified.

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, MITIGATION MEASURES AND RESIDUAL IMPACTS
COMPARISON OF THE 2015 OAK KNOLL PROJECT AND FINDINGS OF THE 1998 EIR/EIS

Impacts, Criterion, and Significance Prior to Mitigation	Mitigation Measures and/or Standard Condition of Approval (SCA)	Significance after Mitigation or SCA	Comparison to 1998 EIR/EIS Findings[1]
4.14 Utilities and Service Systems (cont.)			
Impact UTIL-6 (cont.)	**SCA NOI-4:** Project-Specific Construction Noise Reduction Measures. **SCA NOI-5:** Construction Noise Complaints. **SCA TRA-1**: Construction Activity in the Public Right-of-Way. **SCA UTIL-1:** Construction and Demolition Waste Reduction and Recycling **SCA UTIL-3:** Recycling Collection and Storage Space **SCA UTIL-4:** Sanitary Sewer System **SCA UTIL-5:** Storm Drain System **SCA UTIL-6:** Water Efficient Landscapes (WELO)No Mitigation Measure Required		
4.15 Energy			
Impact ENER-1: Construction and operation of the proposed Project would not result in the wasteful, inefficient or unnecessary use of energy resources (Criterion 1). (Less than Significant with SCAs)	**SCA AIR-1:** Construction-Related Air Pollution Controls **SCA GHG-1:** Greenhouse Gas (GHG) Reduction Plan **SCA GHG-2:** Green Building Requirements – Bay Friendly Landscape **SCA TRA-4:** Parking and Transportation Demand Management	LTS	No New Significant Impact. Topic not Previously Required to be Analyzed. Mitigation not Required.

CHAPTER 3
Project Description

3.1 Project Location, Site Description and Ownership

3.1.1 Project Location

The Oak Knoll Mixed Use Community Plan Project ("Oak Knoll Project" or "Project") site consists of approximately 165 acres of the 183-acre former Oak Knoll Naval Medical Center Oakland (NMCO) property, approximately 15 acres of an adjacent property (known as the "Hardenstine parcel"), and approximately 8 acres of City-owned property, for a site with a total size of approximately 188 acres. The Project site is bounded by Mountain Boulevard / Interstate 580 (I-580) to the west, Keller Avenue to the north and east, and Sequoyah Road to the south.[1] A map (**Figure 3-1**) and an aerial photograph of the Project site and the surrounding vicinity (**Figure 3-2**) are provided below.

The Oak Knoll Project site is located in the South Hills area of the City of Oakland in Alameda County, east of San Francisco Bay. The site is located approximately 9.0 miles southeast of downtown Oakland and 12 miles from the Oakland-San Francisco Bay Bridge. I-580 is the nearest regional highway and varies from approximately 100 feet to 600 feet away from the Project site's curved western boundary (Mountain Boulevard) that parallels the highway, and approximately 300 feet from where the nearest residential use would occur on the Project site.[2] Access to State Route 13 (SR-13) is located approximately two miles north of the site. Highway access to the site is via the Keller Avenue off-ramp and Mountain Boulevard on-and off-ramps to I-580. The Oakland International Airport is located approximately 5.5 miles west of the site.

3.1.2 Project Site Description and Ownership

As shown in **Figure 3-3** to follow, Oak Knoll Venture Acquisition LLC (OKVA) owns approximately 165 acres of the former NMCO property and has proposed the Oak Knoll Project on this land, the adjacent 15-acre Hardenstine parcel also owned by OKVA) and, with approval of the City, approximately 8 additional acres within the former NMCO of which the City has retained ownership.

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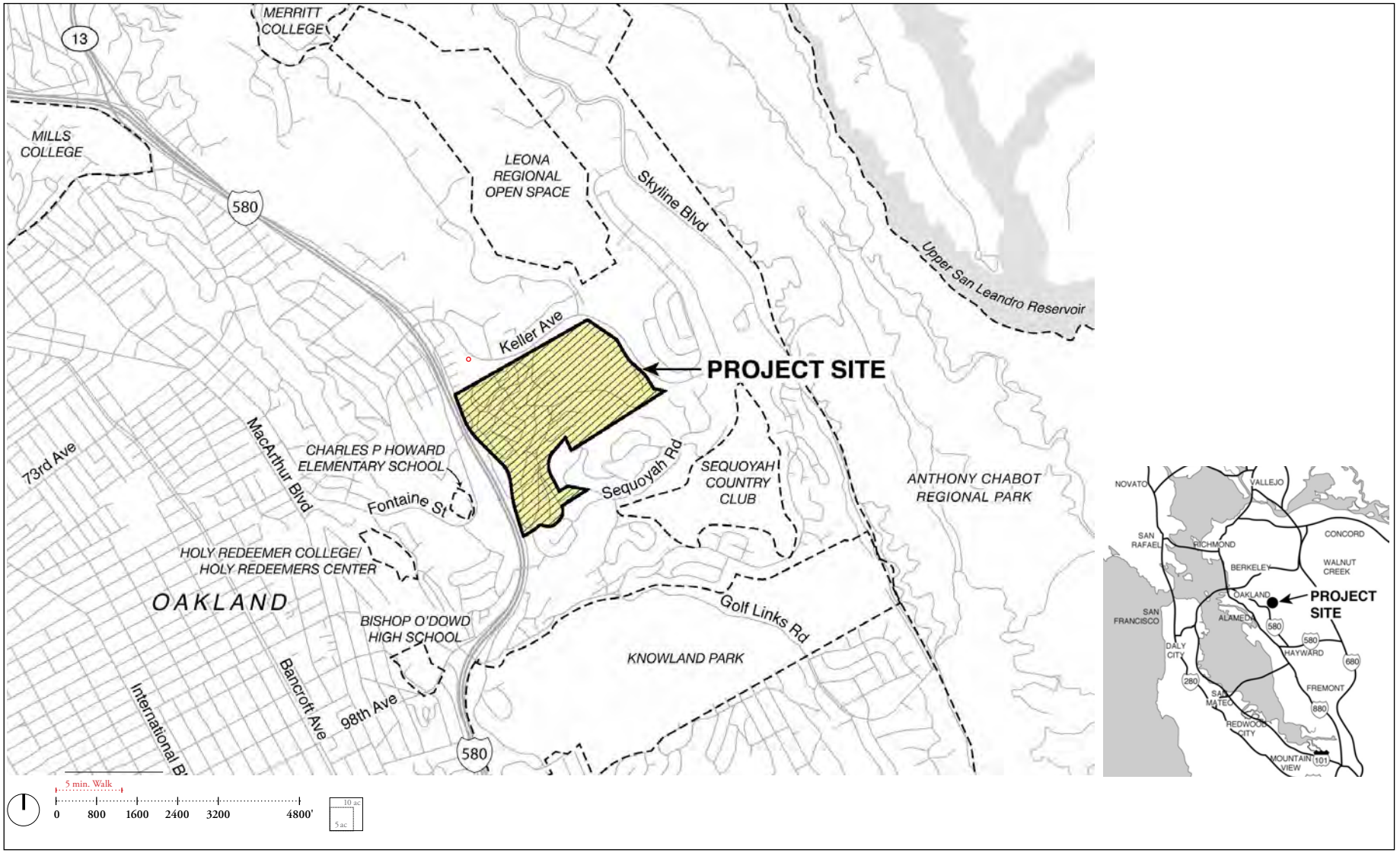
1 For purposes of the EIR, and following Oakland convention, the Oakland Estuary is a western border of Oakland, thus parallel roadways (e.g., I-580 / Mountain Boulevard, Skyline Boulevard) run north-south, and perpendicular roadways (e.g., Keller Avenue, Golf Links Road, 73rd Avenue) run east-west.

2 Measured from the east edge of the I-580 roadway.



SOURCE: ESA; OKVA, Hart Howerton, 2016

Oak Knoll Project . 120645

Figure 3-1

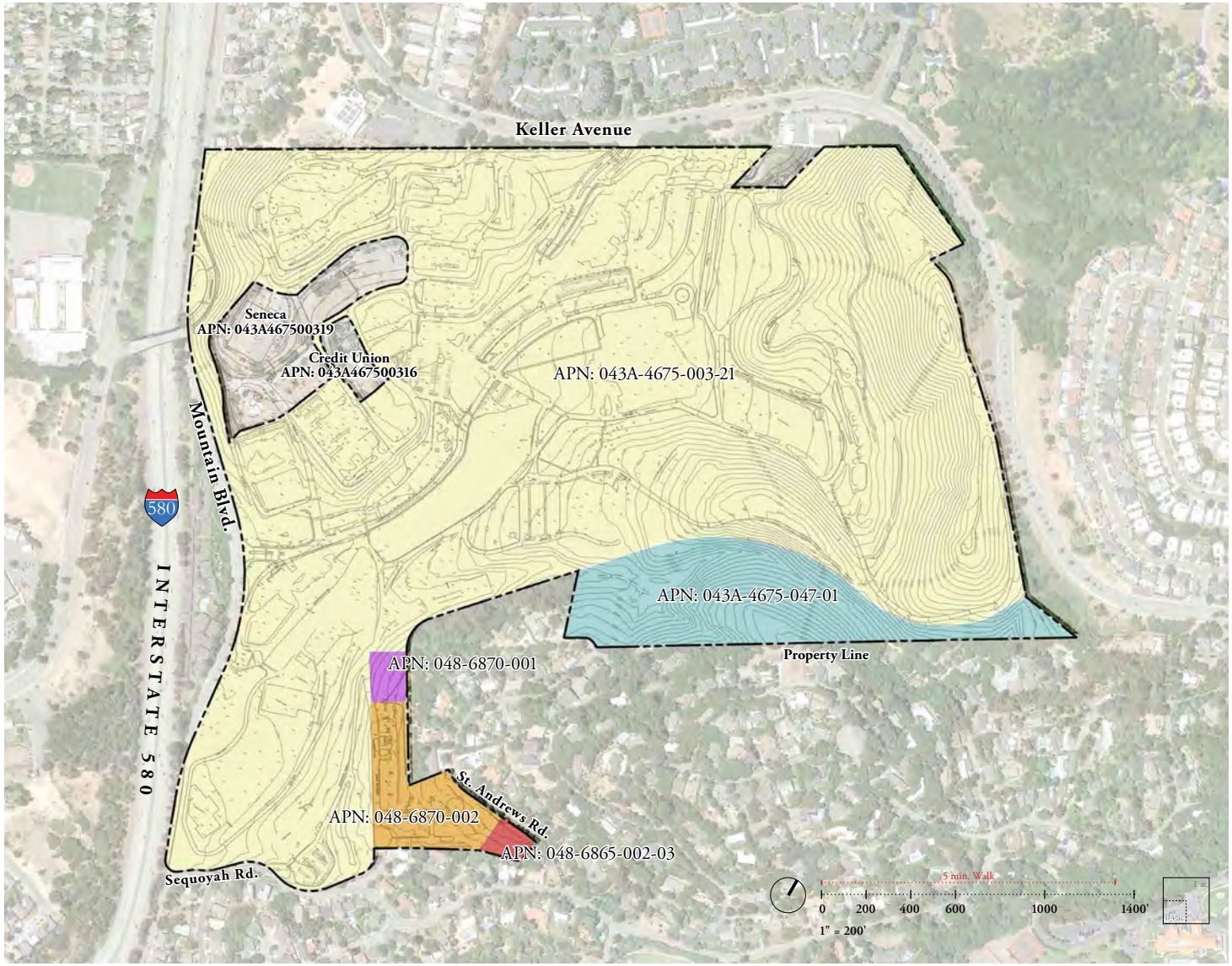
Project Location and Access

LEGEND	
– – –	Property Line
NIP	Not in Project

SOURCE: OKVA, Hart Howerton, 2016

Oak Knoll Project . 120645

Figure 3-2
Site Aerial



LEGEND	
▬ - - ▬	Property Line
NIP	Not in Project

SOURCE: OKVA, Hart Howerton, 2016

Oak Knoll Project . 120645

Figure 3-3
Parcels

Two privately-owned inholdings, the Sea West Coast Guard Federal Credit Union (Sea West) and the Seneca Center for Children and Families (Seneca), are also located on the former NMCO property but are not included within the Oak Knoll Project site. This Draft SEIR assumes that these two existing uses will remain on the site with development of the Project. Both Sea West and Seneca currently operate as administrative offices on these parcels. Foreseeable development within the Seneca property is described and evaluated as part of the cumulative scenario in Chapter 4, *Environmental Setting, Impacts, Standard Conditions of Approval, and Mitigation Measures,* of this Draft SEIR.

The Project site, as defined for purposes of this environmental analysis, consists of the following Alameda County Assessor's Parcels Numbers, owned as indicated in parentheses, as also illustrated in **Figure 3-3**:

- 043A-4675-003-21 (Oak Knoll Venture Acquisition, LLC)
- 048-6865-002-03 (City of Oakland; portion by Oak Knoll Venture Acquisition, LLC)
- 043A-4712-001 (City of Oakland; portion owned by Oak Knoll Venture Acquisition, LLC)
- 048-6870-001 (City of Oakland; portion owned by Oak Knoll Venture Acquisition, LLC)
- 048-6870-002 (City of Oakland; portion owned by Oak Knoll Venture Acquisition, LLC)
- 043A-4675-074-01 (Hardenstine parcel) (Oak Knoll Acquisition Ventures, LLC)

3.2 Site Characteristics

3.2.1 Existing General Plan and Zoning

General Plan Land Use Classifications

The Oakland General Plan Land Use Diagram adopted as part of the 1998 Land Use and Transportation Element (LUTE) includes the following land use classifications on the NMCO property, consistent with the Final Oak Knoll Reuse Plan adopted by the Oak Knoll Base Reuse Authority (OBRA) in 1996:

Discussion and a map of the existing General Plan land use classifications and their configuration on the Project site are provided below under *3.6 General Plan and Zoning*, including Figure 3-20.

Current Zoning District

The City of Oakland's currently effective Zoning Map (Figure 3-20, discussed under *3.6 General Plan and Zoning*) zones the majority of the 188-acre Project site zoned as RH-4 ("Hillside Residential Zone-4," 6,500 to 8,000 square-foot lot size). A small portion of the Project site (approximately 5 acres) is currently zoned Hillside Residential-3 (RH-3) which is generally intended for area with single-family dwellings on lots of at least 12,000 square feet. This existing zoning does not enable a mix of different types of land uses within the Project site as proposed. (See *3.6 General Plan and Zoning*, below, for discussion of proposed zoning for the Project.)

3.2.2 Existing Site Characteristics

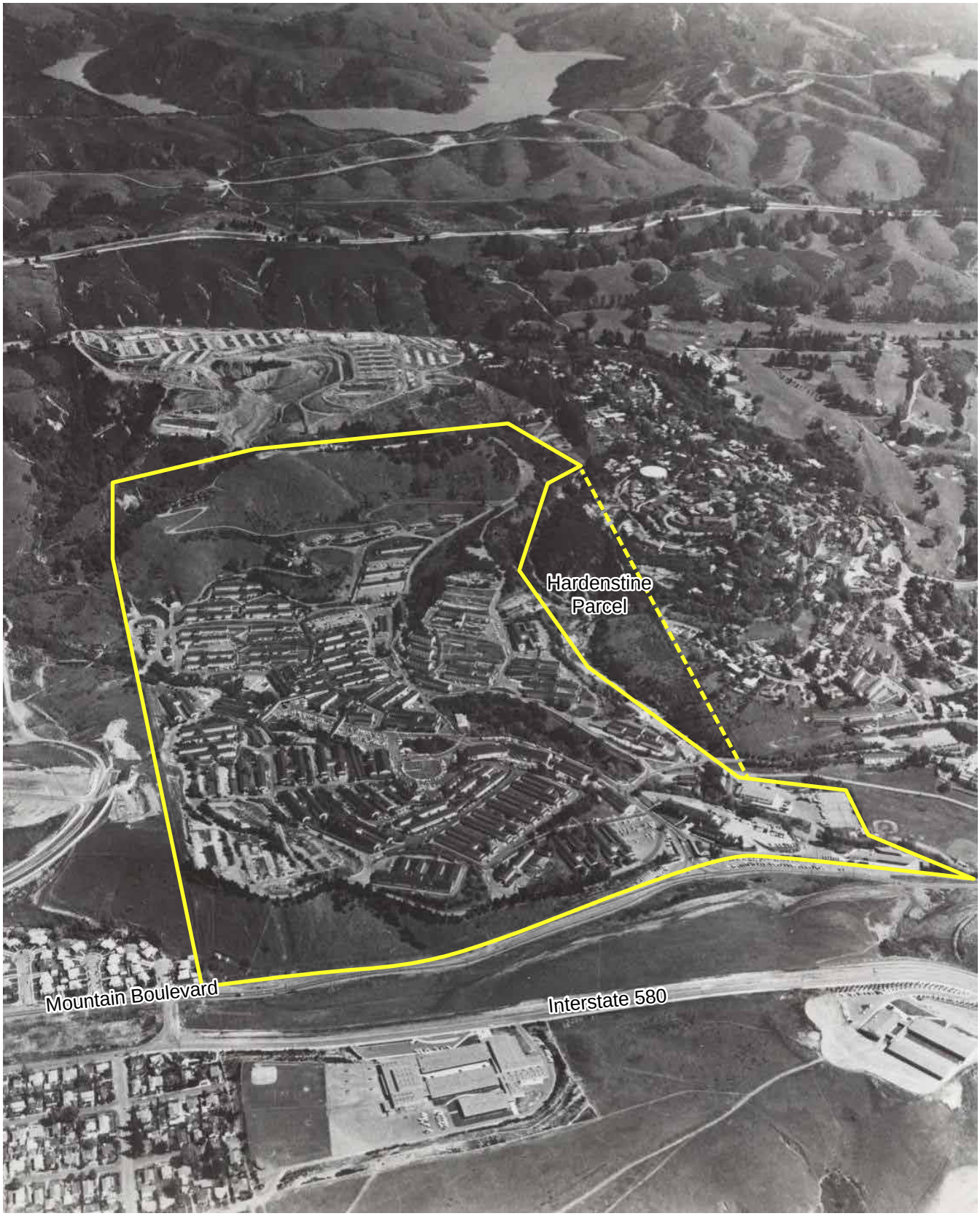
Existing Development

The Project site consists of former U.S. Navy (Navy) land, previously the location of a medical facility, as well as the adjacent, undeveloped Hardenstine parcel. The NMCO facility was decommissioned in 1996 and the site has been unoccupied since that time, except for operations at the Sea West and Seneca properties. All structures within the NMCO site were demolished by 2011, with the exception of the Sea West and Seneca facilities and Club Knoll, a locally-designated historic resource constructed in 1924 as a clubhouse to the Oak Knoll Golf and Country Club. Club Knoll is located in the southwestern part of the Project site near Sequoyah Road (the site's southern boundary) and is currently in disrepair, having been vacant for many years. Some utility infrastructure, roadways, and parking areas that supported the former NMCO facilities remain onsite.

Club Knoll is a three-story, tile-roofed, stucco-clad building of approximately 25,000 square feet (including the basement) in a Spanish Colonial/Mission Revival style. It is located on a knoll in the southern portion of the Project site. The current condition of the building is poor both internally and externally due to abandonment and lack of maintenance. It had not been used or occupied for almost 20 years prior to that portion of the Project site being acquired by the OKVA in 2014. OKVA has secured the building to prevent further vandalism but the building remains vacant. As discussed further in the analysis of cultural resources, the building has been given a rating of "B" by the City of Oakland's Cultural Heritage Survey evaluation, meaning that it is considered of major importance at the local level. Furthermore, the City's Landmark Preservation Board found Club Knoll to be eligible for Landmark status with an A rating in June of 1995 and placed it on the Preservation Study List.

As indicated above, the only existing active uses within the former NMCO property are Sea West and Seneca. The Sea West facility consists of administrative and corporate offices for a federal credit union on an approximately 1.2-acre site. Sea West serves employees of the U.S. Department of Homeland Security, as well as U.S. Coast Guard Auxiliary and Reserve personnel, retired U.S. Armed Forces personnel, and some employees of the credit union. Seneca acquired its approximately 7.9-acre site as a public benefit conveyance through the U.S. Department of Education, which was based on its plan to establish a school for special needs children on the site and to relocate its administrative operations from San Leandro and other sites to this location. Since the acquisition, Seneca has operated administrative offices within Building 69 of the former NMCO property. Approximately 100 on-site jobs are currently associated with the Sea West and Seneca uses.

The Oak Knoll site consists of hilly terrain with significant grade change across the site. The site generally slopes from the northeast to the southwest, with the highest point on the eastern ridge near Keller Ave at an approximate elevation of 600 feet, and the lowest point near Mountain Boulevard at an approximate elevation of 250 feet. See **Figure 3-4** showing a historical aerial photo of the Project site.



Oak Knoll Project . 120645

SOURCE: OKVA, Hart Howerton, 2016

Figure 3-4
Aerial Photograph 1962

To accommodate the Naval Hospital and other support structures, the Navy extensively graded the site and constructed numerous parking lots, paving over approximately 40% percent of the site, as shown in **Figure 3-5**. The existing buildings, parking lots, roads, and related facilities were often built over unconsolidated (poorly compacted) soil. Although all the buildings except Club Knoll have now been demolished, the majority of the paved surfaces (impervious areas) and foundations remain. The Navy also installed underground utilities pipes and conduits (water, sewer, steam/condensate, etc.). These underground pipes need to be removed prior to any new development.

Existing Site Access

The Project site is currently accessible via Mountain Boulevard only. Other potential access points from the east-west segment of Keller Avenue and from Sequoyah Road/Barcelona Street to the south do not currently permit access (see Figure 3-2). Access to the Project site from I-580 is from the Keller Avenue off-ramp and the Mountain Boulevard off-ramp. The nearest access along the perimeter to I-580 from the Project site is the Mountain Boulevard on-ramp. The site is currently fenced and is subject to full-time security. Additional fencing has been installed around the former Officer's Club (Club Knoll) and its points of entry.

Natural Site Characteristics

Rifle Range Creek, a tributary of Arroyo Viejo Creek, flows from north to south through the central portion of the Project site, and is one of the most prominent natural features of the Project site. The creek enters through the north boundary of the site through a pipe near the currently closed access gate at Keller Avenue, and exits in a culvert at the southeastern boundary at Mountain Boulevard. The creek runs through an approximately 900-foot-long pipe beneath roadways and other paved areas in the north-central portion of the Project site. Two secondary drainages, Powerhouse Creek and Hospital Creek, join Rifle Range Creek in the east portion of the site.

Much of the Project site consists of hilly terrain with oak, eucalyptus, Monterey pine, riparian, and annual grassland habitats of native species and non-native species. Three ridge and hillside areas distinguish the site: 1) a broad ridge situated between Mountain Boulevard and Rifle Range Creek (which includes a prominent knoll at the northwest corner of the site); 2) a narrow ridge situated near the southern property line (which includes a second prominent knoll); and 3) a prominent ridge near the Project site's eastern property line (referred to throughout this SEIR as "the Eastern Ridge"), which includes the third and most prominent knoll on the site (referred to throughout as the "Central Area" of the Eastern Ridge). These key features are described in detail and depicted in the *Aesthetics* analysis in Section 4.A of this Draft SEIR.

As conveyed in Figure 3-4 and **Figure 3-6**, in general, topography on the Project site is downsloping toward the west, from the Eastern Ridge. Elevations onsite range from a low of approximately 222 feet above mean sea level (msl) where Rifle Range Creek discharges from the site at Mountain Boulevard, to a high of about 665 feet above msl on the Eastern Ridge. Most of the topography on the site has been altered by previous grading and slopes as steep as 1:1 (horizontal:vertical) have been created. A series of aerial photographs that depict the existing vegetation and topography of the site are provided in the *Aesthetics* analysis in Section 4.1 of this Draft SEIR.

SOURCE: BKF Engineering, 2016

Oak Knoll Project . 120645

Figure 3-5
Existing Impervious Area

Oak Knoll - Birdseye View Looking North

Oak Knoll - Birdseye View Looking West

SOURCE: OKVA, Hart Howerton, 2015

Oak Knoll Project . 120645

Figure 3-6
Birdseye Views of Project Site

3.2.3 Surrounding Land Use and Development

The Project vicinity is characterized primarily by residential areas and small local commercial centers, a church, regional open spaces, and the I-580 corridor, as depicted in Figures 3-1 and 3-2.

To the south and east of the Project site (Sequoyah Hills neighborhood), uses include, primarily, single family neighborhoods within areas zoned RH-3 and RH-4 and within the Hillside Residential land use classification.

To the northwest of the Project site, the mix of land uses includes residential and condominium developments (including Ridgemont Skyline and Shadow Woods), within areas zoned RD-1, RM-2, and RM-3 and within the Detached Unit Residential and Mixed Housing Type Residential general plan land use classifications. Sequoyah Community Church sits adjacent to the Project site on part of a prominent knoll, north of the northwest corner of the site. Residential development is located adjacent to the Project site to the north, along Keller Avenue near Mountain Boulevard (north of the Sequoyah Community Church), and residential condominiums are located to the west of the Project site, between Mountain Boulevard and I-580 (Oak Knoll Heights), within areas zoned RD-1 and RM-2 and within the Mixed Housing Type Residential land use classification.

Small commercial developments are also located northeast of the site (along Keller Avenue), within the CN-3 Zone and the Neighborhood Center Mixed Use land use classification, as well as west of the site, along Mountain Boulevard, south of Keller Avenue.

Other notable uses in the Project vicinity include large open spaces, such as the Leona Heights Regional Open Space Preserve to the northeast of the site, across Keller Avenue; the King Estate Recreational Area and Open Space west of I-580; and the Knowland Park and Arboretum. Sequoyah Country Club is located to the south and southeast, beyond the residential neighborhoods adjacent to the Project site. The Oakland Zoo is located south of the Sequoyah Country Club and west of I-580. The Leona Quarry residential development is located approximately one mile north of the Project site and east of I-580.

Most portions of the site are separated from surrounding uses visually or topographically, as illustrated with a series of photographs in Section 4.A, *Aesthetics*.

3.3 Project Objectives

Project objectives have been identified for the Oak Knoll Project based on the 1996 Reuse Plan (discussed in Chapter I) and the General Plan LUTE and other relevant plans or policies, and include, without limitation:

1) Transform a closed and abandoned, blighted former military hospital complex into a new community compatible with surrounding development.

2) Develop sufficient housing to support and sustain a community village retail center for Oak Knoll and surrounding residential neighborhoods.

3) Alleviate the need of most South Hills residents to travel outside their neighborhoods for shopping and services by developing a village center for the underserved South Hills area that will provide local residents with neighborhood commercial shopping opportunities, in fulfillment of LUTE objectives, policies and strategies.

4) Fulfill the General Plan Open Space, Conservation, and Recreation (OSCAR) Element goals of restoring Rifle Range Creek and planting native habitat in appropriate open space areas; replacing native oak woodlands, restoring riparian habitat and landscaping developed areas.

5) Develop trail connections through Oak Knoll and between Leona Canyon Open Space and Knowland Park via Mountain Boulevard.

6) Develop a diversity of housing types and sizes, including single family homes and townhomes and apartments that can accommodate a variety of household types and incomes.

7) Generate tax revenues for the City of Oakland and employment opportunities for the City of Oakland community.

8) Develop an economically viable project that can support and attract commercial financing.

9) Reduce fire risk on site and for neighboring properties.

10) In conjunction with new development, develop open space and recreational opportunities and provide pedestrian linkages from on-site open space to new residential and commercial areas as well as to existing surrounding neighborhoods and regional open space in fulfillment of goals and policies in the OSCAR Element of the Oakland General Plan.

11) Provide a centrally located community center for classes, gatherings, and events by relocating and rehabilitating Club Knoll.

3.4 Project Characteristics

3.4.1 Overview and Development Program

The Oak Knoll Project would create a mixed-use development consisting of residential neighborhoods, commercial development, and open space and recreational facilities. The Project sponsor's goal for the Oak Knoll Project is to create a new, mixed-use community of diverse housing types that takes advantage of the varied topography and terrain of the area to offer expansive views of the surrounding foothills and Bay Area vistas, and that is designed around the natural features of the site, including Rifle Range Creek and several knolls. Residential and commercial development would be clustered to allow the preservation of significant areas of open space. Major elements of the Oak Knoll Project include the proposed enhancement and restoration of Rifle Range Creek, new parks and recreational facilities including a community clubhouse, and a community-wide trail system that will link the site to the existing East Bay Regional Park District (EBRPD) trail system.

Table 3-1 presents key characteristics of the proposed Project. The current Oak Knoll Project Master Plan and a summary of the development program are also presented in **Figure 3-7**. The proposed development program is also presented in detail under *3.6 General Plan and Zoning* further in this chapter (in Table 3-2).

TABLE 3-1
KEY OAK KNOLL PROJECT CHARACTERISTICS

Use	Characteristics
Residential	935 dwelling units
Commercial / Village Center	72,000 square feet
Open Space[1]	62.0 acres
Parks and Community Facilities[2]	5.6 acres
Restored Creek Corridor	16.7 acres
Total Site Acreage	187.9 acres
Creek Crossings (combined auto and pedestrian/bicycle)	1
Creek Crossings (pedestrian only)	1
Trails	3.5 miles

NOTES:
1 Undisturbed Open Space and Revegetated Slope Banks; excludes Creek Corridor and Parks
2 Includes new Community Clubhouse with 10,000 s.f. of community commercial use

SOURCE: OKVA, LLC

3.4.2 Circulation, Access and Traffic Control

Roadway Access

The Project site would be accessed by three major Project Gateways: (1) Mountain Boulevard and Creekside Parkway; (2) Mountain Boulevard and Loop; and (3) Keller Avenue and Creekside Parkway. A secondary entry would be at Mountain Boulevard and Main Street, serving the Village Center. Additionally, there is project access from Keller Avenue on the eastern edge of the site via a right-in right-out street. The proposed street network is shown in **Figure 3-8**, Proposed Street Network. Vehicular access to the site at these locations would be unrestricted. All streets would be dedicated public rights-of-way. The Project site would also have two points for one point of emergency vehicle access (EVA) and egress that connects to Sequoyah Road from an internal neighborhood street in the southwest area if the Project site.

A new traffic signal would be installed at the main Mountain Boulevard entrance to the Project site, but no traffic signals would be installed within the site.

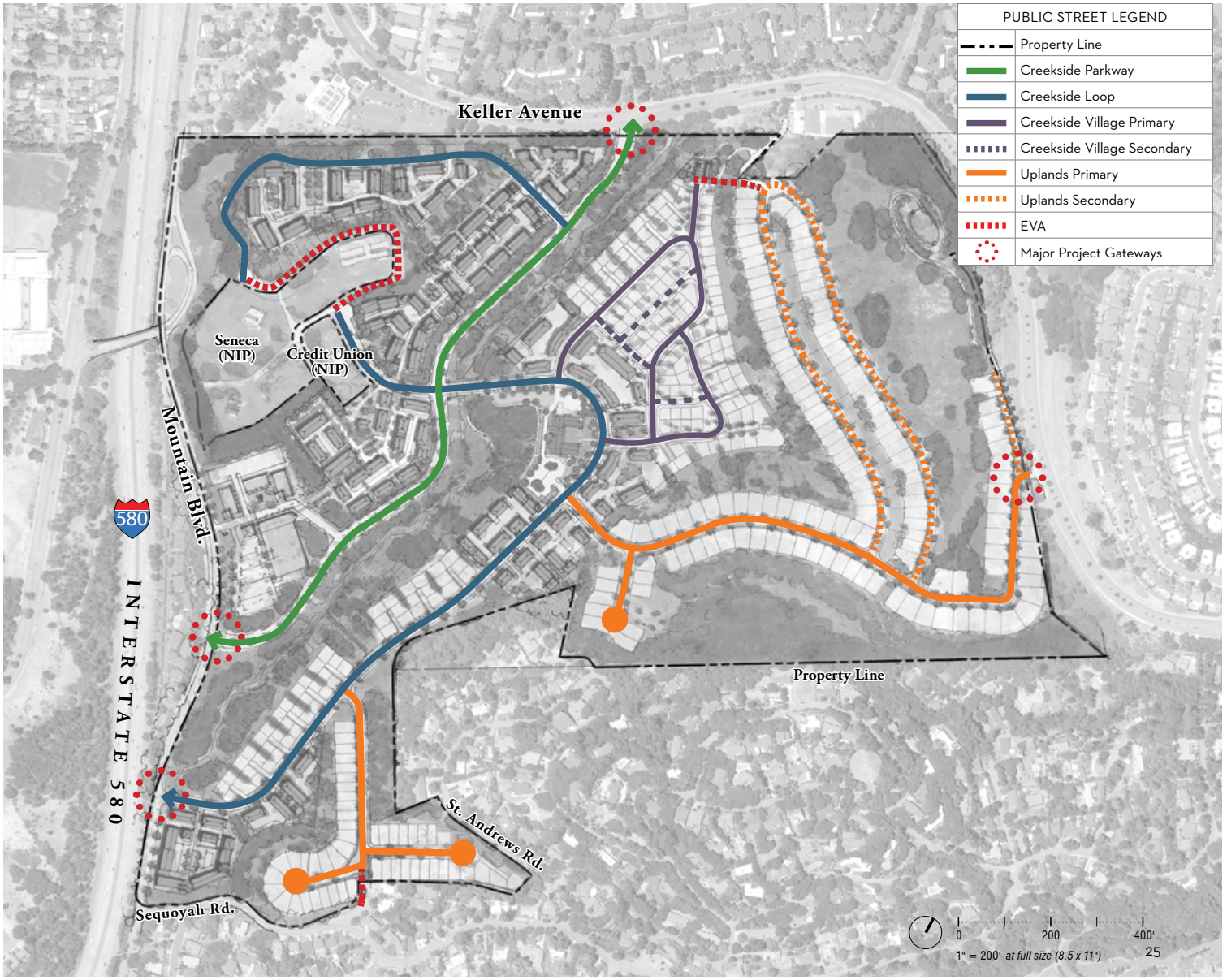
LEGEND	
- - -	Property Line
NIP	Not in Project

SOURCE: OKVA, Hart Howerton, 2016

Oak Knoll Project . 120645

Figure 3-7

Oak Knoll Project Master Plan



SOURCE: OKAV, Hart Howerton, 2016

Oak Knoll Project . 120645

Figure 3-8

Proposed Steet Network

Access to Out-Parcels

Two out-parcels that are not a part of the Project include the Seneca parcel and the Sea West Credit Union parcel (previously described under 3.2.2 *Existing Site Characteristics*). The Project's roadway system shown in Figure 3-8 provides direct primary access to both of these out-parcels via an extension of Creekside Loop from Creekside Parkway. A second public access way to these parcels will also be provided via a continuation of the internal roadway system that will be constructed to serve the townhome development in the northwesterly portion of the Project site. This second public access roadway will connect with Creekside Parkway, run roughly parallel with Keller Avenue across the northerly perimeter, and loop back to connect with the Seneca parcel (see Figure 3-8). As this second public access roadway is not expected to be constructed until Phase 3 of the Project, an additional interim route connected to Creekside Parkway either already exists or will be provided as part of the initial Master Developer improvements. These interim routes will be removed and abandoned upon construction of the northerly second public access to the Seneca School.

Street Types and Circulation

The proposed Project includes a set of street types that would be developed on the Project site as follows and shown in Figure 3-8:

- **Collector**. The proposed Creekside Parkway that would parallel Rifle Range Creek would be the "primary collector" street onsite, collecting traffic from the neighborhood areas of the Project and connecting them to the Project Gateways at Mountain Boulevard and Keller Avenue. Direct access to the Village Center would extend off Creekside Parkway.
- **Neighborhood Collector**. Creekside Loop would be the "neighborhood collector" onsite and would connect the southern Project Gateway at Mountain Boulevard to the Seneca and Sea West outparcels (not part of the Project), and would loop around the proposed Community Clubhouse and park in the central portion of the site. Creekside Loop would be the only Project street to cross Rifle Range Creek.
- **Neighborhood Streets**. Neighborhood streets serve individual neighborhoods and are intended to provide little through- vehicular traffic. As shown in Figure 3-9, individual neighborhood streets serve the various neighborhoods of the Project (discussed below in 3.4.3 *Residential Development and Neighborhoods*): Creekside Villages and Uplands neighborhoods, as well as neighborhood streets to Creekside Townhome Alley and Courtyard homes, as well as the Village Center. Smaller or "secondary" neighborhood streets would serve vehicular traffic and have narrower widths than the primary neighborhood streets and provide an accessible "front yard" street walk and play in certain residential neighborhoods.

Complete Streets

The Project sponsor has prepared as part of its Planned Unit Development (PUD) an Oak Knoll Neighborhood Complete Streets Guide tailored for the proposed Project (see Appendix F to this Draft SEIR). The proposed Project includes a network of trails, walkways, and bicycle pathways would connect with the proposed streets and roadways within the Project site to create a safe circulation system. The full circulation system will consist of streets, walks, trails, bicycle lanes

and drive lanes. The street network is designed as a system of "complete streets" that provide safe, convenient and comfortable travel and access for multiple modes of transportation including vehicles, transit, and bicycles and walking.

Standard elements of the proposed street system include standardized lane and sidewalk widths, curb ramps and markings at crosswalks, street trees, pedestrian and bike accommodations and stormwater control features (where feasible). Additional components of the street system include (on a case-by-case basis) street parking appropriate to the location and demand, pedestrian signalization, corner curb extensions and bulb-outs, traffic calming such as a chicane, accommodations for transit, sidewalk planters/tree grates, special paving or materials, street furnishings, lighting and signage; and additional connections to trails, parks, or other uses.

Key Oak Knoll complete streets strategies guiding the proposed Project and reflected in the street types and circulation described above include:

- Emergency and fire access are strongly considered in street design and connectivity;
- Vehicular lane widths are narrower to control traffic speeds, conserve land, and free up space for other uses within the street corridor;
- Streets have pedestrian accommodations that connect to the internal open space and trails system and to trails and transit connections off-site;
- The Village Center primary street will be urban in character, provide direct access to shops and plazas, accommodate short-term parking, and have pedestrian amenities;
- The project will provide bikeway connectivity through the project to Mountain Blvd.
- Street trees will be a major landscape component of all streetscapes
- Street right-of-way (ROW) stormwater will be detained within the ROW in landscaped infiltration basins.

Discussion of proposed parks and trails network in 3.4.4 *Parks, Recreational Facilities, Open Space, and Landscaping,* further in this chapter. Stormwater infiltration is discussed further in this chapter in 3.4.10 *Wastewater and Storm Drainage*. Also, more detailed discussion of proposed streets and the circulation network is presented in Section 4.13, *Transportation and Circulation,* in Chapter 4 of this document.

3.4.3 Residential Development and Neighborhoods

Residential Development

The Oak Knoll Project would develop up to 935 residential units that would offer a wide range of housing types, including single-family detached, townhomes, and multifamily units. The distribution of these housing types is depicted in Figure 3-4, the Oak Knoll Project Master Plan. As shown more distinctly in **Figure 3-9** Proposed Neighborhoods, the Project would develop larger single family lots in the eastern, southeastern, and more steeply sloped areas of the site, with a variety of single family detached unit types, attached townhomes, and multi-family

LEGEND	
	Property Line
NIP	Not in Project
Residential Density	
	Low - Single Family Detached
	Low/Medium - Small Lot SFD
	Low/Medium - Courtyard SFD
	Medium - Townhomes

SOURCE: OKVA, Hart Howerton, 2016

Figure 3-9
Proposed Neighborhoods

housing in the central, northern, and southern portions of site. The proposed housing development includes a variety of housing types and densities, varying in size, housing mix, architectural style and price range. This diversity is intended to avoid a "mass produced" appearance and to provide a range of housing options.

Project Neighborhoods

The Project would consist of several neighborhoods that would be united by open spaces, pedestrian pathways and trails, and roads, and include:

- **Creekside Villages.** Two Creekside Village neighborhoods would be developed along the east side of Rifle Range Creek and along Creekside Loop. The main Creekside Village neighborhood would be developed north and east of Creekside Loop with most of the homes that would be built as part of the Project, including low/medium density ("court yard" and small lot) single family detached homes and medium density townhomes. To the south of the main Creekside Village neighborhood, a second Creekside Village neighborhood would extend west along Creekside Loop and east of Rifle Range Creek, and would include courtyard homes and small lot single family detached homes. The Project proposes that substantial portions of the Project site be reserved and preserved as open space, including Rifle Range Creek and other riparian areas, prominent hillside areas and buffers adjacent to surrounding neighborhoods.

- **Village Center.** The Village Center consists of an area at the western site boundary, north of Creekside Parkway and south of the Seneca and Sea West properties. The Village Center would contain land uses intended to support a, mixed use, neighborhood-serving environment, with locally-serving commercial retail uses (such as a grocery store and other retail commercial uses and the highest-density housing on the site. The overall design concept for the Village Center would support a pedestrian scale plaza element featuring active ground-floor uses and sidewalk and building frontage treatments, such as continuous storefront facades with entries oriented to streets and pedestrian courtyards. Design elements would also facilitate walkability and connectivity within the Village Center and to and from adjacent residential neighborhoods and open spaces. The central plaza would be created as a community gathering space that could potentially host a farmer's market and other community activities. It would also be in close proximity to the Community Center.

- **North Creekside Neighborhood.** The North Creekside neighborhood would be located in the northwest part of the site, along Creekside Parkway and north of the Village Center area. Access to this neighborhood would be provided from two intersections along Creekside Parkway, one near Mountain and the other near Keller. In this neighborhood, medium-density townhomes would be built along the slopes of the knoll in the northwest part of the site.

- **South Creekside Neighborhood.** The South Creekside neighborhood would be located in the southwest part of the site along Mountain Boulevard and Creekside Loop, at the southernmost site entry point from Mountain Boulevard. This neighborhood would be accessed via a bridge from Creekside Parkway and a secondary entry at the intersection of Creekside Parkway loop with Mountain Boulevard. This smaller neighborhood would include medium-density townhomes.

- Uplands Neighborhoods. Three neighborhoods of lower density, single-family detached housing (Uplands neighborhoods) would be developed along the Eastern Ridge that borders the Hardenstine creek corridor and ascends to the upper ridgelines above Keller Boulevard.

3.4.4 Parks, Recreation Facilities, Open Space, and Landscaping

The overall open space and parks for the Project is shown in **Figure 3-10**. The Project's open space and parks concept is intended to reflect the site's natural and indigenous character and to unify distinctively different neighborhood and commercial areas with the more natural open areas. As shown in Figure 3-10, the Project would provide significant preservation of natural areas and opportunities for restoration of the Rifle Range Creek corridor and additional mitigation planting areas. Much of the open space provides passive recreation space with opportunities for walking, bicycling, and picnicking. The Project also proposes more active park areas as described below.

The proposed parks within the Oak Knoll Project would vary in size, with a community center and accessory uses (also referred to as "clubhouse") in a park setting in the central portion of the site, and an Oak Knoll Memorial Park on the east ridgeline above the Upland East neighborhood. Two smaller parks occupy the central neighborhoods. Two tot lots are proposed within the more formal parks. A more urban park providing gathering and special event space would be located in the Village Center. Figure 3-10 depicts the various types of open space areas on the Project site, which include undisturbed areas and revegetated slope banks, both with existing grassland and oak woodland areas and opportunities for mitigation planting.

Figure 3-11 shows the proposed system of trails, bikeways, and walkways that would weave through the Project site, creating a network that would link the various neighborhoods within the Project site as well as connect to adjacent open space areas and parks. The trail and bikeway system is intended to provide connections to the EBRPD trail system and local transit connections. One linkage will occur at Keller Avenue, connecting the project's trails to the Leona Canyon Regional Open Space Preserve to the northeast. Another linkage will occur at Mountain Boulevard, connecting the project's trails via existing public streets to the King Estate Recreational Area and open space to the west. The creek, trails, and pedestrian system are envisioned to interconnect neighborhoods, parks and open spaces, public places, and a mixed use commercial / residential community core – the Village Center. (See more detailed description of the proposed trails and their uses in Section 4.12 *Public Services and Recreation* in Chapter 4 of this document.)

The landscaping concept for the Project site is consistent with the natural coastal woodland that is the dominant character of the existing community landscape, and linking the open space areas, parks, neighborhoods and Village core through that character. As specified in the Oak Knoll Landscape Master Plan for the Project, a unified palette of street trees (London Plane Trees, Red Maple and Trident Maple) is proposed. A variety of Bay Area and California native plants and intended to reduce landscape maintenance and water use, and benefit wildlife. Final plant selection will closely match the site's various micro-climates and soils, and will be selected for drought tolerance and minimal maintenance. Landscape sustainability is a Project goal; the Project proposed follow Bay-friendly landscape guidelines. (See more detailed discussion in Section 4.3 *Biological Resources* in Chapter 4 of this document. Section 3.4.5 *Creek Restoration and Enhancement* below further describes the proposed creek improvements.)

LEGEND	
	Property Line
NIP	Not in Project
Open Space & Parks	
	Parks/Community Center
	Undisturbed Open Space
	Revegetated Slope Banks
	Restored Creek Corridor

Proposed Tot Lot

Proposed Picnic Area

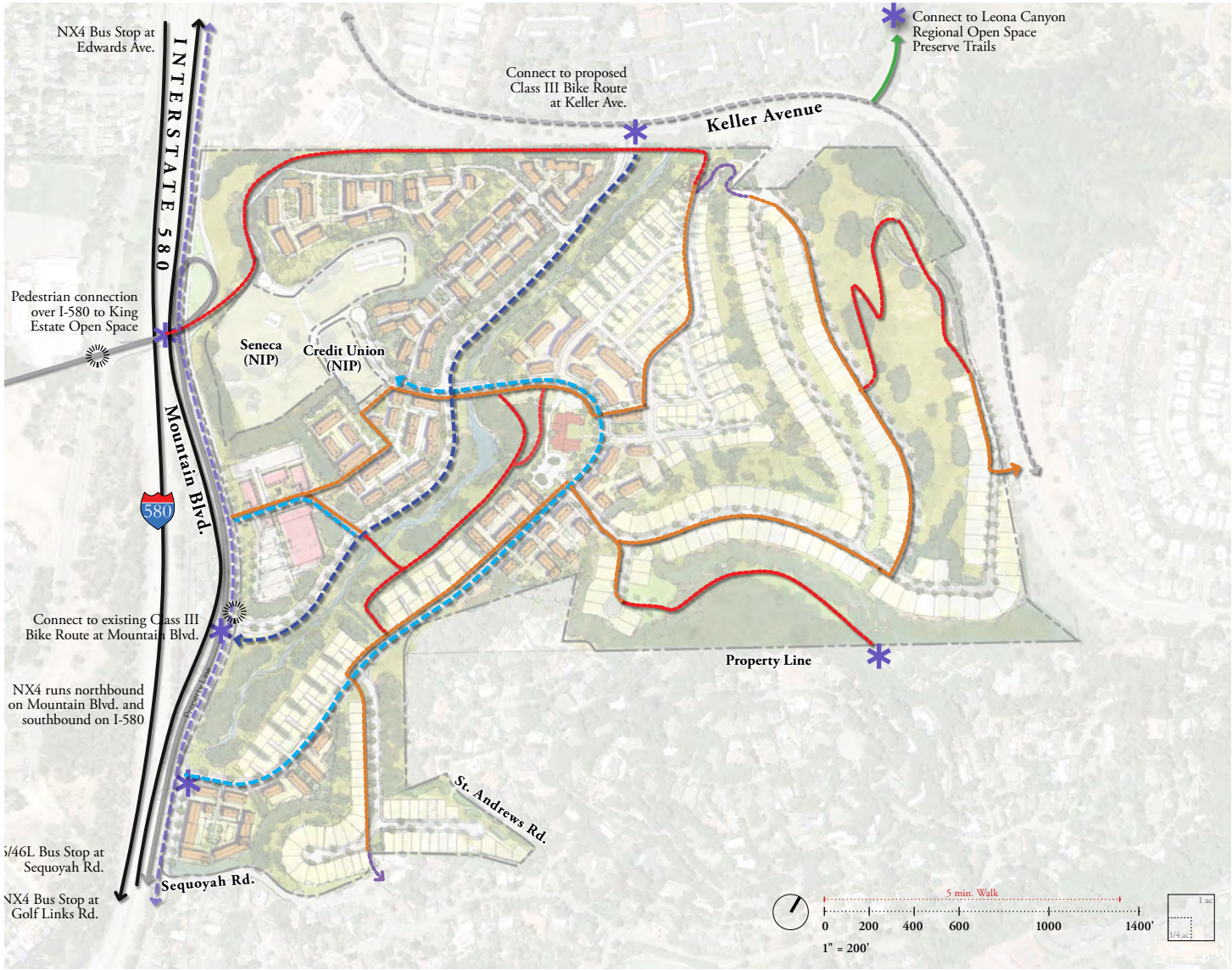
In-Tract Neighborhood Park

Note: In-tract park locations are conceptual and to be determined at submittal of Final Development Plan. Minimum required open space areas governed by Oakland Zoning Code.

SOURCE: OKVA, Hart Howerton, 2016

Oak Knoll Project . 120645

Figure 3-10
Open Space and Parks



LEGEND	
	On-Site Trails
	Multi-Use Trail
	Hiking Trail
	Neighborhood Path
	EVA/Neighborhood Pedestrian Connection
	On-Site Bike Circulation
	Multi-Use Trail-Class I Bike Route
	Class III Bike Route (Proposed)
	Off-Site Bike Circulation
	Class III Bike Route (Existing)Class II Bike Route along Mountain Blvd. at project frontage (Proposed)
	Class III Bikeway (Proposed)
	AC Transit Circulation
	NX4 Bus Route (Express Castro Valley to Transbay Terminal)
	46/46L Bus Route (Coliseum BART to Zoo/Grass Valley)
	46/46L Bus Stop
	Other
	Property Line
	Point of Connection
	Other connection as indicated

SOURCE: OKAV, Hart Howerton, 2016

Oak Knoll Project . 120645

Figure 3-11

Pedestrian, Bike and Transit Facilities and Connections

3.4.5 Creek Restoration and Enhancement

The Project proposes restoration and enhancement of approximately 16.7 acres of riparian areas along Rifle Range Creek and one of the Creek's tributaries, Hospital Creek. The Project also would realign and stabilize approximately 200 linear feet of the highly incised reach of Powerhouse Creek to maintain flow function and stability. In addition, 188 linear feet of Rifle Range Creek would be realigned to accommodate a new bridge crossing. Riparian habitat would be created and/or restored along the realigned segments of Powerhouse and Rifle Range Creeks. Another 34 linear feet of Rifle Range Creek would remain permanently impacted by the rebuilding of a culvert inlet and the placement of rock for erosion control at the locations of stormwater outfalls.

The proposed Oak Knoll Creek Restoration Plan is subject to review and approval by several permitting agencies (see Table 3-3 at the end of this chapter). The proposed creek improvements would redress some of the previous large-scale impacts to the creek that resulted from land use changes offsite, previous alterations conducted by the Navy prior to closure of the NMCO, and the invasion of non-native plant species. See the conceptual Restoration Plan in **Figure 3-12**.

The proposed Creek Restoration Plan includes:

- Removal of existing culverts and other fill;
- Enhancement of riparian habitat and removal of non-native plant species;
- Stabilization of the creek channel and banks, including earthwork and grading activities, and re-planting with native plants;
- Removal of existing obsolete infrastructure (e.g. stormdrain outfalls);
- Removal of trash and construction debris from the channel and banks;
- Safe accommodation of stormwater flows, provision of an aesthetic amenity;
- Creation of appropriate public access;
- Accommodation of infrastructure requirements (road crossings, utilities, etc.); and
- Provide a buffer between the developed area and the enhanced creek channel.

Upstream of the Hospital Creek tributary, the creek has been highly modified as a result of prior development. Approximately 800 feet of channel is buried in culverts, and most of the remaining open channel is lined with gabion baskets. As part of the Project, the culverts and gabions will be removed and the channel will be reconstructed from natural materials to create a continuous, open creek channel between Keller Avenue and the confluence with Hospital Creek. The reconstructed channel is designed to create morphology similar to the downstream reach, creating a continuous, open creek channel throughout the project site.

Figures 3-13a and **3-13b**, Creek Corridor Sections, illustrate the proposed changes in grade at three points along the creek channel. The sections also depict trees to be retained, and minimum development setbacks. Creek restoration activities would take place concurrently with the installation of infrastructure for the Project. Prior to grading within each creek section (reach),

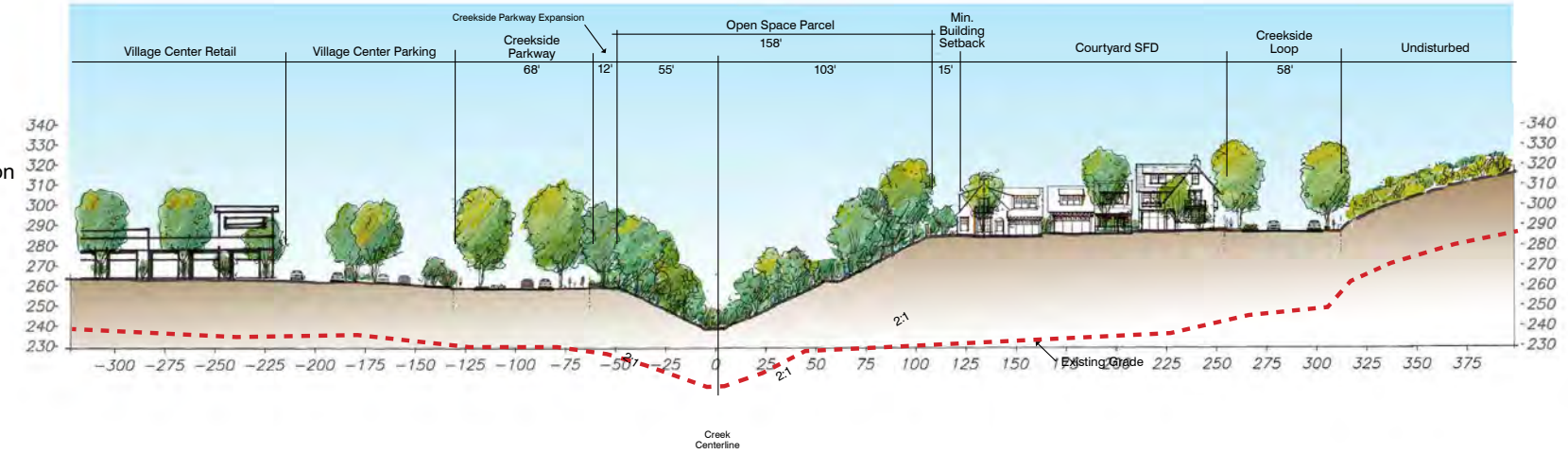
SOURCE: ESA, 2016

Oak Knoll Project . 120645

Figure 3-12

Rifle Range – Existing and Proposed

Creek Corridor
Sections Key



Section **A**

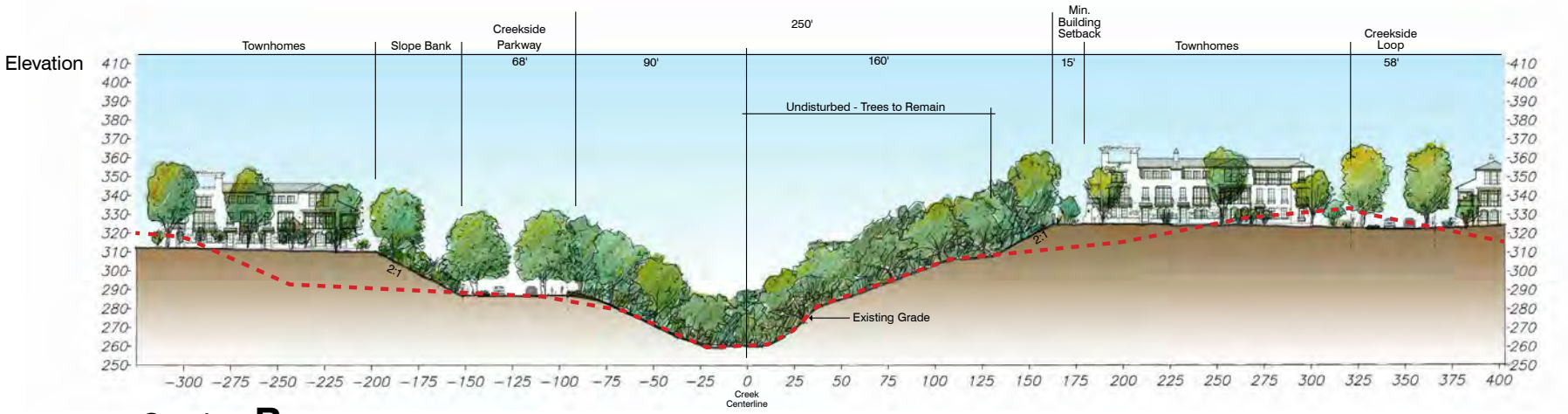
5 min. Walk
0 25 50 75 125 175'
1" = 25' *at full size (24" x 36")*

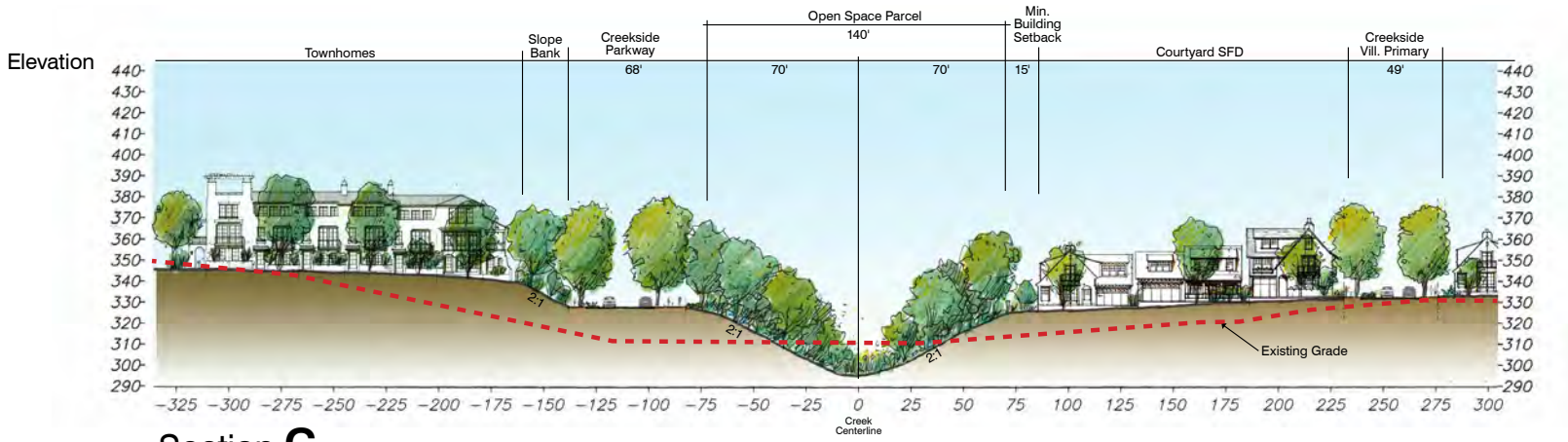
SOURCE: OKVA, Hart Howerton, 2016

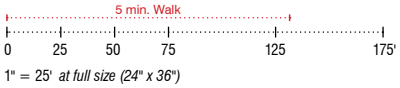
Oak Knoll Project . 120645

Figure 3-13a

Rifle Range Creek Corridor Section (A) and Key







SOURCE: OKVA, Hart Howerton, 2016

Oak Knoll Project . 120645

Figure 3-13b

Rifle Range Creek Corridor Sections (B and C)

creek flow would be diverted as necessary into a suitably sized temporary culvert and routed around the work area, such that downstream flows would be maintained throughout the work period. Restoration activities would result in a net increase of both jurisdictional and other waters, and riparian habitats.

3.4.6 Public and Common Ownership Land Uses

The Oak Knoll Project includes several areas that will either be dedicated as public open space or permanently reserved as common open space for use by the owners and residents of the Project. These include the following prominent open space areas described above and depicted in Figures 3-5 and 3-8:

- **Rifle Range Creek Corridor / Riparian Habitat Restoration**. The restoration and enhancement of approximately 16.7 acres of riparian areas along Rifle Range Creek.
- **Oak Knoll Memorial Park / Preserved Hillside Grassland**. Approximately 2.0 acres of the prominent Oak Knoll ridgeline, retained as a natural grassland park, offering with panoramic views of the Bay.
- **Community Center**. The approximately 2.8-acre Community facility in the center of the site, which also serves as the proposed location of the Oak Knoll community center/clubhouse and accessory uses. Several smaller neighborhood parks and small pocket parks are also located within the higher density residential neighborhoods. The community center will be available for rental to the general public, as available.
- **Other Open Space Area**. Other open space areas in the Project include retained and/or restored natural oak woodlands serving as buffers between the Project and adjoining neighborhoods along Mountain Boulevard and Keller Avenue, the easterly boundary (Hardenstine Parcel) and southerly boundary. In addition, the Project would include landscaped slope areas that will be permanent open space and for habitat restoration reasons, will not be accessible for recreation or other public purposes.

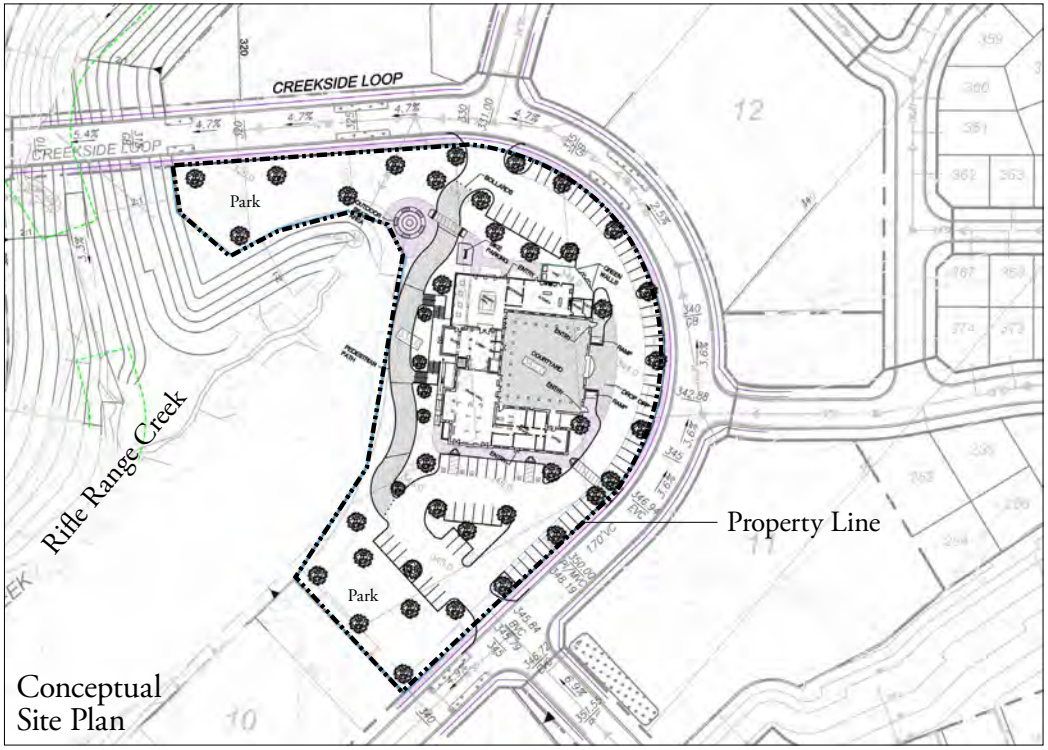
Certain of these open space areas (i.e., Rifle Range Creek Corridor and the Oak Knoll Memorial Park / Preserved Hillside Grassland) may be offered for dedication to the City of Oakland, whereas other common open space areas will be owned and maintained by an association of owners or tenants of the Project. Under either scenario, these spaces will be permanently reserved as parks, playgrounds or open space accessible to the public.

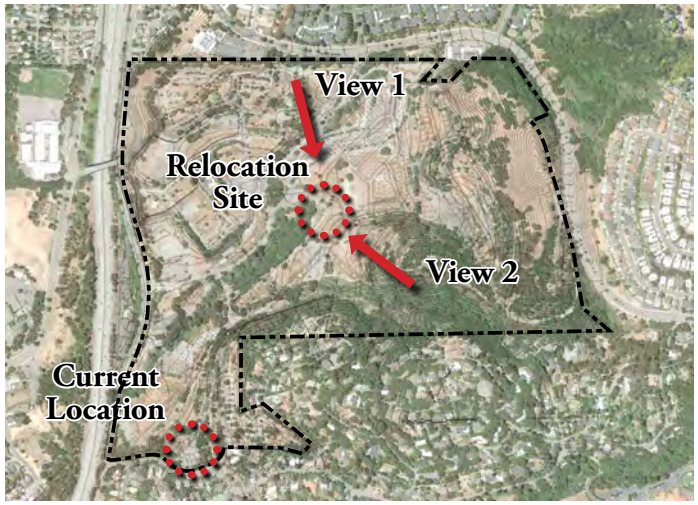
3.4.7 Club Knoll Relocation and Rehabilitation

The Project proposes to relocate and rehabilitate the key historical portions of Club Knoll, a locally-designated historic resource constructed in 1924 as a clubhouse to the Oak Knoll Golf and Country Club and then used as an Officer's Club when the site was used as naval hospital. Club Knoll is located in the southwestern part of the Project site near Sequoyah Road (the site's southern boundary) and is currently in disrepair, having been vacant for many years. OKVA proposes to relocate the building to a central portion of the site and reuse the major architectural components of the building as a community center and accessory uses. **Figures 3-14a** and **3-14b** depict the relocated Club Knoll.

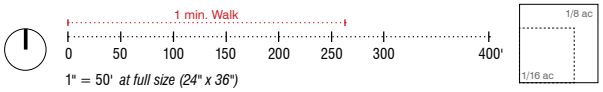
View 1:
Relocated Building
View from North

View 2:
Relocated Building
View from Southeast





Location of Existing Building
and Relocation Site (NTS)



SOURCE: OKAV, Hart Howerton, 2016

Oak Knoll Project . 120645

Figure 3-14
Relocation and Rehabilitation of Club Knoll

Oak Knoll Project . 120645

SOURCE: Architectural Dimensions, 2016

Figure 3-14b

Illustrative Relocated and Rehabilitated Club Knoll

3.4.8 Parking and Loading

The Oak Knoll Project proposes that each single family house would have a garage and driveway parking and each townhome would also have a garage and dedicated guest spaces. Additional on-street parking would be available on most project streets. There will be a total of approximately 3,700 parking spaces for the various uses within the Project site at buildout including garage and driveway spaces. Approximately 360 off-street parking spaces would be provided for non-residential parking, including retail uses and the Oak Knoll community center/clubhouse described above.

Commercial and residential loading areas would be located within proposed buildings and designed in accordance with all City standards, ordinances, and regulations to avoid conflicts with all roadways, driveways, and service lanes. Loading and service area facilities would also be located to avoid conflicts or visibility from pedestrian facilities, open spaces, and residential uses.

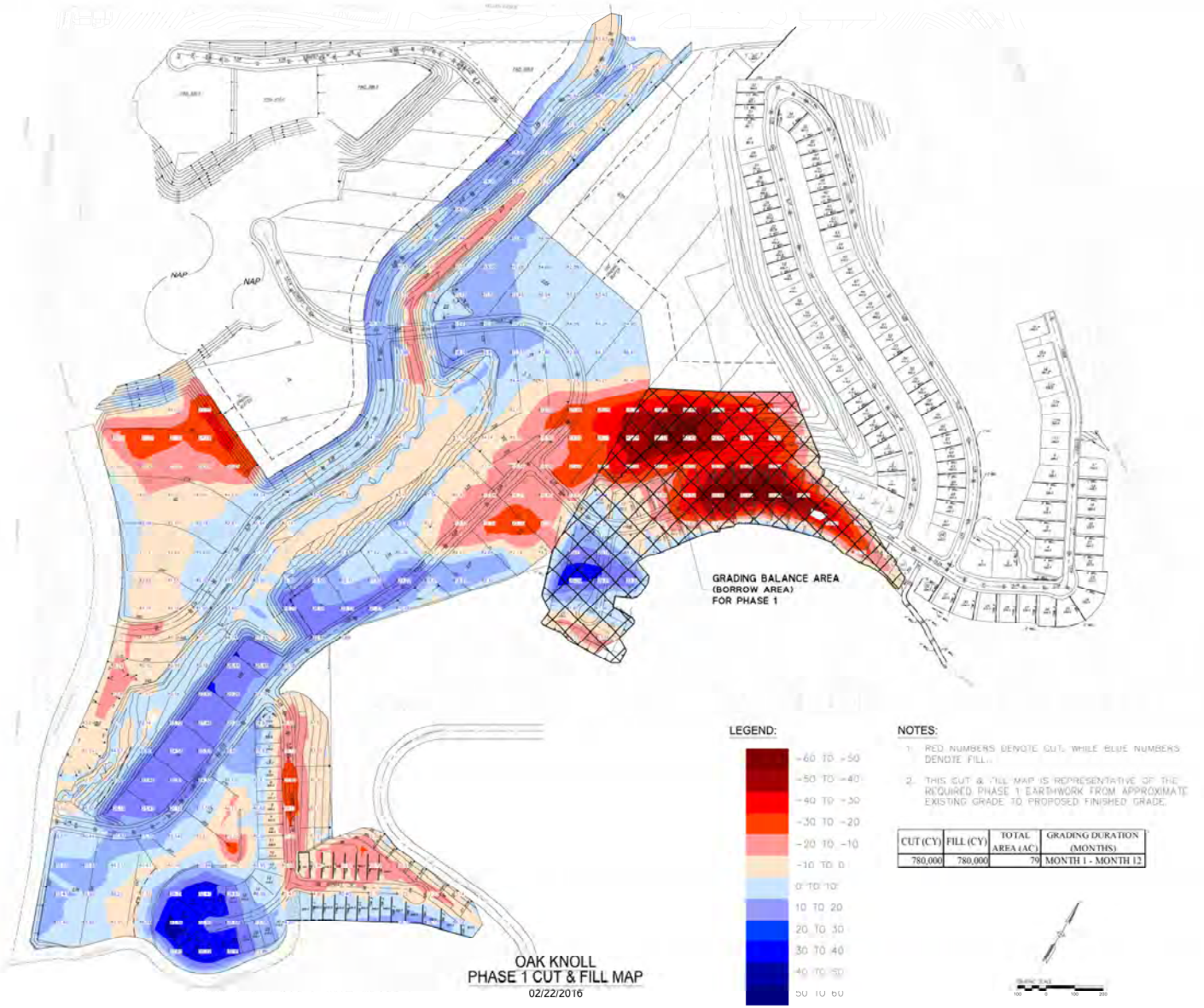
3.4.9 Site Grading and Tree Removal

Development of the site would involve up to 3 million cubic yards of grading (including corrective grading required for existing unstable areas and grading associated with the proposed creek improvements). The overall intent of the grading plan is to balance the amount of cut and fill throughout the Project site so that no soil will need to be imported or exported. **Figure 3-15a**, **15b** and **15c** illustrate the areas where and when cut and fill will occur on the site (excepting the creek corridor) and to what relative degree. **Figures 3-16a** and **3-16b** are sections through portions of the project site where the most extensive grading would occur. Overall, the Project site will experience the most substantial cuts of up to 50 to 60 feet in the southeast Upland areas and areas on Oak Knoll.

Corrective (Remedial) Grading Required Prior to Any Development

The extent of corrective/remedial grading is wide-ranging and covers much of the Project site. The corrective/remedial grading is required to address the extent of unconsolidated (poorly compacted) surface soil and existing fills to be excavated and re-compacted to comply with the current building code/seismic requirements for new residential and/or commercial development.

Corrective/remedial grading also needs to occur because the Project site also has experienced several documented landslides and landslide-prone areas, as conveyed in **Figure 3-17**. Generally, along the border of the grading limit, the existing landslide debris will be over-excavated, a buttressing keyway will be constructed, and the existing slope areas will be re-constructed. Further, the corridor along Rifle Range Creek is considered unstable from a geotechnical standpoint for lots and streets, with heavily incised banks along both sides of the Creek. There are also areas along the Creek with potential for liquefaction. In order to provide a stable creek channel to support future lots and streets, and to prevent further slope bank instability and creek bank meander, the majority of the existing banks will be improved by over-excavating and reconstructing (with engineered keyways tying into competent native soil) the creek banks from the bottom to the top. These corrective grading measures are essential to support the proposed lots and streets but also for the creek restoration improvements. Similarly, the areas of potential liquefaction will be mitigated through select remedial grading measures and suitable foundation design criteria. Discussion about the phasing of this work is addressed further below under 3.5, Phasing.

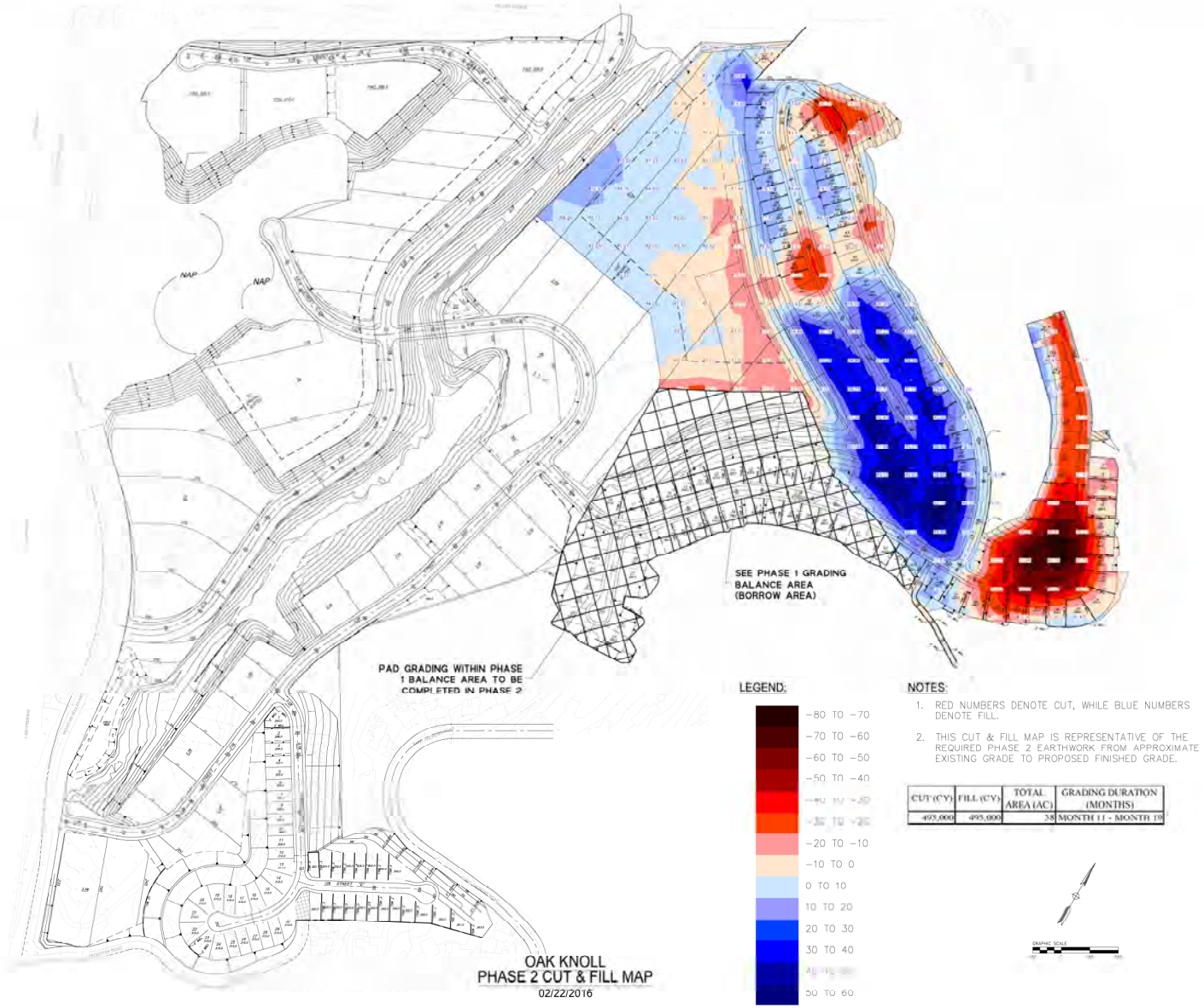


SOURCE: BFK, 2016

Oak Knoll Project . 120645

Figure 3-15a

Conceptual Cut and Fill Map – Phase 1

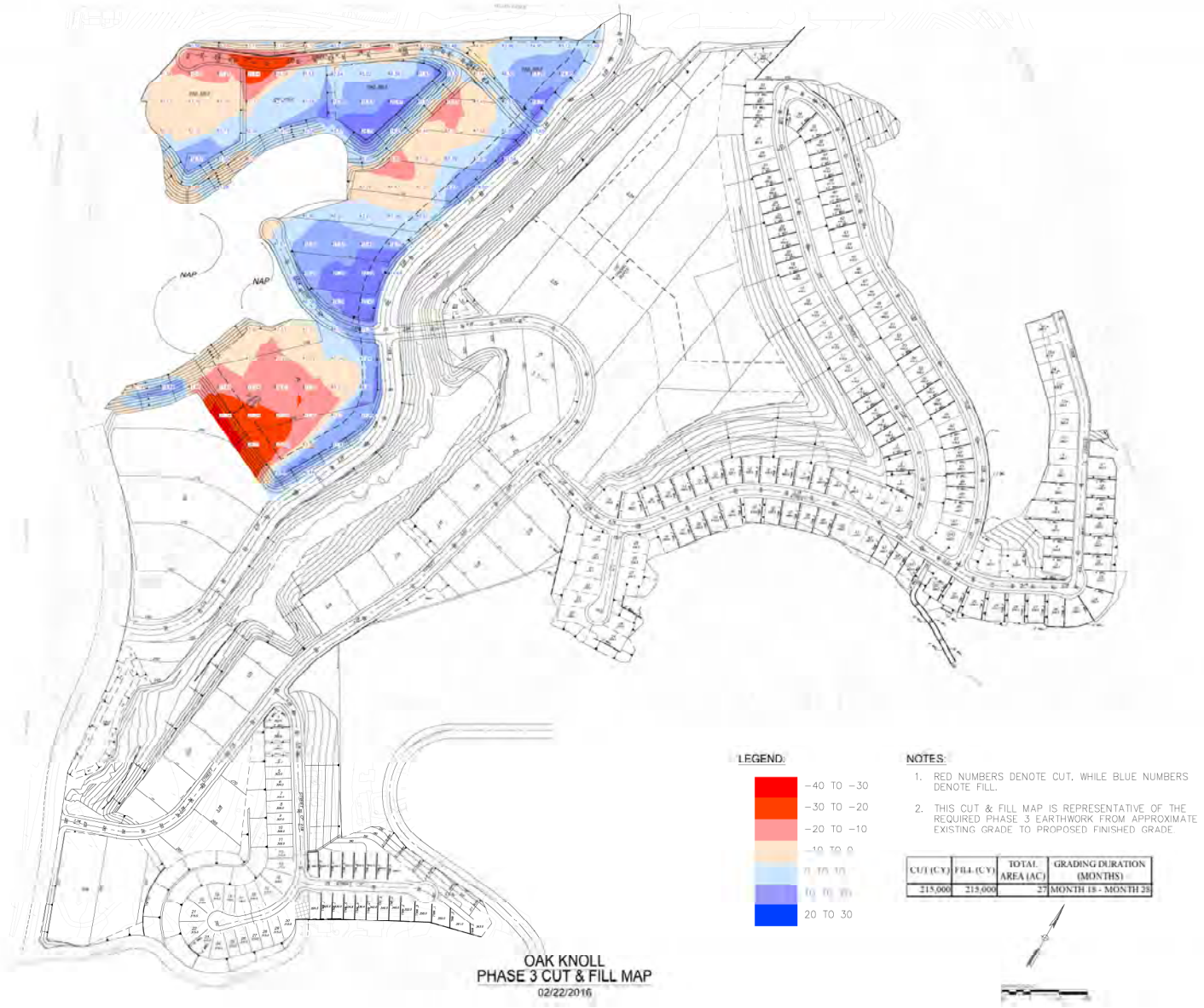


SOURCE: BFK, 2016

Oak Knoll Project . 120645

Figure 3-15b

Conceptual Cut and Fill Map – Phase 2



SOURCE: BFK, 2016

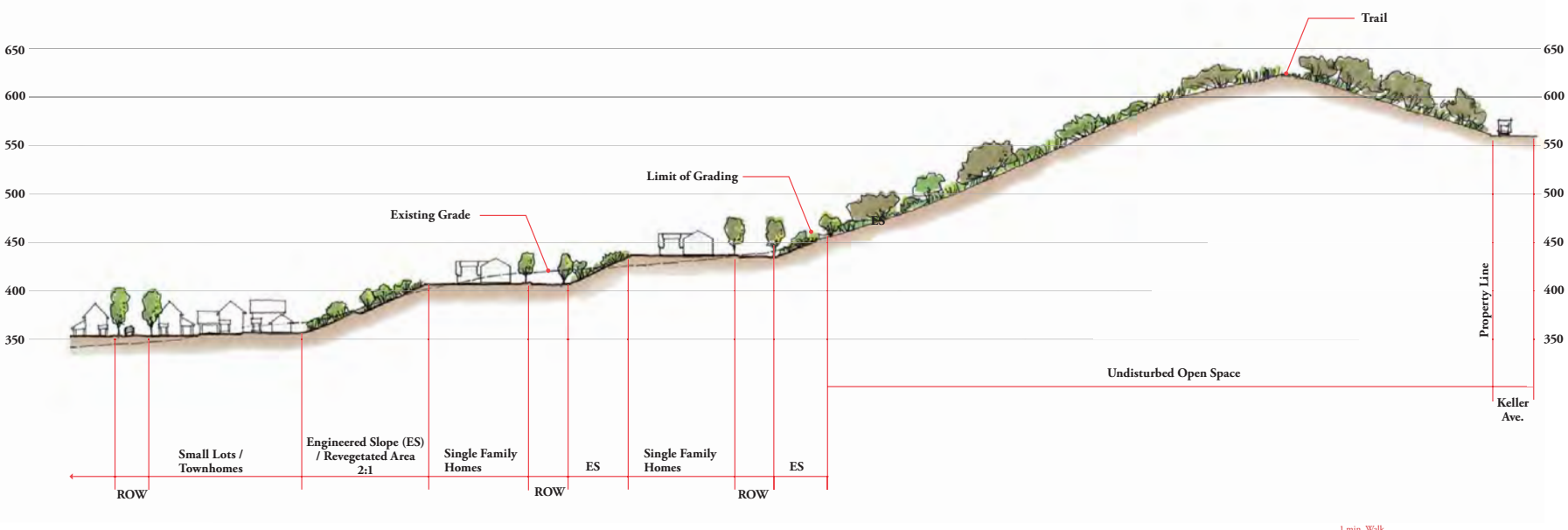
Oak Knoll Project . 120645

Figure 3-15c

Conceptual Cut and Fill Map – Phase 3

SECTION LOCATIONS

ELEVATION



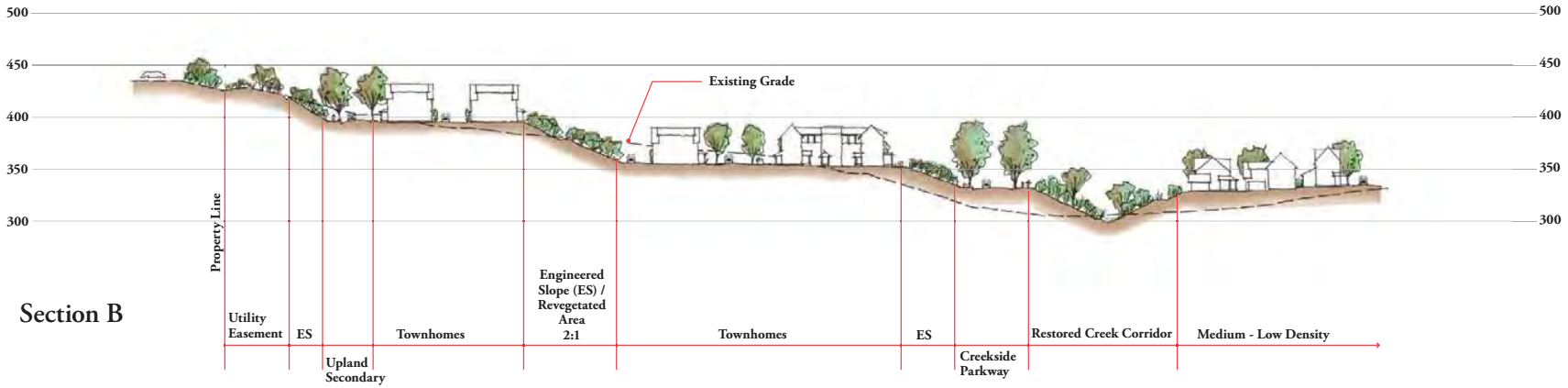
Section A

SOURCE: OKVA, Hart Howerton, 2015

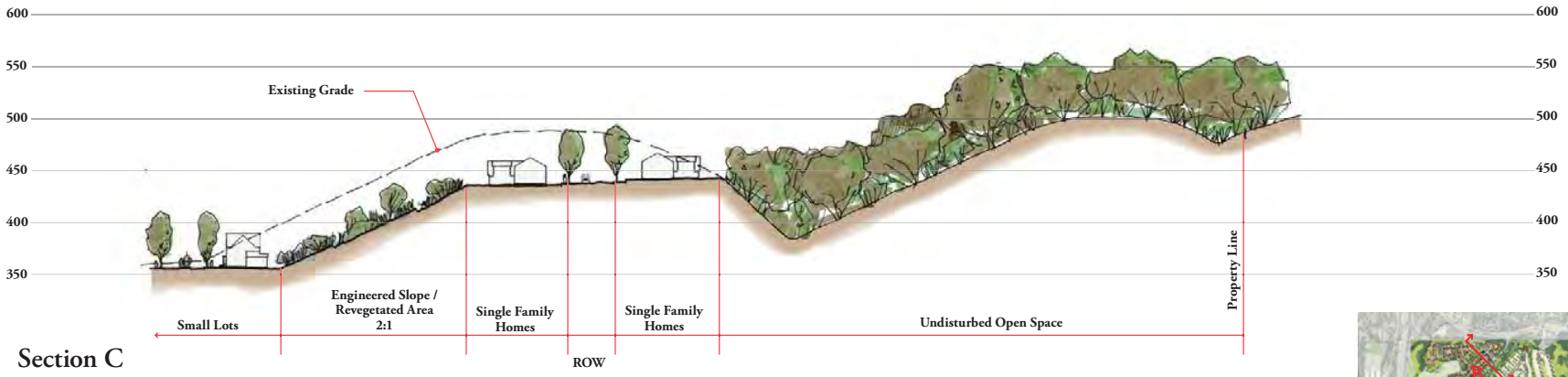
Oak Knoll Project . 120645

Figure 3-16a

Site Section and Conceptual Grade Change E-W



Section B



Section C

1 min. Walk

0 40 80 120 160 200 240 320'

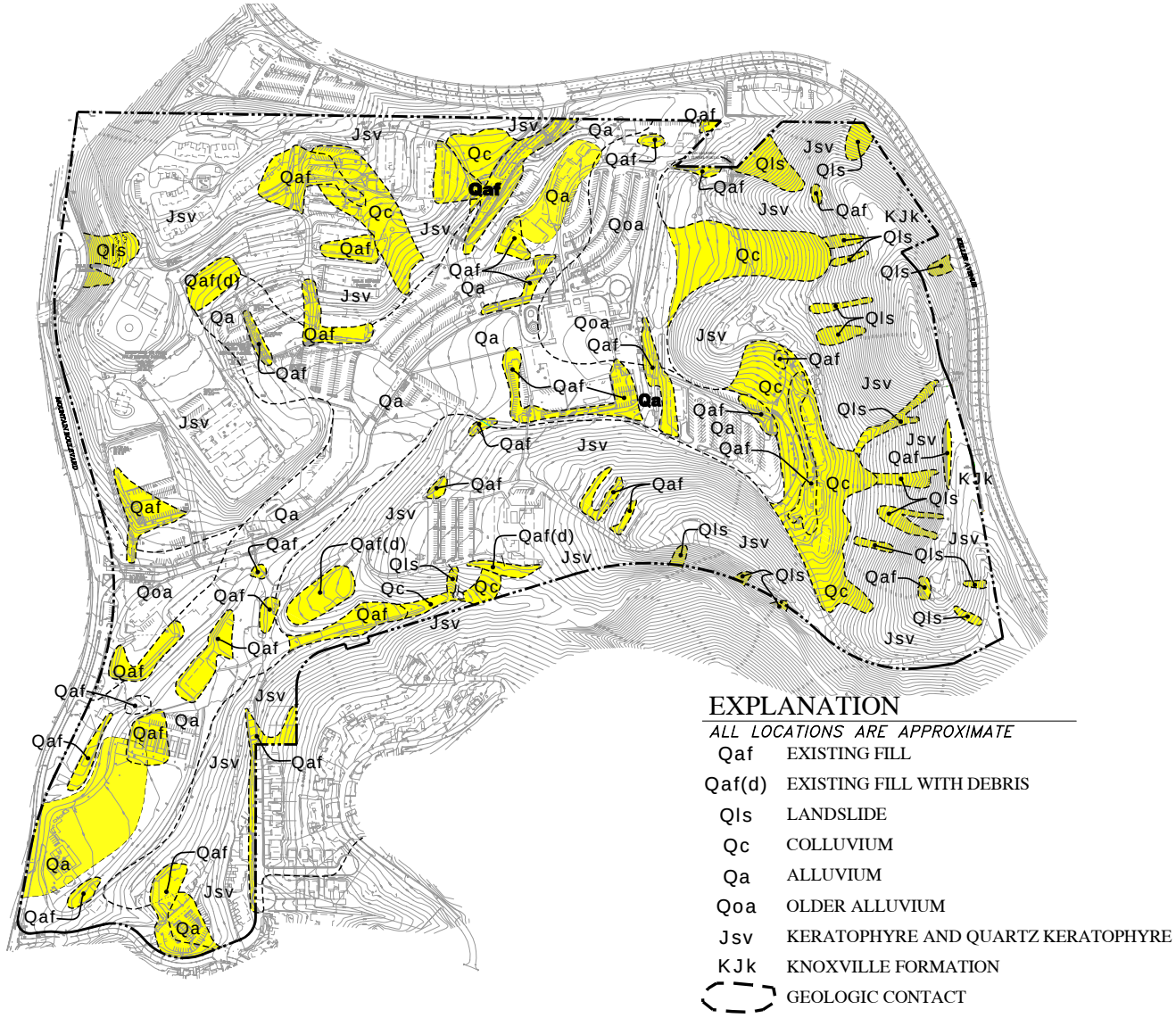
1" = 40' *at full size (42 x 30")*

SOURCE: OKVA, Hart Howerton, 2015

Oak Knoll Project . 120645

Figure 3-16b

Site Section and Conceptual Grade Change N-S



SOURCE: Engeo, 2016

Oak Knoll Project . 120645

Figure 3-17

Geologic Conditions Map

It is anticipated that the corrective grading will coincide with the civil/site grading to the extent possible. As part of the remedial grading, existing impervious surfaces will be broken up where required and existing defunct infrastructure (water pipes, etc.) removed. Where feasible, these materials will be crushed on site with a portable crusher located near the center of the site (likely on the site of the former hospital) and reused as fill material. Where that is not feasible, these materials will be off-hauled and disposed of at an appropriate location. The truck trips associated with these off-haul activities have been accounted for in the number of trips assumed for construction purposes.

Site Grading Required to Comply with City's Roadway Design Standards

In general, the civil/site grading is required to comply with the City's Street Design Standards and to address geotechnical hazards (discussed above), such as creek bank instability.

The existing roads were constructed over unconsolidated or non-engineered soil, which will require over-excavation and re-compaction. In addition, these existing roads do not comply with current City of Oakland's Street Design Guidelines. Among other issues of noncompliance, many existing onsite roads are too narrow and/or too steep to meet the current fire truck access requirements. In addition, other roads do not have adequate sight distance for safe vehicular use or flat enough cross-slopes at intersections to meet Americans with Disabilities Act (ADA) access requirements.

As such, existing roads need to be removed and new roads constructed. These roads will be graded to comply with current City street design guidelines, including the minimum centerline radius and proper vertical curves/slopes to support the required design speeds. Also, per the City's standards, all intersections will need to have appropriate cross-slopes to comply with ADA access requirements. In addition, all new roads will need to have the proper curb-to-curb widths and longitudinal slopes to satisfy the Fire Department's access requirements.

These roadway design requirements have been factored in the proposed site grading plan. For example, to maintain the required roadway slopes of less than 18% for the road leading up to the upper ridge (former Admiral's quarters), the lower ridge (north of the Hardenstine parcel) needs to be lowered such that the longitudinal slopes are between 11 and 14%. Similarly, the area along Creekside Parkway needs to be raised in order to maintain the longitudinal slopes between 9-11% for the road leading to the Credit Union and Seneca parcels.

Tree Removal, Preservation and Replanting

Tree Removal and Mitigation Replanting

There are approximately 7,170 trees on the Project site in total, according to the Tree Removal Impact Plan, discussed at length in Section 4.3, *Biological Resources*. A key development goal for the Project site is the retention, to the extent feasible, of larger trees that are most suitable for preservation given their overall good health and provision of high-value habitat (i.e., valuable food source and suitable nesting conditions), including, in particular, the native oak woodland

areas located primarily in the steeper, open areas of the site. All tree removal will comply with the Oakland Protected Trees Ordinance (Oakland Municipal Code Section 12.36).

The Project also includes the removal of approximately 4,000 trees (some of which are invasive and/or non-native), and would replant at a mitigation ratio of greater than 2:1 more than 5,000 native trees to compensate for the removal of approximately 2,500 trees based on the City of Oakland Tree Ordinance. (The proposed Oak Knoll Tree Mitigation Plan is presented in Figure 4.3-7 and discussed in detail Section 4.3, *Biological Resources,* in Chapter 4.) **Figure 3-18** illustrates the extent of tree removal and tree preservation across the Project site, generally corresponding with the extent of mass grading or disturbance, as delineated in Figures 3-15a through 3-15c.

Trees identified for removal primarily include (1) those situated in areas of the Project site where grading would occur (both development and corrective grading, as discussed above), (2) those removed for creek restoration (3) those that present dangerous and hazardous conditions, or (4) those that have overall poor suitability for preservation. If preservation is not feasible given the Project's goals and objectives, trees will be relocated or replaced in accordance with the City's Tree Ordinance and the proposed Tree Mitigation Plan for the Project (see Figure 4.3-7 in Section 4.3 of Chapter 4).

Community and Neighborhood Landscaping

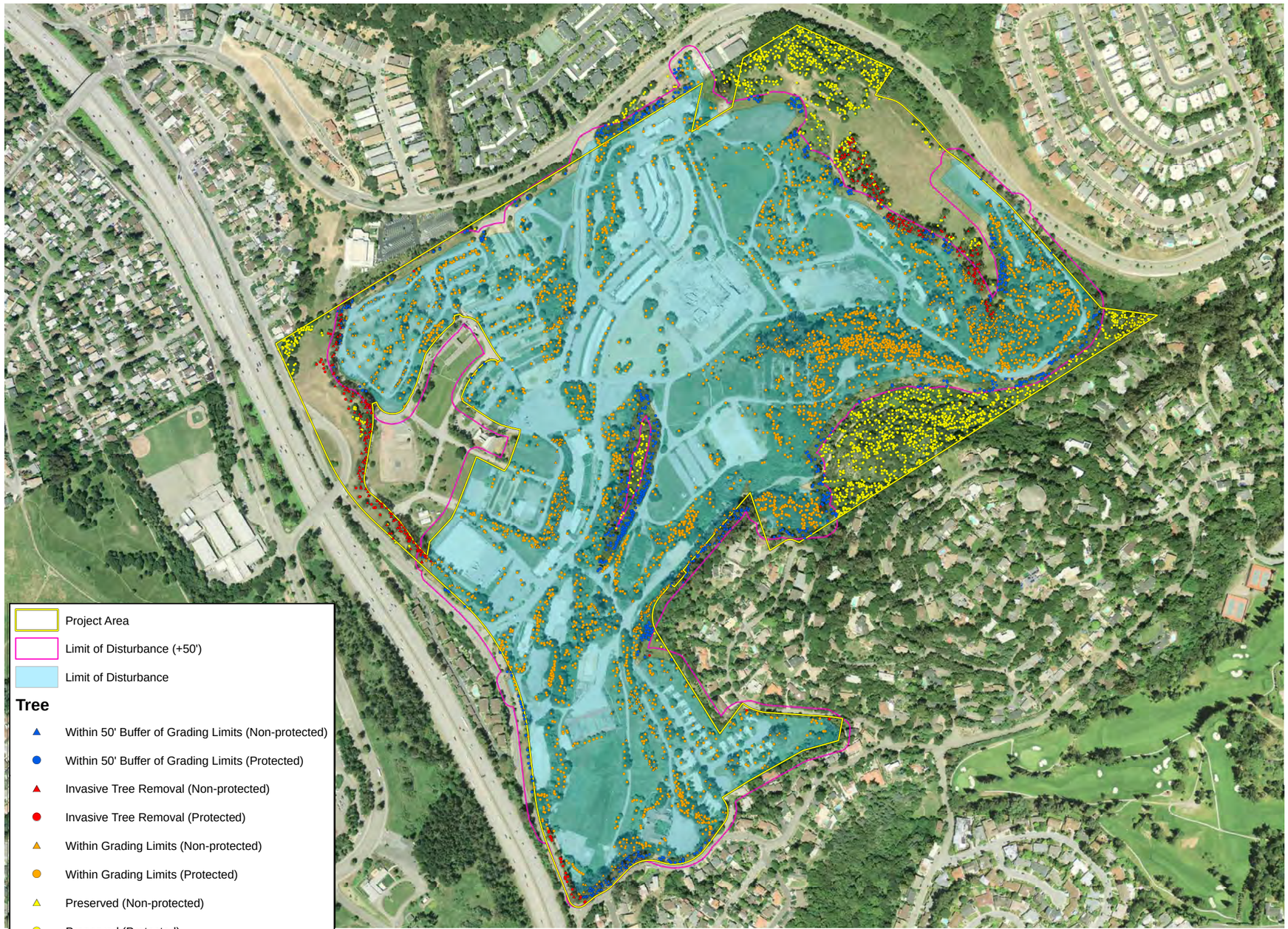
The Project sponsor has prepared a set of Oak Knoll Design Guidelines (included as Appendix E to this Draft SEIR), which are part of the proposed PUD and include the Oak Knoll Landscape Guidelines. The Landscape Guidelines presents an Oak Knoll landscape vision intended to integrate the new community into an existing context of hillsides, creeks and drainages, and oak woodlands, as well as address unique landscape conditions for certain Oak Knoll housing types and lots. The Landscape Guidelines focus also on street trees, specifying the landscape character and plant species lists designated for specific proposed street types.

The community streetscape features a natural setting of Coastal Oak woodland, comprised of native London Plane and Coast Live Oak along street edges. Plantings are low groundcovers in composed drift s, using selections from an approved plant list. The Creekside Village, Retail Village, Creekside Townhomes and Garden Court neighborhoods utilize native Oak woodland as the predominant framework plantings, with London Plane, Trident Maple, Red Maple and Brisbane Box as canopy street or parking lot trees.

3.4.10 Infrastructure Improvements

Wastewater and Storm Drainage

The proposed Project would replace the former onsite wastewater collection system constructed by the U.S. Navy. The new system is being designed to reduce the infiltration and inflow of stormwater into the sanitary sewer system to the maximum extent feasible.



SOURCE: WRA, BKF, 2015

Oak Knoll Project . 120645

Figure 3-18

Tree Removal Plan

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The Project also would include a stormwater system of culverted and open channel drainage facilities, with Rifle Range Creek continuing to be the predominant stormwater conveyance from the site. Specifically, the proposed removal of existing undersized culverts (discussed under *Creek Restoration and Enhancement,* above) and the construction of a series of vegetated swales and bioretention/detention facilities throughout the site (in compliance with the Alameda Countywide Clean Water Program C.3 Stormwater Technical Guidance and the City of Oakland's "Complete Streets" policy), would improve the ability for 100-year storm flows to be conveyed within the creek's banks. The Project site is being designed to incorporate increased pervious surfaces and control stormwater runoff volumes from the site to not exceed existing conditions.

Other Infrastructure Improvements

The Project would remove the existing onsite water lines and replace them with updated lines that are better suited to serve the Project. Similarly, the Project would remove the existing natural gas and electrical infrastructure. New joint trenches would be constructed as part of the Project that would house new gas, electrical, and telecommunication infrastructure.

Outparcel Utilities During Construction

To keep the privately-owned outparcels, Seneca and the Credit Union (see 3.1.2, *Project Site Description and Ownership*), functional at all times during the construction of the Oak Knoll Project, the existing utility lines serving the outparcels would be kept in place and/or rerouted during construction. The routes, as summarized below, would allow the outparcels to maintain utility connections during the construction of the Oak Knoll Project; other route options are likely available as well, depending on construction practicalities. As discussed in Sections 4.14, *Utilities and Service Systems,* and Section 4.15, *Energy,* of Chapter 4 in this document in more detail :

- The existing water and fire suppression services to the outparcels will be kept operational by maintaining a looped system around the outparcels, and maintaining the connection to the EBMUD's water system at all times.
- The existing storm drain lines will remain and new connections to the Project's new storm drain line, located on the north side of the Village Center and in the Project's existing road between Seneca and the Credit Union parcels, will be provided during construction.
- A new sanitary sewer line will be installed along the western property line of the proposed Village Center parcel and a new point of connection will be provided, and the existing laterals would be rerouted to this new connection point.
- Existing dry utility services (gas, electric, and telecom) directly serving the outparcels will not be affected by the Project.

3.4.11 Site Remediation

In 1999, the U.S. Department of the Navy (Navy) prepared a Final Finding of Suitability to Transfer (FOST), which was confirmed by the U.S. Environmental Protection Agency (EPA). The "Oakland Naval Hospital" EnviroStor listing indicates remedial activities (addressing soils impacted with lead from structures painted with lead-based paint) are inactive and that the Project

site is subject to a voluntary cleanup under the California Land Reuse and Revitalization Act (CLRRA). The Project site is also listed in the San Francisco Bay Region Water Quality Control Board's (SWRCB) GeoTracker database as a closed site, meaning that it has been cleaned up to the satisfaction of the SWRCB. Neither listing on its own, nor the two combined, establishes that the Project site meets the criteria to be on the Cortese List.

Under the voluntary cleanup under the CLRRA program, DTSC will approve any required response action. A testing program to delineate the extent of lead contamination is ongoing. If this testing shows that it is necessary to allow for residential usage, the impacted soils will be segregated during the grading process and disposed of either under commercial building foundations, under streets, in parking areas or hauled off-site.

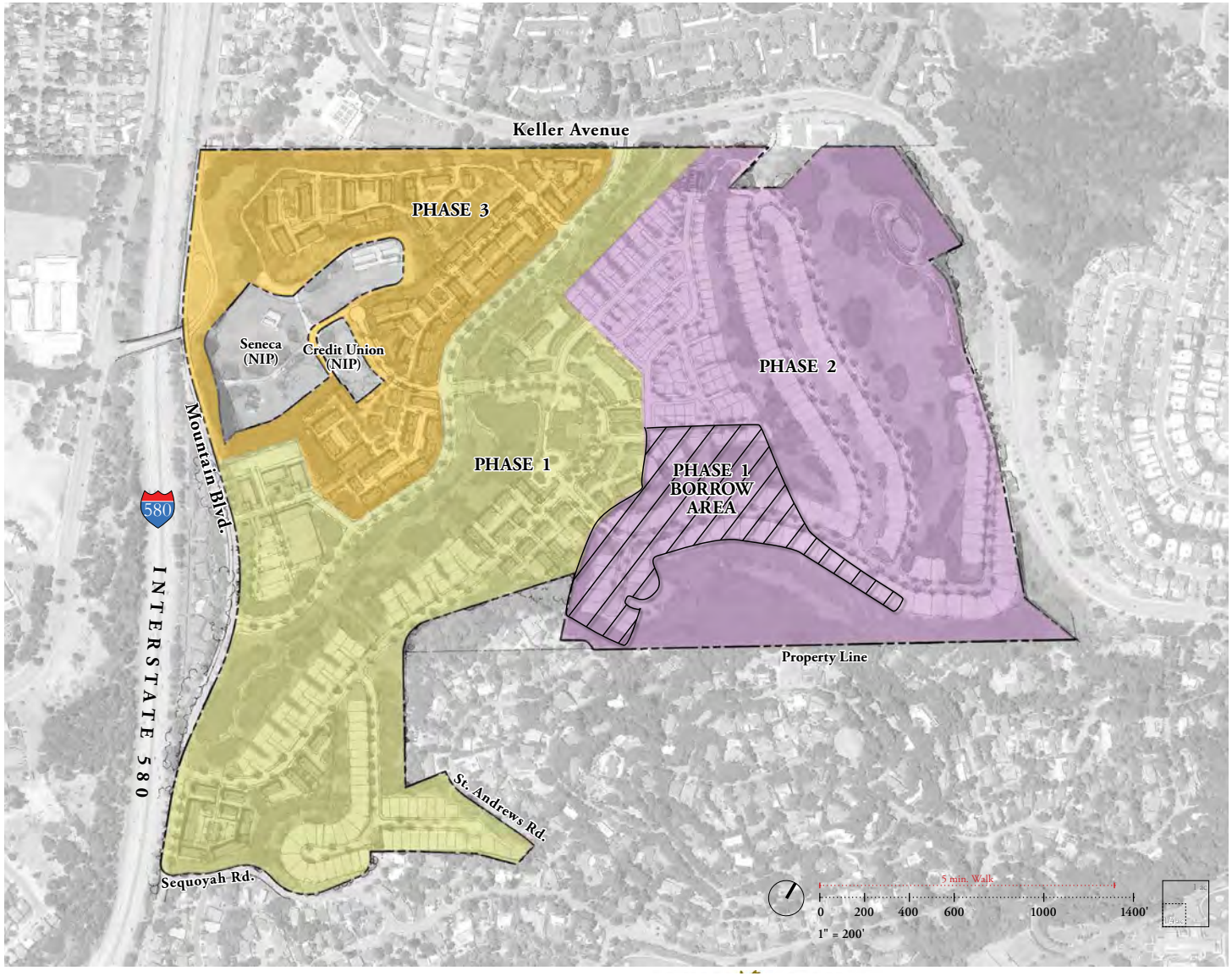
Asbestos-containing utility lines and pipes will also be off-hauled. Truck trips for off-hauling lead and asbestos contaminated materials have been accounted for in the estimates of truck traffic for construction. Dust controls will be used during the remediation process, and there will be a soil risk management plan in place to specify the testing and other procedures to be followed if additional areas of contaminated soil are encountered during grading or later phases of project construction. A detailed analysis of site conditions is provided in Section 4.7, *Hazards and Hazardous Materials*, in Chapter 4.

3.5 Project Phasing

3.5.1 General Development Sequence

The Project would be developed in multiple phases over approximately five to ten years, with the initial phase of work anticipated to commence in 2017. As shown below in **Figure 3-19**, the initial phase of work (Phase 1) would include the creek improvements, grading and construction of roadways in the Village Center area of the site, development of the Village Center and construction of some residential development in the south and west portions of the site. The proposed relocation of Club Knoll is also anticipated to occur in the first phase of work. Subsequent phases are expected to generally occur in the east, west, and north areas of the site, with development of most of the Uplands neighborhoods taking place in Phase 2, and development of the North Creekside neighborhood taking place during Phase 3 of Project construction.

As Master Developer, the OKVA intends to control development and phasing of the Project by constructing the primary streets, backbone infrastructure and site grading to produce individual development sites to sell to home builders. After Phase 1, overall phasing of the Project will be dependent upon market demand and engineering and construction practicalities. Construction of phases could overlap to accommodate construction schedules and other constraints or opportunities. As described below, construction phasing will be controlled by the need to provide backbone infrastructure and market demand.



LEGEND	
	Property Line
NIP	Not in Project
	Phase 1
	Phase 2
	Phase 3

SOURCE: OKVA, Hart Howerton, 2016

Oak Knoll Project . 120645

Figure 3-19
Proposed Phasing

3.5.2 Project Grading Phases

The proposed grading phases are based on a number of factors, including the need to provide adequate vehicular and fire access (Creekside Parkway and Creekside Loop), construction timing of site amenities (Rifle Range Creek, Community Center, etc.), and the locations of the existing utility tie-in points (i.e., downstream utility connections to be made in Phase 1). **Figure 3-20** illustrates the three grading phases and area of borrowing across phases.

Phase 1 Grading

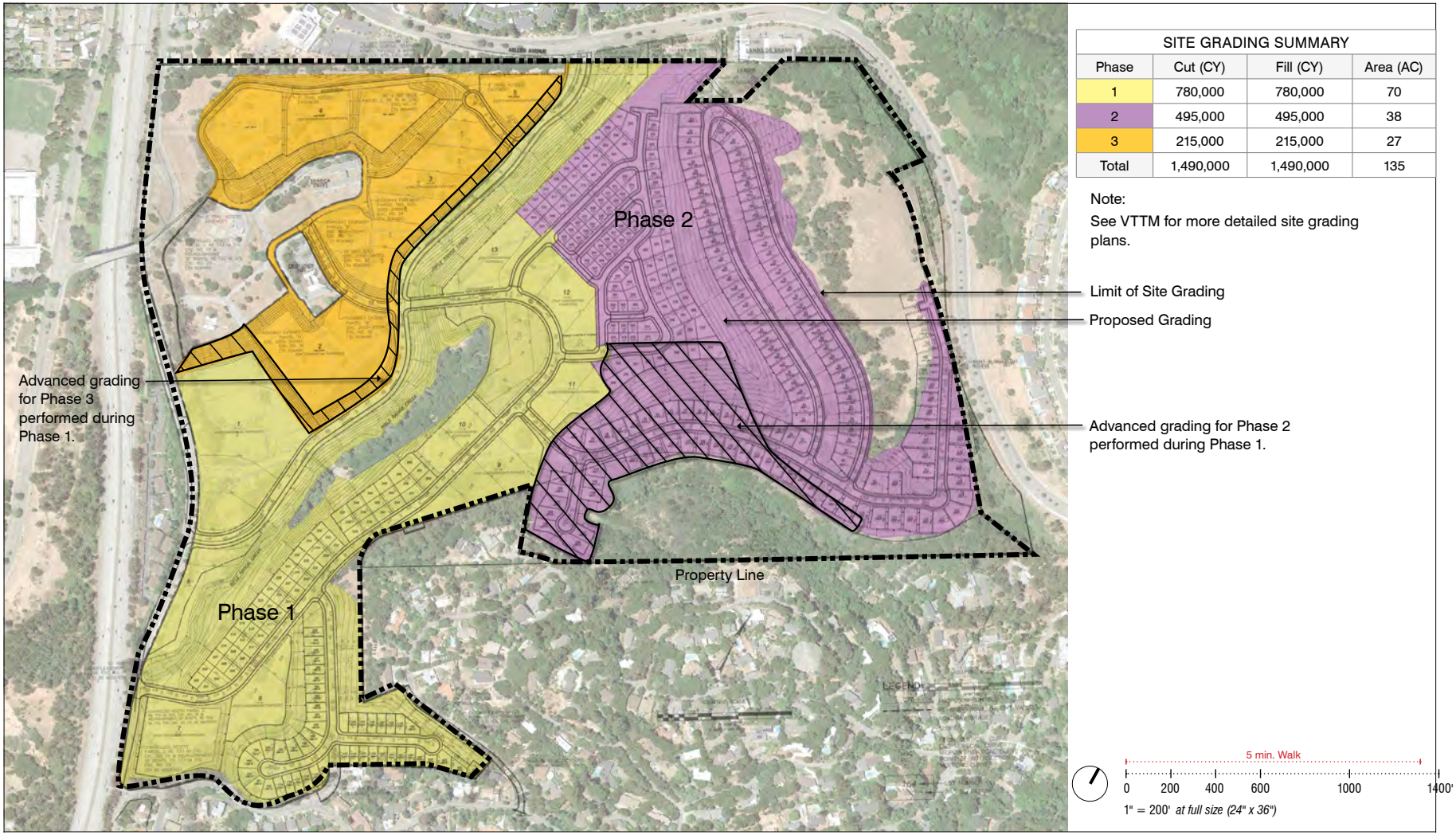
Phase 1includes the construction of the entire Rifle Range Creek, all of Creekside Parkway from Mountain Boulevard to Keller Avenue, and all of Creekside Loop from Mountain Boulevard to Creekside Parkway. Overall, as part of Phase 1, Creekside Parkway will be constructed along the north side of Rifle Range Creek. It is anticipated that the lower portion of Creekside Parkway (toward Mountain Boulevard) will be constructed during the initial part of Phase I (Phase IA) and the upper portion (toward Keller Avenue) will be constructed towards the end of Phase I (Phase 1B) (BKF, 2016b).

With the construction of Creekside Parkway and Creekside Loop, the Project will provide fire truck/emergency access to the development from two access points: Mountain Boulevard and Keller Avenue. In addition, Phase 1includes the grading for the residential neighborhoods adjacent to Creekside Parkway and Creekside Loop, and the commercial development (Village Center) at the corner of Creekside Parkway and Mountain Boulevard Corrective grading is required along Rifle Range Creek to stabilize the banks and prevent future erosion. Civil grading is required throughout Phase 1to establish proper roadway geometry and longitudinal slopes, along with adequate developable/pad area to support the proposed development.

The earthwork volume for Phase 1is anticipated to be approximately 780,000 cubic yards of cut and 780,000 cubic yards of fill. As shown in Figure 3-20, in order to balance the earthwork and avoid off-hauling excess soil, it is necessary to extend the Phase 1grading limit a short distance into the Phase 2 development area. This Phase 2 extension area is also necessary to generate select granular fill material for use in the reconstructed slopes along Rifle Range Creek. Also, as part of the construction of Creekside Parkway and Creekside Loop, new utility infrastructure (water, sewer, storm, and telecommunication) within these roadways would be installed.

Phase 2 Grading

Phase 2 grading would include the rest of the developable area on the east side of the Phase I, namely the area northeast of Rifle Range Creek and the area that extends up to the upper ridge (former Admiral's quarters). As with the case for Phase I, certain areas in Phase 2 would need to be over-excavated and reconstructed as part of the geotechnical corrective grading improvements. Specifically, the existing area east of the single-loaded streets (with stadium lots) has been documented as a potential landslide-prone area, that would need to be over-excavated and reconstructed with new keyways and other geotechnical measures. In addition, grading areas within colluvial filled swales would need to be over-excavated and reconstructed with new



SITE GRADING SUMMARY			
Phase	Cut (CY)	Fill (CY)	Area (AC)
1	780,000	780,000	70
2	495,000	495,000	38
3	215,000	215,000	27
Total	1,490,000	1,490,000	135

Note:
See VTTM for more detailed site grading plans.

SOURCE: Engeo, 2016

Figure 3-20
Grading by Phase

keyways, and based on future design-level slope stability analysis, select cut slopes will need to be over-excavated and reconstructed as engineered fill slopes.

All proposed roadways would be graded to comply with the City's street design requirements. As with Phase I, a portion of the lower ridge (north of Hardestine) needs to be lowered in Phase 2 to maintain an acceptable roadway slope of 10 to 14 percent up to the upper ridge. The earthwork volume for Phase 2 is anticipated to be approximately 495,000 cubic yards of cut and approximately 495,000 cubic yards of fill, as shown in Figure 3-20. This earthwork volume takes into account the amount of grading required to balance the cut and fill quantities (Figures 3-16a through 3-16c). The civil grading will coincide with the area, timing, and need of geotechnical corrective grading wherever feasible.

Phase 3 Grading

Phase 3 grading would include the rest of the developable area to the west of Phase 1. Specifically, this consists of the areas north and east of the existing Seneca and Credit Union parcels. Similar to the other two phases, the existing landslide-prone areas, colluvium filled swales, and select cut slopes in Phase 3 will need to be over-excavated and reconstructed to with keyways to mitigate slope instability. Also, all roadways will need to be graded to comply with the City's street design standards. The earthwork volume for Phase 3 is anticipated to be approximately 215,000 cubic yards of cut and approximately 215,000 cubic yards of fill. The extent of the civil grading will coincide with the area, timing, and need of corrective grading wherever feasible.

3.6 General Plan and Zoning

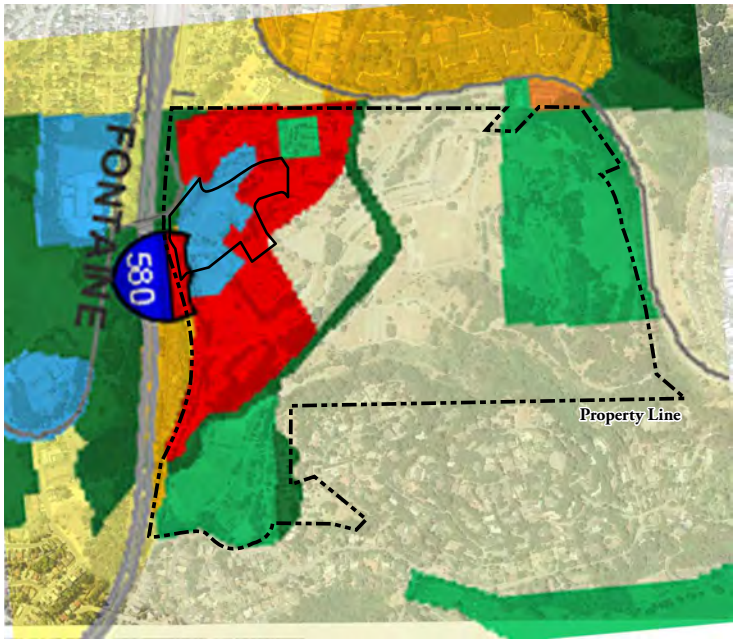
3.6.1 Existing and Proposed General Plan Land Uses and Configuration

Existing General Plan Designations

As mentioned previously under 3.2.1 *Existing General Plan and Zoning* in this chapter, the City of Oakland General Plan LUTE Land Use Diagram applies five land use designations to the Project site, including Hillside Residential, Community Commercial, Urban Open Space, Institutional and Resource Conservation. Existing General Plan and Zoning are shown on **Figure 3-21**.

Prior 2006 General Plan Conformity Determination

In May of 2006, the City of Oakland reviewed an Oak Knoll Mixed Use Community Plan (i.e., the 2006 Oak Knoll Plan) as was then proposed, and determined that the 2006 Oak Knoll Plan was in substantial conformance with the Oakland General Plan, based on the following findings.

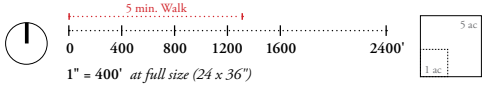


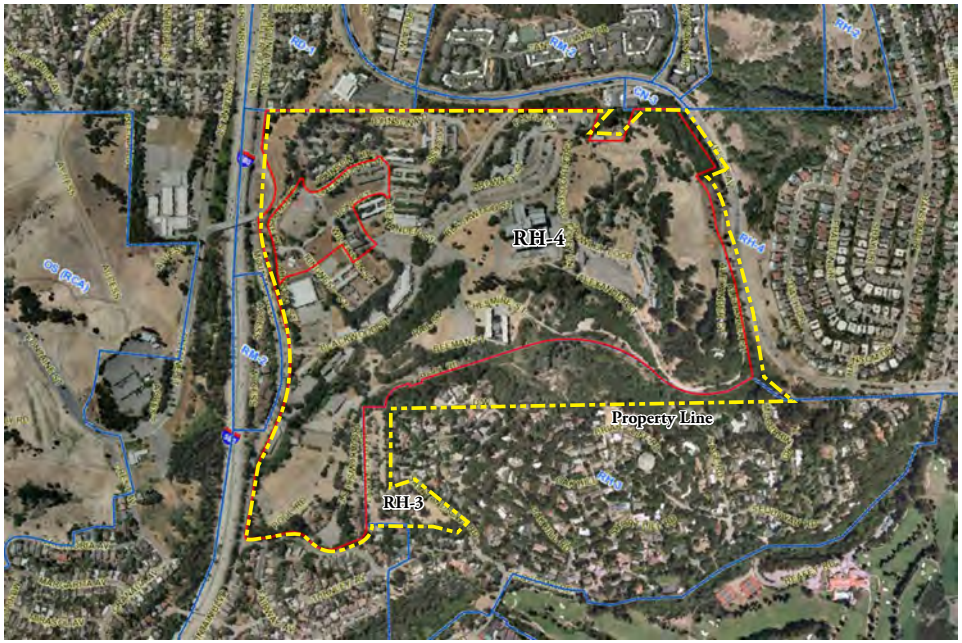
Legend

- Hillside Residential
- Detached Unit Residential
- Mixed Housing Type Residential
- Neighborhood Center Mixed Use
- Community Commercial
- Institutional
- Resource Conservation
- Urban Park and Open Space

Existing General Plan Designations

(from General Plan Designations, City of Oakland, November 18, 2014





Existing Zoning

(from City of Oakland Zoning and EStuary Policy Plan Maps, Bureau of Planning, January 8, 2015

SOURCE: OKVA, Hart Howerton, 2016; City of Oakland

Figure 3-21

Existing General Plan and Zoning Designations

Uses and Facility Types

The uses and facility types of the 2006 Oak Knoll Plan was found to conform to the LUTE land use plan and diagram. The 2006 Oak Knoll Plan proposed a land use development program that did not change or introduce new or different land use designations for the property other than those shown on the LUTE Land Use Diagram. Boundaries of those land use designations were adjusted in part to reflect site conditions and environmental resources. The LUTE Land Use Diagram is intended to be general and broadly applied to areas without parcel-by-parcel specificity, and illustrative of goals and policies of the General Plan. Existing site conditions were found to be in close correspondence with the boundaries proposed under the 2006 Oak Knoll Plan, and the 2006 Oak Knoll Plan was found generally consistent with the adopted LUTE Land Use Diagram.

Density of Development

The density/intensity of the 2006 Oak Knoll Plan was found to be within the maximum limits set forth in the General Plan. The overall density of proposed residential development under the 2006 Oak Knoll Plan (at 960 total residential units) was found to be equal to or less than the density that would be realized under the LUTE land use designations.

The LUTE Land Use Diagram designates approximately 91 acres of the Oak Knoll property as Hillside Residential, which has a maximum allowable density of 5 units per gross acre, enabling development of approximately 455 residential units. The 2006 Oak Knoll Plan proposed 416 residential units on properties designated Hillside Residential at a gross density of 4.57 dwelling units per acre, below the maximum gross density permitted under the General Plan.

The LUTE Land Use Diagram also designates approximately 36.4 acres of the Oak Knoll property as Community Commercial, which has a maximum allowable density of as much as 125 units per gross acre, or a calculated density of approximately 167 units per net acre (using an average net-to-gross ratio of 75%). The 2006 Oak Knoll Plan proposed 544 residential units on properties designated Community Commercial at a net density of only 19.9 dwelling units per acre, well below the maximum residential density limits under the Community Commercial General Plan land use designation.

The total of 960 units as was proposed under the 2006 Oak Knoll Plan was found to be within the maximum density limits set forth in the General Plan.

General Plan Conformity Guidelines

The 2006 Oak Knoll Plan was found consistent with key General Plan policies cited in City-adopted guidelines, which were used at that time for determining General Plan conformity. The Oakland General Plan is comprised of numerous elements including but not limited to the LUTE, the OSCAR, the Housing Element, Safety Element and Historic Preservation Element. Both the City's General Plan and case law interpreting general plan requirements recognize that the General Plan is a collection of competing goals and policies, which must be read together as a whole, and not in isolation. In reviewing a project for conformity with the General Plan, the City

is required to balance these competing goals and policies. Case law has determined that a project "need not be in perfect conformity with each and every policy" and that "no project could completely satisfy every policy stated in the General Plan, and state law does not impose such a requirement" (*Sequoyah Hills Homeowners Association vs. City of Oakland – 1993*).

After reviewing and weighing all pertinent goals and policies of the Oakland General Plan, the City issued a written determination concluding that the 2006 Oak Knoll Plan was in substantial compliance with the General Plan.[3]

Conformity of the Proposed Project with the General Plan Land Use Diagram

The currently proposed development plan for Oak Knoll differs slightly from the 2006 Oak Knoll Plan, but remains in substantial conformance with that prior 2006 Plan, thereby also meeting the same criteria for General Plan consistency.

The currently proposed Oak Knoll Project does not change or introduce new or different land uses other than those shown on the LUTE Land Use Diagram. The currently proposed Oak Knoll Project continues to include residential, commercial and open space/resource conservation land uses and facility types of a similar nature previously found to conform to the General Plan LUTE Land Use Diagram.

The density of the currently proposed Oak Knoll Project is within the maximum limits set forth in the General Plan. The total residential development proposed under the current 2015 Oak Knoll Project is 935 residential units, less than the 960 units that were previously proposed in the 2006 Oak Knoll Plan and that were found to be within the maximum limits set forth in the General Plan.

Although like the City's previous General Plan conformity determination for the 2006 Oak Knoll Project, the currently proposed Oak Knoll Project is not in perfect conformity with each and every policy of the General Plan, but remains in substantial compliance with the whole of various policies found in the LUTE, the OSCAR, the Housing Element, Safety Element and Historic Preservation Element.

Given the Project's substantial compliance with the existing General Plan, including the LUTE Land Use Diagram, no General Plan amendments are proposed or necessary for the Project.

[3] City of Oakland, 2007

3.6.2 Planned Unit Development Permit

Proposed Planned Unit Development Permit

The Project sponsor has prepared and submitted to the City of Oakland a document that constitutes its application for a PUD for the Oak Knoll Project, and specifically a Preliminary Development Plan (PDP)s. The Project's proposed PUD permit proposes to utilize the flexibility of the City's PUD permit process to accomplish several key objectives, as described below.

- **Mix of Land Uses.** The PUD, with qualifying exceptions and bonuses, would enable a greater mix of land uses than those otherwise permitted. The PUD bonus enables the Project to include a variety of land use types that are better reflective of the mix of land use types suggested under the mix of General Plan land use designations for the site.
- **Establishing the Residential Density.** The current residential density for the Project site based on General Plan land use designations was found in 2006 to be 960 residential units. The Project's proposed 935 units are less than the density that could potentially be realized under the LUTE land use designations
- **Open Space Preservation.** As discussed previously under 3.4.6 (Public and Common Ownership), areas of the Project will either be dedicated as public open space and/or permanently reserved as common open space for use by the owners and residents of the Project. Any publicly dedicated space will be offered to the City of Oakland, and any common open space areas will be owned and maintained by an association of owners or tenants created for the purpose of maintaining such open space. Under either scenario, these open spaces will be permanently reserved as parks, playgrounds or open space accessible to the public.
- **Preliminary Development Plan.** The PUD permit requires a Preliminary Development Plan (PDP) of the entire development site, showing development details sufficiently detailed to indicate intent and impact. The Project includes a Preliminary Development Plan for the entire development site, showing all required components of a PDP as described below.
- **Final Development Plan.** The PUD permit also requires a Final Development Plan (FDP). The FDP must be in substantial conformance with the PUD and may be submitted in phases.

Preliminary Development Plan Components

Included in the PDP are the several documents, the following of which are most relevant to this CEQA analysis and therefore discussed below or elsewhere in this chapter, referenced in the environmental analyses, and included as appendices to this Draft SEIR:

- Land Use Area Tabulations and Residential Densities
- Proposed Oak Knoll Zoning District
- Oak Knoll Design Guidelines
- Circulation and Complete Streets
- Open Space, Parks, and Trails
- Tree Removal and Preservation Permit

- Creek Protection Permit
- Project Development Phasing

Tabulation of Land Area and Use

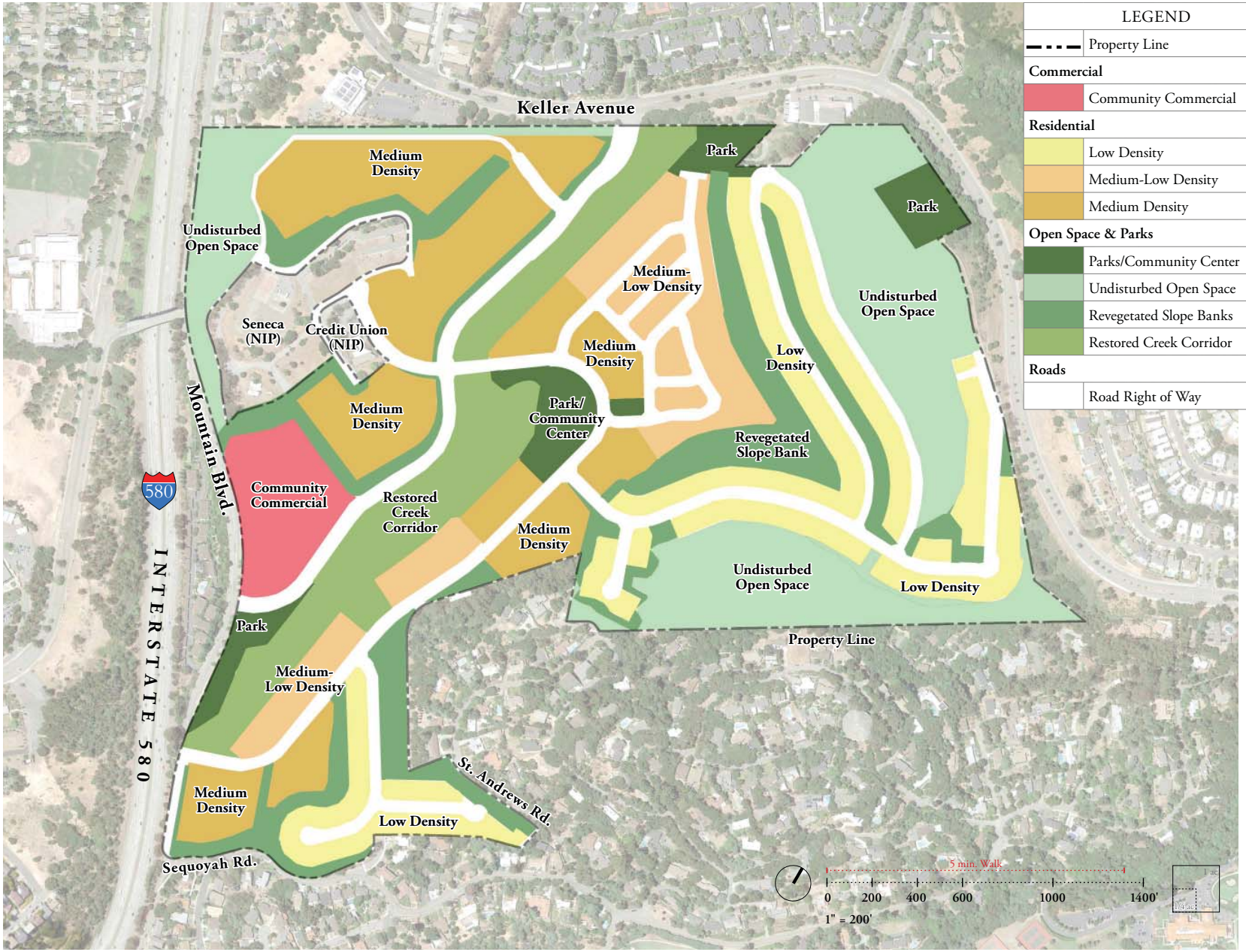
Based on the Oak Knoll PDP application, the following **Table 3-2** shows a tabulation of both gross and net land area by land use, as well as dwelling units by type, and square feet of commercial and community-based space.

TABLE 3-2
TABULATION OF USE, LAND AREAS, AND DENSITY

Land Use	Gross Area (AC)	Net Area (AC)	Units	Net Density	Building Area (SF)
Residential					
Typical Single Family Detached Lots (Low Density) (420x90, 45x100, 55x90, 60x100)	32.9	22.9	188	8.2	500,000
Small Lot Single Family Detached (Medium-Low Density (40x50, 50x60)	17.4	13.5	175	13.0	400,000
Townhomes (Medium Density) (20/25 Wide)	34.0	34.0	572	16.8	1,130,000
Subtotal	**84.3**	**70.4**	**935**	**13.3**	**2,030,000**
Commercial					
Village Center		6.6			72,000
Subtotal		**6.6**			**72,000**
Community Facilities					
Community Center					14,000
Neighborhood Parks		5.6			
Subtotal		**5.6**			**14,000**
Open Space					
Undisturbed Open Space		43.5			
Revegetated Slope Banks		18.5			
Restored Creek Corridor		16.7			
Subtotal		**78.7**			
Streets					
Collector Street		10.7			
Neighborhood Streets		14.3			
Future Street Dedication		0.8			
Subtotal		**25.7**			
TOTALS					
		187.9			**2,116,000**

SOURCE: OKVA, LLC

The land use types indicated in Table 3-2 are also shown on the Oak Knoll PDP Land Use Map shown in **Figure 3-22**, which indicates the location and arrangement of proposed land uses including all of the Project's various residential types, open space types, commercial and clubhouse location, and their geographic relationship to each other.



SOURCE: OKVA, Hart Howerton, 2016

Oak Knoll Project . 120645

Figure 3-22
Land Use

3.6.3 Rezoning

As discussed above in 3.6.1 *Existing and Proposed General Plan Land Uses and Configuration*, the existing zoning on the Project site does not enable a mix of different types of land uses within the Project site as indicated on the General Plan Land Use Diagram. The Hillside Residential-3 (RH-3) and Hillside Residential-4 (RH-4) zones that apply to the majority of the Project site (see Figure 3-21) do not permit the types of commercial activities and townhome uses that are otherwise permitted under the various land use designations indicated under the General Plan.

To establish permanent rather than interim zoning and to resolve the current conflicts between existing zoning and General Plan land use designations, the Project proposes to amend the zoning code and establish a PUD permit for the entire site. (The Project's proposed PUD is described above in 3.6.2, *Planned Unit Development*, and in Section 4.9, *Land Use and Planning*, in Chapter 4.) These actions enable comprehensive planning, and provide greater flexibility in the application of zoning regulations to promote a more harmonious variety of land uses. The Project also proposes re-zoning the site in a manner that better reflects the General Plan land use designations and the proposed PUD land use program. The future zoning regulations that would apply to the site will be prepared to enable the development program as ultimately approved pursuant to the Oak Knoll PUD permit application and to regulate land use within the Project site to ensure conformity with the final approved PUD.

The Project sponsor has described the intent for the future zoning regulations is to:

1) Create a new Oakland Hills commercial area that provides a mix of commercial uses to serve both new and existing residents.

2) Create a new Oakland Hills community with a mix of residential types within walkable neighborhoods.

3) Create and enhance recreational opportunities in the Oakland Hills by encouraging the adaptive reuse of Club Knoll.

The proposed rezoning would create site-specific Oak Knoll District (D-OK) Zones and land use regulations for each. Generally, the proposed D-OK Zones include these:

- **Residential Zones:** three Residential Zones (D-OK-1, D-OK-2 and D-OK-3) intended for the variety of housing types and densities proposed for Oak Knoll (see 3.4.3 *Residential Development and Neighborhoods* previously in this chapter);
- **Commercial Zone:** a Commercial Zone (D-OK-4) intended to provide neighborhood-serving retail uses;
- **Open Space Zone:** an Open Space Zone (D-OK-5) intended to enhance open space, preserve natural site features, and allow recreation uses; and
- **Community Zone:** a Community Zone (D-OK-6) intended for community activities and commercial uses that provide a community amenity.

Each of the proposed D-OK Zones is described in Section 4.9, *Land Use and Planning*, in Chapter 4.

3.6.4 Final Development Plans

As previously mentioned, the Project applicant, OKVA, intends to serve as the Master Developer for the entire Project, and intends to subdivide the Project site into development blocks that will be sold to "merchant" builders in stages or phases. Pursuant to the Oakland Planning Code, each subsequent stage or phase of development will be dependent upon approval of a FDP for that individual stage or phase. Not until detailed plans for each of the individual development blocks are submitted by the home builders will detailed building and landscaping plans and elevations be available.

However, the PDP's proposed design guidelines for detached single-family homes contain guidance and architectural prototypes to guide the future preparation of the FDPs.

3.7 Sponsor-Submitted Applications and Technical Studies

The Project sponsor has submitted to the City a Request for Environmental Review (ER15-004) and the following applications and supporting materials for permits required to develop the Oak Knoll Project:

- Pre-Application Submittal (Case No. ER15-004) UPDATE CASE No.
- Basic Application for Development Review (Case No. ER15-004) UPDATE CASE No.
- Planned Unit Development (PUD)- Preliminary Development Plan (Case File No. PLN-15-378
- Rezoning of the Project site
- Final Development Plan (FDP)(s) for Master Developer Improvements
- Vesting Tentative Tract Map
- Creek Protection Permit
- Tree Preservation and Removal Permit
- Development Agreement
- Other development-related permits

A compendium of the applications, plans, and supporting technical information submitted for the Project is available for review at the City of Oakland Planning Bureau at 250 Frank H. Ogawa Plaza, Suite 2114, Oakland, CA 94612. A complete list of these materials is provided as **Appendix D** to this Draft SEIR. In addition, a compact disc (CD) containing the 1998 EIS/EIR and other relevant Oak Knoll Project background reports and technical studies included inside the back cover of this Draft SEIR.

3.8 Discretionary Actions and Other Planning Considerations

3.8.1 Public Agency Approvals Required

A number of permits and approvals (in addition to those discussed above) would be required before development of the Oak Knoll Project could proceed. As Lead Agency for the Project, the City of Oakland is responsible for the majority of approvals required for development, and for preparation of this Draft SEIR (pursuant to CEQA Guidelines Section 15051).

A list of the currently anticipated City and other agency permits and approvals that may be required is provided below in **Table 3-3**. The Final SEIR is intended to be used for the required discretionary actions described below, along with any other discretionary approvals that are requested and required in connection with the Project but not listed below. In addition, the Project may rely on or require review and approval by a number of public agencies and jurisdictions that have authority over specific aspects of the Project.

The approvals needed for the Project may include the following, without limitation:

TABLE 3-3
REQUIRED PERMITS AND APPROVALS ANTICIPATED FOR THE PROPOSED PROJECT

City of Oakland (Lead Agency)	• Rezoning • Vesting Tentative Subdivision Maps to create new parcels • Planned Unit Development (Preliminary and Final) • Conditional Use Permits or Variances, if determined necessary once detailed plans are submitted • Design Guidelines/ Design Review • Demolition Permits (if required) • Grading Permits • Tree Preservation and Removal Permit • Creek Protection Permit • Development Agreement
	Other Potential City Action • Formation of Community Facilities District or Geologic Hazard Abatement District • Approval of CC&Rs
Responsible Agencies	
East Bay Municipal Utility District (EBMUD)	• Approval of water line, water hookups and review of water needs • Water Supply Assessment (already issued by EBMUD)
California Department of Transportation (Caltrans)	• Approval of plans and encroachment permit for improvements located within the State of California right-of-way • Improvements within the public right-of-way (including re-paving, re-striping, signal improvements, street lights, and signal optimization); • Excavation for utilities

TABLE 3-3 (Continued)
REQUIRED PERMITS AND APPROVALS ANTICIPATED FOR THE PROPOSED PROJECT

Other Agencies	
California Regional Water Quality Control Board (RWQCB)	• National Pollutant Discharge Elimination System (NPDES) permit for stormwater discharge • Section 401 permit for any jurisdictional waters on site (creek restoration work) • Oversight of potential site cleanup (also see DTSC)
Bay Area Air Quality Management District (BAAQMD)	• Permitting of lead abatement activities prior to and during any demolition (if demolition is required)
U.S. Army Corps of Engineers	• Authorization for fill of waters of the U.S. Clean Water Act Section 404 permit for any jurisdictional waters of the United States on site (creek restoration work)
California Department of Fish & Wildlife	• Lake and Streambed Alteration Agreement (creek restoration work)
Alameda County Flood Control and Water Conservation District (ACFCD)	• Compliance with federal floodplain regulations
California Department of Toxic Substances Control (DTSC)	• Oversight of potential site cleanup (also see RWQCB)

CHAPTER 4
Environmental Setting, Impacts, Standard Conditions of Approval, and Mitigation Measures

4.0 Introduction to the Environmental Analysis

4.0.1 Overall Scope of the Analysis

This chapter presents the environmental analysis of the Oak Knoll Project and has been prepared in accordance with CEQA, as amended (Public Resources Code Section 21000), and the State CEQA Guidelines (California Code of Regulations). This chapter includes the environmental analysis for topics that the City of Oakland determined required additional environmental review in a Supplemental EIR (SEIR), in accordance with Public Resources Code (PRC) Section 21166 and CEQA Guidelines Sections 15162 and 15163.

The City's scoping process for this Draft SEIR, as well as its consideration of previous environmental review conducted for previous proposals on the Project site, were factored into the City's determination that environmental review shall be conducted for each of the following environmental topics, which are most of the environmental factors addressed under CEQA:

4.1 Aesthetics
4.2 Air Quality
4.3 Biological Resources
4.4 Cultural and Paleontological Resources
4.5 Geology and Soils
4.6 Greenhouse Gas Emissions and Climate Change
4.7 Hazards and Hazardous Materials
4.8 Hydrology and Water Quality
4.9 Land Use and Planning
4.10 Noise and Vibration
4.11 Population and Housing
4.12 Public Services and Recreation
4.13 Transportation and Circulation
4.14 Utilities and Service Systems
4.15 Energy

(The applicable provisions of CEQA and its Guidelines under which this Draft SEIR was prepared and its scope determined are discussed in detail in Chapter 1 [Introduction] of this document.)

4.0.2 Overall Approach to the Analysis

Organized by the environmental topics listed above, this chapter provides an integrated discussion of the environmental setting (including the regional, local and/or project setting, and regulatory setting) and the environmental impacts and mitigation measures associated with the removal of any existing elements on the project site, as well as the construction, operation, and maintenance of the project.[1] The following discussion addresses key components of the approach and assumptions applied to the analysis in this SEIR.

4.0.2.1 Environmental Baseline

The environmental baseline identifies the existing physical conditions on, around and affecting the project site. The baseline is established to provide a point of comparison between pre-project conditions (the baseline) and post-project conditions to determine whether the change to the existing environment caused by the project is significant under CEQA. The baseline is stable regarding its point in time. The impacts of the proposed Project are based on its effects on existing conditions, or the baseline. These impacts are compared to the impacts identified for the Maximum Capacity Alternative analyzed in the 1998 EIS/EIR.

For all topics or resource areas (including hazardous conditions; utility capacities and infrastructure; visual conditions and view corridors; natural habitat; noise environment; and other aspects of the physical environment), the baseline is the same as the "environmental setting," *i.e.*, the physical environmental conditions in the vicinity of the project as they existed in March 2015 when the City published the NOP for the proposed Project (CEQA Guidelines §§ 15125(a), 15126.2(a)).[2] For example, because no uses currently operate at the Project site, for the air quality and greenhouse gas analyses, baseline emissions at the site are assumed zero for purposes of measuring the Project's effects. For the same reason, baseline conditions assume no vehicle trips are currently generated from the Project site.[3] Potential traffic impacts are evaluated in the context of scenarios referred to as "Existing Conditions" (the existing roadway system, its physical conditions, and traffic volumes obtained from recent traffic counts), as well as "Future 2040 No Project Conditions" (future conditions with planned population and employment growth, and planned transportation system improvements, for the year 2040; traffic volume forecasts developed using the Alameda County Transportation Commission [ACTA] Countywide Travel Demand Model).

CEQA provides that under certain circumstances involving a base reuse project, a local government may determine whether the reuse project will have a significant impact in the context of the physical conditions that existed at the time the federal government made the decision to close the particular base (a "pre-closure baseline"). This could include, for example, the vehicle

1 This SEIR addresses impacts of the project on the existing environment. In an abundance of caution, this SEIR also addresses impacts of the environment on the project (see discussion of *Impacts*, below).

2 The City issued the NOP for the proposed project on March 20, 2015.

3 The Sea West Coast Guard Federal Credit Union (Sea West) and the Seneca Center for Children and Families (Seneca) exist and operation on parcels that were previously part of the NCMO based, but are not part of the Oak Project site, which surrounds these the properties where these facilities exist and currently generate minor levels of activity and traffic. Traffic generated from these uses are included in the "existing condition" traffic volumes obtained from recent traffic counts in the area (as described in detail in Section 4.13, Transportation and Circulation, in this chapter.

trips generated from the base when the closure decision was made. The 1998 EIS/EIR did include some impact assessments based on a comparison to pre-closure conditions, although it did not establish a definitive pre-closure baseline for all environmental conditions.

The City has determined that while CEQA might permit the use of a pre-closure baseline in this SEIR, use of such a pre-closure baseline might add unnecessary confusion to the assessment and discussion of the Oak Knoll Project's environmental impacts. Thus, as indicated above, the assessment of the Oak Knoll Project in this Draft SEIR compares the proposed Project to the baseline conditions existing generally at this time – that is a closed military base that has no facilities that generate existing traffic.

4.0.2.2 Oakland Significance Thresholds or Criteria

The City of Oakland has established local *CEQA Thresholds of Significance Guidelines* (referred to as "Thresholds"), which have been in general use by the City since at least 2002, parts of which were most recently updated in May 2013. The Thresholds are intended to help clarify and standardize analysis and decision-making in the environmental review process in the City of Oakland. The Thresholds are offered as guidance in preparing all environmental review documents, such as this SEIR and are intended to implement and supplement provisions in the CEQA Guidelines for determining the significance of environmental effects, including Sections 15064, 15064.4, 15064.5, 15065, 15382 and Appendix G. The Thresholds are used to evaluate in this SEIR the potential for the proposed Project to have a significant environmental effect. The analysis of the Thresholds accounts for the City's Standard Conditions of Approval (discussed below).

4.0.2.3 Environmental Impacts

This SEIR addresses impacts of the Project on the existing environment pursuant to CEQA. Potential effects of the environment on a project are legally not required to be analyzed or mitigated under CEQA, although the CEQA Guidelines includes certain significance criteria that pertain to the effect of the environment on a project. A growing number of court cases have supported the position that CEQA is solely concerned with the effects of a project on the environment and not the effects of the environment on a project; that latter include thresholds related to air quality (e.g., locating a new residential project near an existing source of air pollution), geology (e.g., locating a new structure in a seismic hazard zone), and noise (e.g., locating a new residential project on a loud street). Most recently, in December 2015, the California Supreme Court decision *California Building Industry Association v. Bay Area Air Quality Management District* (*BIA v. BAAQMD*) determined that impacts resulting from the environment on a project are not, in fact, a consideration under CEQA, except under certain circumstances concerning airports, schools, and housing projects, none of which apply here.

Consistent with previous City practice and CEQA Thresholds, this SEIR continues to address impacts of the environment on the Project caused by the existing environment and those impacts are considered under the City's regulatory authority to protect public health safety and welfare, but will not be considered CEQA issues. These impacts are also addressed to provide information

to the public and decision-makers of the Project. Where a potential significant impact of the environment on the Project is identified, this SEIR identifies City Standard Conditions of Approval or project-specific non-CEQA recommendations as "Recommendations" (discussed below) to address these issues.

Format of Impact Statements

This SEIR identifies all impact statements using an alphanumeric designation that corresponds to the environmental topic (e.g.,"AES-1" for aesthetics). A number follows the alpha designation to indicate the order in which that impact is identified within that particular analysis. For example, "Impact CUL-3" is the third cultural resources impact identified in the cultural resources analysis. All impact statements are in bold text. Where cited for reference, impact statements from the 1998 EIS/EIR are referenced using the same designation therein, preceded by "1998 EIS/EIR Impact" for clarity.

4.0.2.4 Mitigation Measures

Project-specific mitigation measures are identified throughout this SEIR where feasible and necessary to avoid or minimize the potentially significant, adverse impacts of the Project in accordance with CEQA Guidelines § 15126.4. All mitigation measures will be 1) included as part of the design, construction, and operations of the proposed Project; 2) adopted as conditions of approval for the proposed Project; and 3) subject to monitoring and reporting requirements of CEQA and the terms of the discretionary approvals for the project, such as the PUD permit.

Format of Mitigation Measures

This SEIR designates mitigation measures in the same manner described above for Impact Statements. Where multiple mitigation measures are identified for a particular impact, each is numbered sequentially (e.g., Mitigation Measures BIO-1.1 and 1.2 are identified to mitigation Impact BIO-1). Generally, all mitigation measures are indented and in bold text. Measures that include extensive text, not all text may be bolded.

In certain cases, mitigation measures identified for the Maximum Capacity Alternative in the 1998 EIS/EIR would continue to apply to the proposed Project, typically with modifications if they have not currently considered a Standard Conditions of Approval (discussed below). All mitigation measures identified for the first time in this SEIR are designated as "New" (i.e., not previously identified in the 1998 EIS/EIR) or "Revised" (i.e., modified from the 1998 EIS/EIR mitigation).

4.0.2.5 Uniformly Applied Development Standards and Conditions of Approval

The City's Uniformly Applied Development Standards and Conditions of Approval (referred to in this SEIR as Standard Conditions of Approval or SCAs) are incorporated into projects as conditions of approval regardless of a project's environmental determination. As applicable, the Standard Conditions of Approval are adopted as requirements of an individual project when it is

approved by the City and are designed to, and will, substantially mitigate environmental effects. For the Oak Knoll Project, all of the relevant SCAs have been incorporated as part of that Project and are identified in each environmental topic section where there are applicable SCAs.

In reviewing project applications, the City determines which Standard Conditions of Approval are applicable to a project based on the General Plan, zoning district, and the types of permit(s)/approvals(s) required for the project. Depending on the specific characteristics of the project type and/or project site, the City will determine which Standard Conditions of Approval apply to a specific project; for example, SCAs related to creek protection permits will only be applied to projects on creekside properties.

Because Standard Conditions of Approval are mandatory City requirements, the impact analysis assumes that these will be imposed and implemented as part of a project. If an SCA would reduce a potentially significant impact to less than significant, the impact will be determined to be less than significant and no mitigation measure would need to be imposed.

The Standard Conditions of Approval incorporate development policies and standards from various adopted plans, policies, and ordinances (such as the Oakland Planning and Municipal Codes, Oakland Creek Protection Ordinance, Stormwater Management and Discharge Control Ordinance, Oakland Tree Protection Ordinance, Oakland Grading Regulations, National Pollutant Discharge Elimination System (NPDES) permit requirements, California Building Code, and Uniform Fire Code, among others), which have been found to substantially mitigate environmental effects. Where there are peculiar circumstances associated with a project or project site that will result in significant environmental impacts despite implementation of the SCA, the City will determine whether there are feasible mitigation measures to reduce the impact to less-than-significant levels.

SCA Implementation Measures

In certain cases, specific information is available about how the implement a particular SCA that would reduce impacts to less than significant. In these cases where this information is directly aligned with and furthers implementation of an SCA, the requirements are referred to as "SCA Implementation Measures" and numbered relative to the associated SCA. In addition, in some cases, the Project sponsor has already provided the information required by an SCA as part of the permit application process. For example, an SCA requires preparation of a project-specific soils report pursuant to the Oakland Grading Regulations (as mentioned above). However, the Project sponsor had prepared a project-specific soils and geotechnical report with recommendations or requirements specified by the licensed, qualified preparers and submitted it to the City as part of the permit application process. Where this Draft SEIR concludes that such requirements are required to reduce impacts to less than significant, it specifies those recommendations or requirements identified in such reports as furthering implementation of the SCA, and required to reduce potentially significant, adverse environmental effects.

In each of the topical analysis sections in this chapter of the SEIR, applicable SCAs for the particular topic are listed in the *Regulatory Setting* of that section; SCAs are not repeated in the impacts discussion in their entirety, but individual SCAs have a sequential reference number

unique to this SEIR. SCAs are formatted as described above for impact statements, with the additional prefix of "SCA" (e.g., SCA CUL-1).

SCA-required Technical Studies

Many SCAs require technical plans to be prepared, such as a Construction Noise Reduction Plan, Transportation Demand Management (TDM) Plan, or Greenhouse Gas Reduction Plan (GGRP). The preparation of some plans may be required to be performed during the course of the CEQA review (and the results of the studies incorporated into the CEQA document) rather than after project approval and before issuance of development permits.

These technical plans tend to include project-specific recommendations for mitigating an environmental effect or achieving an adopted policy or other Citywide goals (e.g., Oakland Energy and Climate Action Plan [ECAP]). In most cases throughout this analysis, the Project's effects are reported for conditions prior to incorporation of the technical plans, and then with incorporation of the technical plan. The exception is that the Project's traffic impacts with incorporation of vehicle trip reductions resulting from the Project-specific TDM Plan are not presented. However, the TDM and its resulting vehicle trip reductions (and resulting emissions reductions) are factored into the air quality and GHG emissions analyses in Sections 4.3, *Air Quality,* and 4.6, *Greenhouse Gas Emissions and Climate Change.* Similarly, GHG emissions and energy reductions are achieved with implementation of the Project-specific GGRP, which are incorporated into the appropriate analyses.

4.0.2.6 Project Recommendations

Although not required by CEQA, certain "Recommendations" are included in this EIR with respect to certain improvements that are not necessary to address or mitigate any environmental impacts of the Project. These Recommendations are identified herein by City Staff or were identified in technical studies or reports for the Project. Further, they are recommended because they relate closely to a particular environmental factor or Citywide goal and would benefit the Project. For example, several Recommendations in this SEIR address pedestrian facilities, although not required to address CEQA impacts. All Recommendations will be considered by decision makers during the course of Project review and may be imposed as Project-Specific Conditions of Approval

Recommendations are formatted as described above for impact statements (e.g., Recommendation TRA-#).

4.0.3 Format and Content of Each Analysis Section

Each topic section (Sections 4.1 through 4.15) in this chapter is organized as follows:

- **Regional, Local, and/or Physical Setting –** This discussion provides an overview of the baseline conditions of the physical environmental in the area that could be affected by implementation of the project in accordance with State CEQA Guidelines § 15125.

- **Regulatory Setting –** This discussion identifies the laws, regulations, ordinances, plans, and policies applicable to each environmental topic in that section. Applicable SCAs are also listed in this discussion.

- **Significance Criteria –** This is a list of the Thresholds (significance criteria) used to specify the level at which an impact would be considered significant in accordance with CEQA. This section also discusses the *Approach to Analysis*, and, where applicable, summarizes *Impacts Not Further Evaluated* because a particular issue (significance criterion) would not be affected by the Project or does not pertain to the Project or its setting.

- **Impacts and Mitigation Measures** – Each section presents impact statements in bold text, followed by the analysis discussion of each impact (for each significance criterion/threshold), then a summary statement of the Project's impact before and after any identified mitigation measures. Consistent with the purposes of this SEIR, each impact analysis first summarizes the analysis of the Maximum Capacity Alternative for the particular topic from the 1998 EIS/EIR (if any), and the analysis discussion concludes with a summary statement comparing the impact findings of the proposed Project to those identified for the Maximum Capacity Alternative analyzed in the 1998 EIS/EIR

  The level of impact *prior to* the consideration of mitigation measures (and in most cases assuming incorporation of SCAs) is stated in parentheses at the end of the bold impact statement. The level of impact *after* the implementation of mitigation measures is indicated at the end of each impact discussion. A comparison of the Project's impact compared to that identified in the 1998 EIS/EIR is also stated at the end of each impact discussion. ("Impact classifications" are described below.)

- **References** – The end of each section includes a list of all persons and documents consulted or relied on for that analysis. Copies of each of the references are available as an Administrative References Record for review at the City or where this SEIR is available for public review.

4.0.4 Impact Classifications

The following level of significance classifications are used throughout this SEIR:

- **Significant (S)** – The impact of the project is expected to reach or exceed the defined threshold of significance. Feasible mitigation measures may or may not be identified to reduce the significant impact to a less-than-significant level.

- **Potentially Significant (PS)** – The impact of the project may reach or exceed the defined threshold of significance; however, it is not certain that, even in the theoretical worst-case conditions, a significant impact would occur. Feasible mitigation measures may or may not be identified to reduce the potentially significant impact to a less-than-significant level.

- **Significant and Unavoidable (SU)** – The impact of the project reaches or exceeds the defined threshold of significance. No feasible mitigation measure is available to reduce the significant impact to a less-than-significant level. In these cases, feasible mitigation measures are identified to reduce the significant impact to the maximum extent feasible, and the significant unavoidable classification is noted.

- **Less than Significant (LTS) –** The impacts of the project, either before or after implementation of feasible mitigation measures, do not reach or exceed the defined threshold of significance. No additional mitigation measures are required. The 1998 EIS/EIR referred to this classification of impacts as "nonsignificant".

- **Beneficial Impact (B)** – The impact of the project would improve the environment, regardless of the defined threshold of significance. No mitigation measures are required or identified.

- **No Impact (N)** – No noticeable effect on the environmental would occur, as measured by the applicable significance threshold.

(Also see *Comparative Impact Determinations in this SEIR*, below.)

4.0.5 Comparison of 1998 EIS/EIR Maximum Capacity Alternative and the Proposed Project

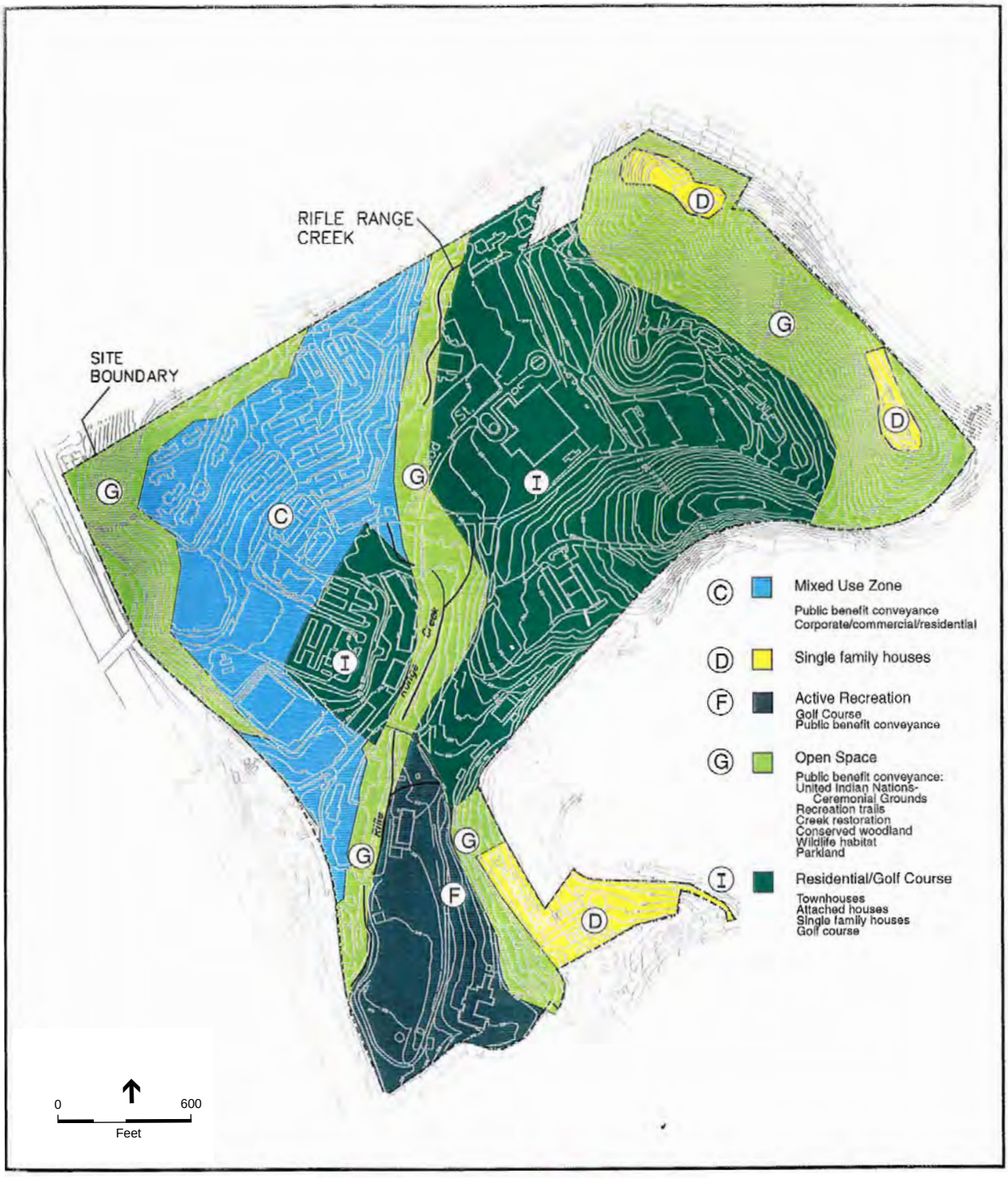
As previously discussed in this section and in Chapter 1 (Introduction), this SEIR relates the environmental effects of the currently proposed Oak Knoll Project to those of the Maximum Capacity Alternative analyzed in the 1998 EIS/EIR.

The Maximum Capacity Alternative is a base reuse alternative analyzed in the 1998 EIS/EIR. While different in certain respects, the proposed Project closely reflects the overall land use program of the 1998 EIS/EIR Maximum Capacity Alternative sufficiently to make many of the environmental impacts similar. The 1998 EIS/EIR analyzed four reuse alternatives for development of the NMCO property, including the Maximum Capacity Alternative which was the "Preferred Alternative" that reflected the Oakland Base Reuse Authority's (OBRA's) goals and the estimated *maximum* site development envisioned to occur on the property.[4]

Key similar characteristics in both the proposed Project and the Maximum Capacity Alternative include the types and distribution of land uses, the extent of site disturbance due to the required grading, and overall intensity and density of development. Certain characteristics of the proposed Project differ from those of the Maximum Capacity Alternative, and there are certain changed circumstances and new information that have occurred since the Maximum Capacity Alternative was analyzed, but the conditions under PRC Section 21166 or CEQA Guidelines Section 15612 requiring further analysis in an SEIR are not met for most topics. (See *CEQA Context* discussion in Chapter 1, Introduction.)

The conceptual plan for the Maximum Capacity Alternative is shown below in **Figure 4-1**, and the development program is detailed below in **Table 4-1**, which shows the differences between the proposed Project and the Maximum Capacity Alternative. In particular, the current Oak Knoll Project proposes approximately 351 more residential units and approximately 318,000 fewer square feet of non-residential (commercial, retail, civic) development. The current Oak Knoll Project does not include the golf course facility that was a major component (54 acres) of the Maximum Capacity Alternative. However, the current Project does include substantially more publicly accessible parks and open space. Of the 584 total residential units proposed under the Maximum Capacity Alternative, 250 were identified as "golf course units" integral to the golf

[4] The other three reuse alternatives analyzed in the 1998 EIS/EIR were a Mixed Use Village, a Single Use Campus, and a Residential Alternative. Each is described in the Alternatives analysis in Chapter 5 of this SEIR.



Legend:

A	Educational	E	Retail
B	Cultural Meeting	F	Active Recreation
C	Mixed Use	G	Open Space
D	Housing	H	Office/Research
		I	Residential/Golf Course

SOURCE: NCMO EIS/EIR, 1998; OBRA, 1996

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Figure 4-1

1998 EIS/EIR Maximum Capacity Alternative Plan

TABLE 4-1
COMPARISON OF MAXIMUM CAPACITY ALTERNATIVE AND PROPOSED OAK KNOLL PROJECT

	1998 EIS/EIR Maximum Capacity Alternative	Proposed Oak Knoll Mixed Use Master Plan
Site Area	**167 acres**	**188 acres**
Residential	**584 Units** – 250 mixed-type residential units (golf course) – 34 single family residential – 300 apartments in Mixed Use Zone	**935 Units** – 572 townhomes – 175 single family detached (small lot) – 188 single family detached (typical lot)
Mixed Use (Non Residential Components)	**Mixed Use Zone: 400,000 square feet** – 300,000 sq.ft. office – 100,000 sq.ft. commercial – 8.25 acres civic use (including Seneca, potentially expanded)	**Mixed Use Village Center** – 72,000 sq.ft. locally-serving commercial retail uses (grocery store, other retail commercial uses) **Community Center** – 10,000 sq.ft. community commercial uses / 4,000 sq.ft. community clubhouse
Open Space, Recreation	**32 acres of open space** – Parkland – Recreation trails (including along creek) – Ceremonial grounds – Conservation areas (including wildlife habitat areas along creek and Oak woodlands) **44,000 sq.ft. of other active recreation space** – Indoor: Reuse of Club Knoll and swimming pool – Outdoor: Tennis courts, baseball and soccer fields, picnic area **54-acre golf course**	**62 acres of open space** – Revegetated Slopes (18.5 acres) – Undisturbed Open Space (43.5 acres) **5.6 acres of Publicly Accessible Parks and Recreational facilities** – Parks(playfields and tot lots) (5.6 acres) – 14,000 sq.ft Community Center in Relocated and Rehabilitated Club Knoll – Recreation trails, walkways, and bicycle pathways (3.5 miles) **(No golf course)**
Creek Improvements	**Riparian habitat buffer zone**	**16.7 acres of Restored Creek Corridor and Riparian Area** – Riparian corridor conservation easement

SOURCE: 1998 EIS/EIR; OKVA, LLC, 2016

course facility. The Maximum Capacity Alternative also proposed to develop residential units on the north and south ends (i.e., the Northern End and Admiral's Hill) of the Eastern Ridge of the NMCO property. The proposed Project also proposes to develop residential units on a portion of the Eastern Ridge. (See **Figure 4.1-3** in Section 4.1, *Aesthetics*, which delineates the Eastern Ridge.) The 1998 EIS/EIR did not specifically describe proposed improvements to Rifle Range Creek as part of the Maximum Capacity Alternative. However, the discussion in that document refers to potential "restoration activities" and the potential removal of native vegetation and sensitive habitat surrounding the creek and its tributaries.

4.0.5.1 Comparative Impact Determinations in this SEIR

Consistent with the purposes of this SEIR, each impact identified for the proposed Project is compared to the corresponding impact (if one exists) of the Maximum Capacity Alternative analyzed in the 1998 EIS/EIR. The comparison of each impact and mitigation measure or SCA is presented to determine if circumstances exist that could result in the proposed Project having a new significant environmental impact not previously identified in the 1998 EIS/EIR. Generally, one or more of the following comparative statements in **Table 4-2**are provided at the end of each impact analysis discussion of the proposed Project:

TABLE 4-2
COMPARATIVE IMPACT STATEMENTS OF THE PROPOSED OAK KNOLL PROJECT

	Determination	Meaning
NO NEW IMPACTS	No New Impact or Changes	The proposed Project would result in substantially the same impact (significant or otherwise) as identified for the Maximum Capacity Alternative in the 1998 EIS/EIR
	No New Impact, but New or Updated Mitigation Measure Identified	The proposed Project would result in substantially the same impact (significant or otherwise), and mitigation measures are added or revised to reflect current standards.
NEW IMPACT AND MITIGATION OR SCAS	New Impact Under New Criterion/Threshold	A new impact is identified because the applicable significance criterion/threshold did not existing when the 1998 EIS/EIR analysis was conducted. This statement would also include a determination about mitigation measures or SCAs.
	New Impact; Not Previously Analyzed	A new impact is identified because the topic or significance criterion/threshold was not addressed in the 1998 EIS/EIR.
	*New Impact, No Mitigation Required	A new impact is identified; and is less than significant.
	*New Impact, Less Than Significant with Mitigation	A new impact is identified and is less than significant; it is reduced to less than significant with new mitigation measures.
	*New Impact, Significant and Unavoidable	A new impact is identified; however no feasible mitigation measure reduces the new impact to less than significant.
	Previous Mitigation Measure Replaced by SCA	Mitigation Measures identified in the 1998 EIS/EIR are now applied as Oakland SCAs, which in most cases mitigates the impact (changing a previous “potentially significant impact before mitigation” to a “less than significant before mitigation.”.

* “New” impacts or mitigation measures relative to the 1998 EIS/EIR could also be “Replacement” or “Modified” impacts or mitigation measures in this Draft SEIR.

4.0.6 Cumulative Context

4.0.6.1 Approach

CEQA defines cumulative as "two or more individual effects which, when considered together, are considerable, or which can compound or increase other environmental impact." Section 15130 of the CEQA *Guidelines* requires that an EIR evaluate potential environmental impacts when the *project's* incremental effect is cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual *project* are significant when viewed in connection with the effects of past, present, existing, approved, pending and reasonably foreseeable future projects. These impacts can result from a combination of a proposed project together with other projects causing related impacts. "The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonable foreseeable probable future projects."

4.0.6.2 Geographic Scope

The geographic context used to assess cumulative impacts varies depending on the specific environmental topic being analyzed and is identified in each topical analysis in this chapter. For example, considerations for aesthetics are different from those used to assess cumulative air quality. Only development within the vicinity of the NCMO could contribute to a cumulative visual effect, but on the other hand, all development within the air basin contributes to regional emissions of criteria pollutants. Accordingly, the geographic setting and other parameters of each cumulative analysis discussion can vary.

4.0.6.3 2040 Cumulative Projections Assumptions

As previously indicated, the cumulative analysis setting considers the combined effects of past development as well as existing, approved, and reasonably foreseeable future projects. Past, present, and existing development or conditions are established and factored into the analysis as part of the environmental baseline. Projecting forward, the cumulative analysis in this SEIR considers future conditions, for planned population and employment growth, as well as planned transportation system improvements projected for year 2040. Land use, population, and employment assumptions rely on Association of Bay Area Government's (ABAG's) projections for year 2040.

Through the process of projecting cumulative year conditions for the traffic analysis for this SEIR, the ABAG land use database that underlies the regional travel demand model (discussed below) was modified to reflect more accurate land use projections in the City of Oakland and the Oak Knoll area. These include land uses proposed by the Oakland Zoo Expansion Project, development under the Coliseum Area Specific Plan, and the Redemptorist Society's retreat center located at 8945 Golf Links Road. In addition, an application has been submitted to the City for the proposed Seneca master plan and expansion; while considered a reasonably foreseeable project and factored into the 2040 land use model, this Draft SEIR conservatively treats Seneca as

an existing sensitive receptor in this Draft SEIR for air quality and health risk, hazards and hazardous materials, and noise.

Other relevant cumulative land use assumptions are already included in ABAG's cumulative land use database and assumptions and listed on the City's roster of "Active Major Development Projects." This roster includes all major developments completed, under construction, approved, proposed in the City as of first quarter 2015 (when the NOP for this SEIR was issued) and is shown in **Appendix G** to this document.

In addition to development in the City's applicable Active Major Development Projects list, cumulative conditions established for the traffic analysis in this SEIR include 2040 traffic volume forecasts were developed using the Alameda County Transportation Commission (ACTC) Travel Demand Model and existing traffic volumes, which reflect past, present, and future developments expected by year 2040. In addition, considering planned infrastructure changes that are factored into the cumulative projections for 2040, only the International Boulevard/98th Avenue intersection approximately three mile from the Oak Knoll Project site is considered (as it is planned, fully funded, and approved).

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4.1 Aesthetics

4.1.1 Introduction

This section assesses the potential for the proposed Project to result in significant aesthetics impacts, specifically regarding scenic vistas and resources; visual quality and character; light and glare; and shadow effects. This section analyzes the impacts that would result from construction and operation of the Project, within the context of existing environmental and regulatory circumstances. The aesthetics effects identified with the Maximum Capacity Alternative analyzed in the 1998 EIS/EIR are also discussed in this section for comparative purposes.

4.1.2 Setting

Environmental Setting

The Project site and the surrounding area are described in Chapter 3, Project Description, of this SEIR and further in Section 4.9, Land Use and Planning, of this Chapter 4. The following description includes parts of those discussions for ease of reference within this section.

Project Site

Existing Development

The Oak Knoll Project site consists of approximately 165 acres of the 183-acre former Oak Knoll Naval Medical Center Oakland (NMCO) property, approximately 15 acres of an adjacent property (known as the "Hardenstine parcel"), and approximately 8 acres of City-owned property, for a site with a total size of approximately 188 acres. **Figure 4.1-1** is an aerial photograph of the Project site and shows the existing pattern of development and vegetation within and around the site.

As depicted in Figure 4.1-1, Club Knoll, a locally-designated historic resource constructed in 1924 as a clubhouse to the Oak Knoll Golf and Country Club, remains on the NMCO property, in the southwestern part of the Project site near Sequoyah Road (the site's southern boundary). Club Knoll is in disrepair, having been vacant for many years. Some utility infrastructure, roadways, and parking areas that supported the former NMCO facilities also remain onsite.

Two privately-owned parcels that are not part of the Project Areas (the "Out Parcels") contain the only existing structures other than Club Knoll within the former NMCO property: the Sea West Coast Guard Federal Credit Union (Sea West) on a 1.2-acre parcel, and administrative offices for the Seneca Center for Children and Families (Seneca) on a 7.9-acre parcel. This Draft SEIR assumes that these two existing uses and structures will remain because they are not part of the Project. Foreseeable development by Seneca to expand Seneca is described and evaluated as part of the cumulative context throughout this SEIR (as described in Section 4.0, Introduction to the Environmental Analysis, of this Chapter).

LEGEND	
– – –	Property Line
NIP	Not in Project

SOURCE: OKVA, Hart Howerton, 2016

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Figure 4.1-1
Site Aerial

Overall Site Terrain, Vegetation, and Watercourses

The majority of the NMCO property is visually self-contained and is not readily visible from immediately adjacent areas or from most distant locations. As conveyed in Figure 3-3 and several other exhibits in Chapter 3 and further in this section, the overall topography of the Project site is downsloping east to west toward Mountain Boulevard and Interstate 580 (I-580 or MacArthur Freeway). The site forms an overall bowl shape and has varying topography and an overall elevation change of approximately 443 feet between its highest areas (approximately 665 feet above mean sea level [msl]) on its easternmost ridge and its lowest point (approximately 222 feet above msl) in the southwest corner of the site, where Rifle Range Creek discharges from the site at Mountain Boulevard, near Sequoyah Road. Most of the topography on the site has been altered by previous grading and slopes as steep as 1:1 (horizontal:vertical) have been created.

Rifle Range Creek flows across the Project site from north to southwest, and while its heavily vegetated riparian corridor is one of the most prominent natural features of the Project site, there is limited visibility of the creek corridor from public off-site locations. As conveyed by the pattern of vegetation shown in Figure 4.1-1, culverted portions of Rifle Range Creek run approximately 900 feet in length under existing roads and paved parking areas in the northern half of the site, and most of the Powerhouse Creek tributary also is culverted. Figure 4.1-1 also illustrates the open/unculverted portion of the creek corridor which is a distinctive greenbelt through the central and southern portion of the site. This corridor and the remainder of the Project site contain mostly native and non-native species of trees in varying degrees of health, and native and non-native grassland species. Other vegetated areas on the site are primarily in the east and southeastern hillsides and upland areas of the site. (Further in this chapter, Figure 4.1-5A; Figures 4.1-8A and 4.1-9A; and Figures 4.1-11A and 4.1-12A, show aspects of the site's overall aesthetic character.)

Prominent Knolls, Ridges, and Hillsides

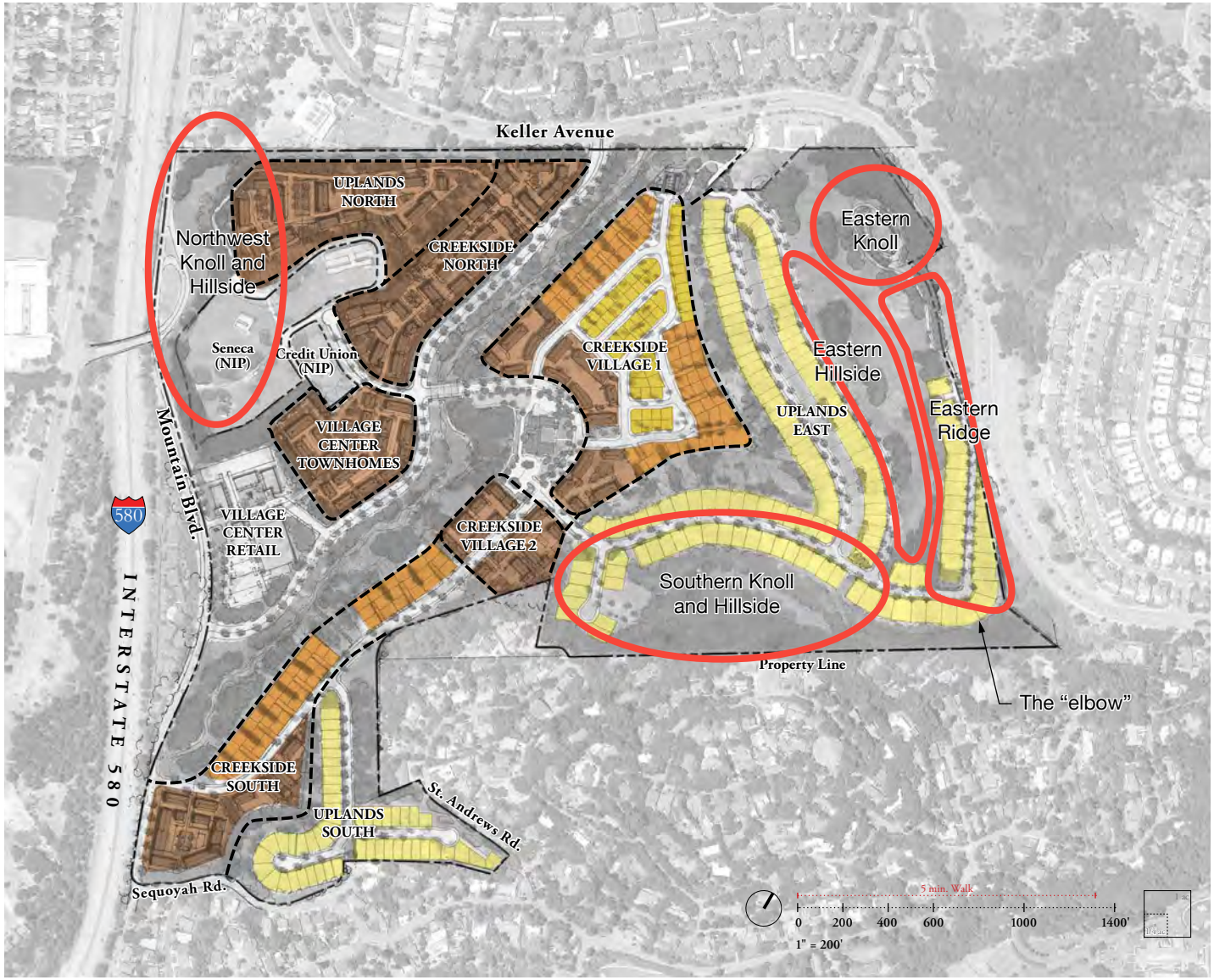
As noted above, most of the site is not visible from most off-site locations due to intervening development; significant elevation changes at the edges of the site which create the low-lying bowl-shape of the Project Area; and dense, mature vegetation along segments of the site perimeter. However, three ridge and hillside areas distinguish the Project site from off-site locations, and are depicted in **Figure 4.1-2** with the proposed Oak Knoll neighborhoods.

Other key aesthetic features, which were also generally depicted and described in the 1998 EIS/EIR, are identified in **Figure 4.1-3.** As described in Figure 4.1-2:

1. **Northwest Knoll and Hillside**. A broad ridge is situated between Mountain Boulevard and Rifle Range Creek and includes a prominent knoll at the northwest corner of the site.

2. **Southeast Knoll and Hillside**. A broad knoll sits at the southeast property line of the Project site.

3. **Eastern Ridge, Hillside and Knoll**. A prominent ridge with a notable knoll and west-facing hillside exists along the Project site's boundary. These are the most visually prominent geographic features on the Project site and are visible from nearby off-site, public locations.



LEGEND	
	Property Line
NIP	Not in Project
Residential Density	
	Low - Single Family Detached
	Low/Medium - Small Lot SFD
	Low/Medium - Courtyard SFD
	Medium - Townhomes

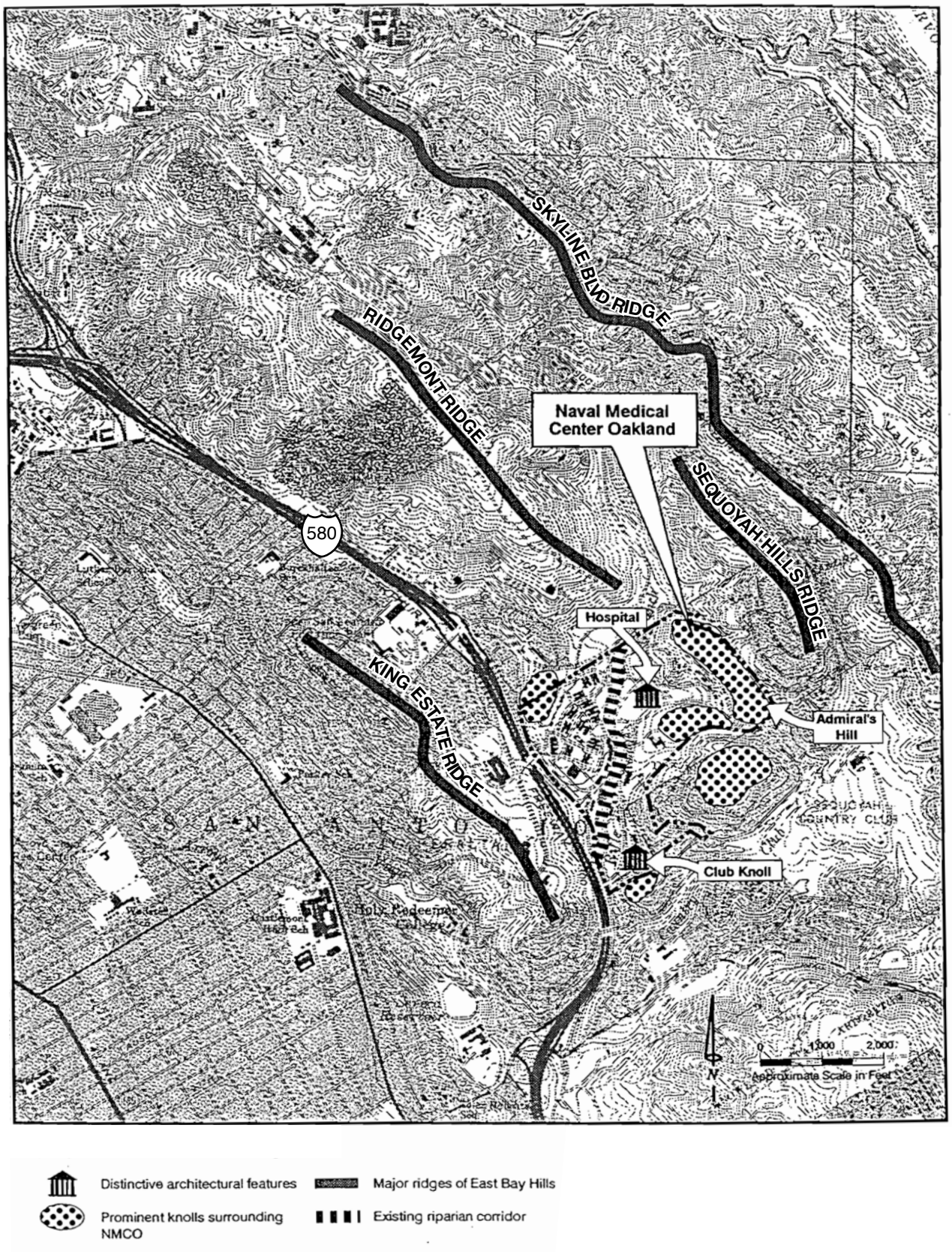
Defined areas and terms for existing prominent ridges, hillsides and knolls referenced in the Aesthetics analysis.

SOURCE: OKVA, Hart Howerton, 2016

Oak Knoll Project . 120645

Figure 4.1-2

Proposed Neighborhoods and Prominent Landscape



SOURCE: EDAW, Inc. from USGS 7.5' quadrangle, Oakland East, California (1980)

Oak Knoll Project . 120645

Figure 4.1-3

Aesthetic Site Features
(1998 EIS-EIR Exhibit)

> Aspects of the Eastern Ridge and Knoll are the result of historic grading. In particular, the Knoll and the central portion of the Eastern Ridge, while prominent, are not natural landforms but were previously graded (primarily on the east and northeast-facing sides toward Keller Avenue) created in connection with (1) Keller Avenue construction, and (2) a roadway that connected the previous Naval Hospital to its former annex to the east, above Keller Avenue. This work lowered the elevation of the original peak of the Eastern Ridge by approximately 20 feet and shifted the peak point (the current Knoll) approximately 60 feet to the west (BKF, 2007).

None of these geographic features are identified in the General Plan as a "natural resource," although most of the ridges, hillsides and knolls on the Project site are natural features as well as visually prominent from primarily within the Project site. However, the Eastern Ridge is considered a "visually prominent feature" encouraged for conservation pursuant to General Plan policies in the OSCAR Element (Open Space Policy 1.3).

Surrounding Areas

The area surrounding the Project site is mostly characterized by residential development, regional open spaces, and the I-580 corridor. The East Bay Hills create a backdrop to the Project site, and as introduced above, ridges, knolls and steep hillsides border the site's eastern and southeastern edges and appear at elevations higher than the Project site from most off-site directions. Most of these existing prominent hillsides and ridges located to the east and upslope of the Project site are currently developed. The Sequoyah Hills residential neighborhood exists at the first ridge upslope from and east of the Project site. Further upslope is the second ridge of development generally located along Skyline Drive. These higher-elevation properties form a substantial, existing visual backdrop to the South Hills Area.

The Rifle Range Creek watershed beyond the Project site creates a valley between hills and ridges to the east and north.

The King Estate Open Space and ridge rises to the west of I-580 and blocks most of the Project site from being viewed from areas west of the King Estate ridge (from the flatlands of Oakland).

Nearby Uses and Views Toward the Project Site

The following describes development, land uses and natural features surrounding the Project site and references other figures within the *Discussion of Impacts* analysis presented later in this section.

- **South of the Project Site**. To the south and southeast of the Project site is the Sequoyah Hills/Oak Knoll single family neighborhood and Sequoyah Country Club, which contains large open space areas. Most views of the Project site from this area are screened or filtered by mature vegetation although there are some open views of existing development on the Out Parcels. Further south of the site is Knowland Park and the Oakland Zoo, where the Project site is not visible from these areas.
- **East of the Project Site**. To the east of the Project site across from Keller Avenue is Sequoyah Hills, including a ridge of residential development east of Keller Avenue. This area is substantially upslope from the Project site, and area streets provide some views of

the Eastern Ridge. Two of four major ridges of the East Bay Hills lie east of the Project site. One is generally along Sequoyah Hills/Heights near Hansom Drive, and the other is along Skyline Boulevard further east. Both of these ridgelines are developed. Views of the Project site from this area are limited due to the Eastern Ridge, which blocks the view from these areas to the portion of the Project site that would be developed.

- **North and Northeast of the Project Site**. To the north of the Project site is the Ridgemont Skyline area that includes a mix of single family homes (Ridgemont/Skyline) with small multifamily/condominium developments (such as Shadow Woods), as well as a small commercial development. This area is located across Keller Avenue and has limited views into the Project site due to elevation changes and dense vegetation. Sequoyah Community Church is located just north of the Project site and is prominent from several off-site locations in most directions.

  The Leona Regional Open Space Preserve contains a major ridge of the East Bay Hills (Ridgemont Ridge), which runs north to south and is north of the Project site. The west-facing slope of this major ridge, which is north and northeast of the Project site, is developed, and the east-facing slope is partially developed and partially open space. Views of the Project site from this area are from the southernmost end of the ridge, which is part of the open space preserve, and are limited to short-range views of the Eastern Ridge and Knoll.

- **West of the Project Site**. Immediately west of the Project site near the Mountain Boulevard entrance is a strip of residential apartments (Oak Knoll Heights) and commercial development between Mountain Boulevard and I-580. West of I-580 are open hillsides, church and school developments, and the single family Gold Links, Eastmont Hills, and Oak Knoll/King Estate residential neighborhoods. These areas are proximate to the King Estate Open Space, which includes one of the major ridges of the East Bay. This ridge is undeveloped and designated as public open space.

  Views of the Project site from lower elevations in the west are limited to intermittent views from the I-580 State Scenic Highway and from Mountain Boulevard, along the site's frontage. Visibility of the Project site by motorists on I-580 is limited by intervening vegetation, residential buildings, and sound walls along the freeway. Southbound I-580 motorist can see the steep Northeast Hillside and Knoll, a glimpse of Club Knoll, and dense vegetation along the southernmost frontage of the site. Views of the site from Mountain Boulevard, which parallels I-580 and fronts the Project site, are also largely obscured by dense vegetation and hillsides, except near the main entrance to the site from Mountain Boulevard. The Project site is fairly obscured from areas west of the prominent King Estates Ridge by that ridge.

Regulatory Setting

This section describes each of the City of Oakland documents that contain policies that pertain to aesthetics and that are relevant to the potential environmental effects of the proposed Project.

City of Oakland General Plan

The Oakland General Plan is made up of a series of "elements," each of which deals with a particular topic and includes policies, many of which guide development citywide. Each of the elements is discussed in detail in in Section 4.9, Land Use and Planning, of this chapter. General Plan policies relevant to the potential aesthetics effects of the Project are contained primarily in

the following elements, which are addressed in more detail further below: *Land Use and Transportation Element* (LUTE); the *Open Space, Conservation, and Recreation Element* (OSCAR) Element; and the *Scenic Highways Element*.

Land Use and Transportation Element (LUTE)

The City adopted the LUTE of the General Plan March 24, 1998. The LUTE of the Oakland General Plan contains the following land use policies that address issues related to aesthetics, were adopted for the purpose of avoiding or mitigating an environmental effect, and are particularly relevant to the Oak Knoll Project. (Certain LUTE policies are also addressed in Section 4.9, *Land Use and Planning*, and are addressed here as it is relevant to the aesthetics effects of the Project.)

- ***Policy N1.5: Designing Commercial Development.*** Commercial development should be designed in a manner that is sensitive to surrounding residential uses.
- ***LU Policy N.3.8: Required High-Quality Design.*** High-quality design standards should be required of all new residential construction. Design requirements and permitting procedures should be developed and implemented in a manner that is sensitive to the added costs of those requirements and procedures.
- ***Policy N3.9: Orienting Residential Development.*** Residential developments should be encouraged to face the street, and orient their units to desirable sunlight and views, while avoiding unreasonably blocking sunlight and views for neighboring buildings, respecting the privacy needs of residents of the development and surrounding properties, providing for sufficient conveniently located on-site open space, and avoiding undue noise exposure.
- ***Policy N7.1: Ensuring Compatible Development.*** New residential development in Detached Unit and Mixed Housing Type areas should be compatible with the density, scale, design, and existing or desired character of surrounding development.
- ***Policy N7.2: Defining Compatibility.*** Infrastructure availability, environmental constraints and natural features, emergency response and evacuation times, street width and function, prevailing lot size, predominant development type and height, scenic values, distance from public transit, and desired neighborhood character are among the factors that could be taken into account when developing and mapping zoning designation or determining "compatibility." These factors should be balanced with the citywide need for additional housing.
- ***Policy N7.3: Subdividing Hill Area Properties.*** At least 8,000 square feet of lot area per dwelling unit should be required when land in the hills area is subdivided. Lots smaller than 8,000 square feet may be created to cluster development, and as long as this ratio is maintained for the parcel being divided.
- ***Policy N8.2. Making Compatible Interfaces between Densities.*** The height of development in urban residential and other higher density residential areas should step down as it nears lower density residential areas to minimize conflicts at the interface between the different types of development.
- ***LU Policy N.9.7: Creating Compatible but Diverse Development.*** Diversity in Oakland's built environment should be as valued as the diversity in population. Regulations and permit processes should be geared toward creating compatible and attractive development, rather than "cookie cutter" development.

- ***Policy T6.5. Protecting Scenic Routes.*** The City should protect and encourage enhancement of the distinctive character of scenic routes [such as I-580] within the city, through prohibition of billboards, design review, and other means.

The LUTE also includes one key implementation strategy for the Oak Knoll property:

- ***Oak Knoll Target Area for Community and Economic Development.*** [Oak Knoll] is a key opportunity site for sizable new development in the South Hills area. Future use of this site will emphasize the compatibility with surrounding development. The former Oak Knoll Naval Hospital site has received federal approval of a reuse plan which identifies a mixture of uses including housing, recreation, small scale commercial, and public services….

Open Space, Conservation and Recreation (OSCAR) Element

The City adopted the Open Space, Conservation and Recreation (OSCAR) Element of the General Plan June 11, 1996. The OSCAR addresses the management of open land, natural resources, and parks in Oakland. While many OSCAR policies pertain to the development and management of public lands (which the NMCO was at the time the OSCAR Element was prepared) as well as privately-owned land, the OSCAR Element clarifies that "these policies and text are in no way intended to establish absolute development criteria for specific parcels…all open space and conservation policies and actions shall be subject to the legal maxim that City policies cannot deny an owner economically viable use of his or her land…" (OSCAR Element, p.1-2).

The following OSCAR policies pertain to aesthetics, were adopted for the purpose of avoiding or mitigating an environmental effect; and are relevant to the proposed Project (with the above consideration given to the fact that the site is now privately owned):

- ***Policy OS-1.2: Open Space Protection Priorities for Private Land.*** Conserve important natural resource values through a combination of land acquisition and development control using the following criteria:

  a) steep hillside parcels over 10 acres in size

  b) parcels with significant biological resources

  c) parcels which potentially link together or expand existing open space areas

  d) visually prominent properties including ridgelines and other areas with high scenic value

  e) properties where the use of eminent domain is not required.

- ***Policy OS-1.3: Development of Hillside Sites.*** On large sites with subdivision potential, generally conserve ridges, knolls, and other visually prominent features as open space. Maintain development regulations which consider environmental and open space factors such as land stability, plant and animal resources, earthquake and fire hazards, and visual impacts, in the determination of allowable density. Where hillside development does occur, encourage creative architecture and site planning which minimizes grading and protects the natural character of the hills.

- ***Objective OS-8: Creek Conservation.*** To conserve open space along Oakland's creeks, restoring the creeks where feasible and enhancing creek access on public lands.

- ***Policy OS-9.1: Protection of Natural Landforms.*** Design new development to preserve natural topography and terrain. Enhance prominent topographic features where appropriate by parks, plazas, or architectural expressions.

- ***Policy OS-9.2: Use of Natural Features to Define Communities.*** Use open space and natural features to define city and neighborhood edges and give communities within Oakland a stronger sense of identity. Maintain and enhance city edges, including the greenbelt on the eastern edge of the city, the shoreline, and San Leandro Creek. Use creeks, parks, and topographic features to help define neighborhood edges and create neighborhood focal points.

- ***Policy OS-10.1: View Protection.*** Protect the character of existing scenic views in Oakland, paying particular attention to: (a) views of the Oakland Hills from the flatlands; (b) views of downtown and Lake Merritt; (c) views of the shoreline; and (d) panoramic views from Skyline Boulevard, Grizzly Peak Road, and other hillside locations.

- ***Policy OS-10.2: Minimizing Adverse Visual Impacts.*** Encourage site planning for new development which minimizes adverse visual impacts and takes advantage of opportunities for new vistas and scenic enhancements.

- ***Policy OS-10.3: Underutilized Visual Resources.*** Enhance Oakland's underutilized visual resources, including the waterfront, creeks, San Leandro Bay, architecturally significant buildings or landmarks, and major thoroughfares.

- ***Policy CO-2.4: Hillside Cuts and Fills.*** Minimize hillside cuts and fills and the removal of desirable vegetation. Limit large-scale grading to those areas where it is essential to development. Where hillside grading does occur, reshape the terrain in smooth, naturally appearing contours rather than flat, terraced benches. Immediately replant and reseed graded areas to reduce soil loss.

- ***Policy CO-7.3: Forested Character.*** Make every effort to maintain the wooded or forested character of tree-covered lots when development occurs on such lots.

- ***Policy CO-7.4: Tree Removal.*** Discourage the removal of large trees on already developed sites unless removal is required for biological, public safety, or public works reasons.

Open Space Recommendation*s* specific to Oak Knoll in the OSCAR include:

- Retain open space on the portions of the Oak Knoll Naval Hospital which are greater than 30 percent slope, contain native oak woodlands, or are within the riparian zone along Rifle Range Creek. Consider using the Officers Club at the Naval Hospital as a recreation center serving the South Hills. (p. 5-45)

South Hills Major Recommendati*ons* specific to Oak Knoll in the OSCAR include:

- Retain steep hillsides within Oak Knoll as open space. Retain creek corridor and pursue 10 acre community park in vicinity of Officer's Club and ballfields. (OSCAR Figure 29, p. 5-48)

Open Space Land Uses Directives in the OSCAR include the following:

- Conservation of ridges and knolls is promoted. Development regulations and density standards which protect the natural character of the Oakland Hills are supported.

Scenic Highways Element

The City's Scenic Highways Element of the General Plan (adopted 1974) includes a number of policies that pertain to scenic resources identified as part of the Caltrans Scenic Highway Program. Policies within the City's Scenic Highways Element aim to limit signage and visual intrusions and protect panoramic vistas along scenic corridors, and to ensure that new construction within scenic corridors demonstrate "architectural merit" and are "harmonious" with the surrounding landscape. The entire length of MacArthur Freeway (I-580) within Alameda County is identified as part of the Caltrans Scenic Highways Program. It is adjacent to the Project site to the west.

The following Scenic Highways Element policies for the MacArthur Freeway (I-580) are relevant to the proposed Project and are discussed throughout the environmental analysis that follows:

- ***MacArthur Freeway Policy 3.*** Panoramic vistas and interesting views now available to the motorist should not be obliterated by new structures.
- ***MacArthur Freeway Policy 4.*** New construction within the scenic corridor should demonstrate architectural merit and a harmonious relationship with the surrounding landscape.

Oakland Tree Preservation and Removal Ordinance

City of Oakland Tree Preservation and Removal Ordinance (Oakland Municipal Code [OMC] Chapter 12.36) permits removal of protected trees under certain circumstances. To grant a tree removal permit, the City must determine that removal is necessary in order to accomplish specific objectives related to public health and safety, property rights, views, acceptable professional practices, and vegetation management prescriptions in certain areas. Consistency with the Oakland Tree Preservation and Removal Ordinance is demonstrated in Section 4.3, *Biological Resources*. (This ordinance is also addressed in Section 4.3, *Biological Resources,* and is addressed here as it is relevant to the aesthetics effects of the Project.)

Oakland Planning Code (Zoning Ordinance and Regulations)

Existing Zoning

As depicted in Figure 3-15 in Chapter 3 of this SEIR, the City of Oakland's currently effective Zoning Map designates the majority of the Project site as Hillside Residential-4 (RH-4 Zone), and approximately five acres of the Project site as Hillside Residential-3 (RH-3 Zone). Planned Unit Development Permit Section 17.142.002 of the City of Oakland Planning Code [OPC] includes regulations that govern Planned Unit Developments (PUDs). The purposes of these regulations are to encourage the comprehensive planning of larger tracts of land; to provide flexibility in the application of certain regulations in a manner consistent with the general purposes of the zoning regulations; and to promote a "harmonious variety of uses, the economy of shared services and facilities, compatibility with surrounding areas, and the creation of *attractive* [emphasis added], healthful, efficient, and stable environments for living, shopping, or working." The PUD permit is subject to "permit criteria" in OPC Section 17.140.080 that pertain to considerations specific to aesthetics effects under CEQA.

Residential Design Guidelines

On June 15, 2005, the Oakland Planning Commission adopted the City's *Interim Design Review Manual for One- and Two-Unit Residences* (referred to throughout this section as "Oakland Design Review Manual") complements the zoning regulations and residential design review procedures in the Oakland Planning Code. The Oakland Design Review Manual includes design review "criteria" and "guidelines." The City requires one- and two-unit residences to conform to each of the applicable criteria and offers various techniques by which a project may implement the guidelines to satisfy the criteria.

Section 17.136 of the Oakland Municipal Code, Design Review Procedure, specifies that (a) all new residential construction (other than specified second units) must go through the Regular Design Review process (OPC Sections 17.136.040.A.(3) and (4)) and (b) that the reviewing body must find that the proposed design conforms in all significant respects with the Oakland General Plan and with any applicable design review guidelines or criteria which have been adopted by the Planning Commission or City Council (Section 17.136.050.A.5), such as the *2005 Design Review Manual*.

The design review criteria address views, solar access, privacy, building design, bulk, neighborhood compatibility or context, site access and parking, and street-fronting fences and freestanding walls. Specific guidelines address hillside development that include or are based on those that the City developed to facilitate rebuilding of the Oakland Hills after the 1991 Oakland/ Berkeley Hills Firestorm. The hillside guidelines address aesthetics considerations, such as scenic views, quality construction and design, and integration with natural characteristics of a Project site and its context. (Design considerations are also part of the PUD permit criteria in section 17.140.080 of the Oakland Planning Code discussed above.)

Title 24 Outdoor Lighting Zones

The California Energy Commission (CEC) establishes Building Energy Efficient Standards within Title 24 that address outdoor lighting for public and private uses. The standards specify outdoor lighting requirements for residential and non-residential development and their intent is to improve the quality of outdoor lighting and help reduce the impacts of light pollution, light trespass, and glare. The standards regulate lighting characteristics, such as maximum power and brightness, shielding, and sensor controls to turn lighting on and off. Different lighting standards are set by classifying areas by lighting zone. The classification is based on population and the area designations are LZ1 (dark), LZ2 (low), LZ3 (medium), or LZ4 (high). Lighting requirements for dark and rural areas are stricter in order to protect the areas from new sources of light pollution and light trespass. According to the 2010 U.S. Census Bureau, the Project Site is in an area defined as an "urban area" and is therefore designated as LZ3 per the CEC classification standards.

California Solar Shade Control Act

Under the California Solar Shade Control Act (Public Resource Code Sections 25980-25986), no property owner shall allow a tree or shrub to be placed, or to grow so as to cast a shadow greater than 10 percent at any one time between the hours of 10 a.m. and 2 p.m. over an existing solar

collector used for water heating, space heating or cooling, or power generation on adjacent property. These limitations apply to the placement of new trees or shrubs, and do not apply to trees and shrubs that already cast a shadow upon that solar collector.

City of Oakland Standard Conditions of Approval and Uniformly Applied Development Standards Imposed as Standard Conditions of Approval

The Standard Conditions of Approval (SCAs) relevant to the Project's potential aesthetics impacts are presented below. If the Project is approved by the City, all applicable SCAs would be adopted as conditions of approval and required, as applicable, to be implemented during project construction and operation to address impacts related to aesthetics. The SCAs are incorporated and required as part of the Project, so they are not listed as mitigation measures.

- **SCA AES-1: Graffiti Control.** *Ongoing.*

  a. During construction and operation of the project, the project applicant shall incorporate best management practices reasonably related to the control of graffiti and/or the mitigation of the impacts of graffiti. Such best management practices may include, without limitation:

     i. Installation and maintenance of landscaping to discourage defacement of and/or protect likely graffiti-attracting surfaces.

     ii. Installation and maintenance of lighting to protect likely graffiti-attracting surfaces.

     iii. Use of paint with anti-graffiti coating.

     iv. Incorporation of architectural or design elements or features to discourage graffiti defacement in accordance with the principles of Crime Prevention Through Environmental Design (CPTED).

     v. Other practices approved by the City to deter, protect, or reduce the potential for graffiti defacement.

  b. The project applicant shall remove graffiti by appropriate means within seventy-two (72) hours. Appropriate means include the following:

     i. Removal through scrubbing, washing, sanding, and/or scraping (or similar method) without damaging the surface and without discharging wash water or cleaning detergents into the City storm drain system.

     ii. Covering with new paint to match the color of the surrounding surface.

     iii. Replacing with new surfacing (with City permits if required).

     When Required: Ongoing

     Initial Approval: N/A

     Monitoring/Inspection: Bureau of Building

- **SCA AES-2: Landscape Plan**

  a. **Landscape Plan Required.** *Prior to approval of construction-related permit.* The project applicant shall submit a final Landscape Plan for City review and approval that is consistent with the approved Landscape Plan. The Landscape Plan shall be included with the set of drawings submitted for the construction-related permit and shall comply with the landscape requirements of chapter 17.124 of the Planning Code.

  When Required: Prior to approval of construction-related permit

  Initial Approval: Bureau of Planning

  Monitoring/Inspection: N/A

  b. **Landscape Installation.** *Prior to building permit final.* The project applicant shall implement the approved Landscape Plan unless a bond, cash deposit, letter of credit, or other equivalent instrument acceptable to the Director of City Planning, is provided. The financial instrument shall equal the greater of $2,500 or the estimated cost of implementing the Landscape Plan based on a licensed contractor's bid.

  When Required: Prior to building permit final

  Initial Approval: Bureau of Planning

  Monitoring/Inspection: Bureau of Building

  c. **Landscape Maintenance.** *Ongoing*. All required planting shall be permanently maintained in good growing condition and, whenever necessary, replaced with new plant materials to ensure continued compliance with applicable landscaping requirements. The property owner shall be responsible for maintaining planting in adjacent public rights-of-way. All required fences, walls, and irrigation systems shall be permanently maintained in good condition and, whenever necessary, repaired or replaced.

  When Required: Ongoing

  Initial Approval: N/A

  Monitoring/Inspection: Bureau of Building

- **SCA AES-3: Lighting.** *Prior to building permit final.* Proposed new exterior lighting fixtures shall be adequately shielded to a point below the light bulb and reflector to prevent unnecessary glare onto adjacent properties.

  When Required: Prior to building permit final

  Initial Approval: N/A

  Monitoring/Inspection: Bureau of Building

4.1.3 Discussion of Impacts

Significance Criteria

The City of Oakland has established thresholds of significance for CEQA impacts related to aesthetics, shadow, and wind (City of Oakland, 2013). The proposed Project would have a significant impact related to aesthetics if it would:

a) Have a substantial adverse effect on a public scenic vista;

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings, located within a state or locally designated scenic highway;

c) Substantially degrade the existing visual character or quality of the site and its surroundings;

d) Create a new source of substantial light or glare which would substantially and adversely affect day or nighttime views in the area;

e) Introduce landscape that would now or in the future cast substantial shadows on existing solar collectors (in conflict with California Public Resource Code sections 25980-25986);

f) Cast shadow that substantially impairs the function of a building using passive solar heat collection, solar collectors for hot water heating, or photovoltaic solar collectors;

g) Cast shadow that substantially impairs the beneficial use of any public or quasi-public park, lawn, garden, or open space;

h) Cast shadow on an historic resource, as defined by CEQA Guidelines section 15064.5(a),6 such that the shadow would materially impair the resource's historic significance by materially altering those physical characteristics of the resource that convey its historical significance and that justify its inclusion on or eligibility for listing in the National Register of Historic Places, California Register of Historical Resources, Local Register of historical resources, or a historical resource survey form (DPR Form 523) with a rating of 1-5;

i) Require an exception (variance) to the policies and regulations in the General Plan, Planning Code, or Uniform Building Code, and the exception causes a fundamental conflict with policies and regulations in the General Plan, Planning Code, and Uniform Building Code addressing the provision of adequate light related to appropriate uses; or

j) Create winds that exceed 36 mph for more than one hour during daylight hours during the year.

Approach to Analysis

Overview

The methodology for analysis of aesthetics factors in several aspects of the proposed Project that affect its physical appearance compared to existing visual conditions as observed from public locations. Existing visual conditions relevant to the Project and its site and surroundings are conveyed in the *Environmental Setting* and the analysis below through recently obtained

professional photography, described further below under *Approach to Scenic Vistas and Scenic Resources Effects*.

Nature of Visual Assessment

The analysis recognizes that aspects of physical appearance are subjective and dependent on individual preferences, and therefore represents the City's determinations based on City criteria for assessing the Project's effects on existing conditions, using the comparative exhibits in this section as well as knowledge from actual observations of the Project site and its surrounding area.

Approach to Scenic Vistas and Scenic Resources Effects

Definitions

"Scenic vistas" are view corridors that capture the total field of vision from a specific viewpoint; they generally encompass a large geographic area for which the field of view can be quite wide and extend into the distance. Scenic vistas are formed by built and natural physical elements that guide lines of sight and control view directions available to pedestrians and motorists. Scenic vistas generally include elements of high scenic value or visual prominence. "Scenic resources" are defined to include, but are not limited to trees, rock outcroppings and historic buildings within a state or locally designated scenic highway.

The City of Oakland's Significance of Thresholds Guidelines (May, 2013) specifies that only impacts to scenic views enjoyed by members of the public generally (not private views) are potentially significant. Public view corridors are those viewed from publicly accessible locations, such as City roadways, highways, parks, and other publicly-controlled spaces.[1]

A significance determination for Criteria "a" and "b" above considers the extent of change that the Project would cause by blocking or noticeably interrupting the full expanse of the scenic vista, or scenic resources visible from a scenic highway, as seen by most viewers from public locations. The 1998 EIS/EIR referred to this effect as "visual contrast." This analysis considers the sensitivity of the affected scenic vista or scenic resource based on the prominence of its visibility and/or the viewpoint location, as well as the characteristics of the view, such as whether they are widely unobstructed; fleeting or intermittent as viewed by viewers traveling along major roadways (specifically I-580) due to existing built or natural obstructions between the viewers position and the vista or resource.

Also, as stated above, this analysis recognizes that the value of a scenic vista or scenic resource is subjective and dependent on individual preferences; therefore, the analysis focuses on scenic vistas and scenic resources of public importance identified in City planning documents. The

[1] Public view corridors assessed in this SEIR are distinctly different than "view corridors" as defined in the City's *Oakland Design Review Manual* for purposes of conducting discretionary residential design review pursuant to the Oakland Planning Code: "Sight lines from primary living spaces within residential dwelling units." In addition, the approach to this environmental analysis and the significance criteria presented herein to evaluate scenic vistas and resources under CEQA is distinctly different than the guidelines for "View Impact Evaluation" specified in the Oakland Design Review Manual and intended for the discretionary design review evaluation of one- and two-unit residences.

Oakland General Plan identifies scenic views in the OSCAR Element (Policy OS-10.1) to include views of the Oakland Hills as viewed from the flatlands, downtown Oakland, Lake Merritt, the Oakland-Alameda Estuary and the San Francisco Bay shorelines, and panoramic views from Skyline Boulevard, Grizzly Peak Road, and other hillside locations.

Photos and Photosimulations

It is not possible to accurately represent an observer's total field of vision through photography. The analysis factors in the fact that the observer's field of vision extends vertically and horizontally beyond the exhibits herein.

Consistent with the City of Oakland's practice of analyzing aesthetics impacts pursuant to CEQA, a series of existing conditions photographs and computer-generated photosimulations depicting the proposed Project accurately set within those photographs has been prepared. Based on the above considerations, the City selected eight (8) public viewpoints (VP) for the photosimulations. The photosimulations support the analysis of impacts to scenic vistas and scenic resources within scenic highways (i.e., I-580) (Impact AES-1), and the analysis of impacts to visual character and quality (Impact AES-2). The photographs and photosimulations depict viewpoints at typical eye level above ground level, as seen by pedestrians or motorists from publicly-accessible locations (as discussed above) and are formatted for easy comparison of "existing" and "existing plus Project" conditions.

The photosimulations of the proposed Project inform the conclusions about the Project's aesthetic impacts, factoring in each of the Project elements relevant to aesthetic effects and considerations. These elements include proposed changes to open space, land contours, trees and landscaping, in addition to the proposed new building development, as described and illustrated in several exhibits included in (or appended to) this Draft SEIR and referenced throughout the analysis.

Pursuant to the PUD requirements, the Project sponsor has prepared a Preliminary Development Plan (PDP), which includes several required components addressing the proposed development of the entire project. Aspects of the proposed Oak Knoll Project PDP key to this aesthetics analysis are discussed below, as they inform the potential effects of the proposed Project on scenic vistas and scenic resources, visual character and quality, and other aesthetic considerations under CEQA.) Specifically, factored into this impact assessment and generally reflected in the photosimulations is the Project's proposed **Oak Knoll Design Guidelines**, which include the **Oak Knoll Landscape Guidelines** (included as **Appendix E** to this Draft SEIR), and other Oak Knoll PUD/PDP components, including those that address public realm elements (streets, open space, trails, etc.), namely the **Oak Knoll Open Space and Parks Plan** (Figure 3-10 in Chapter 3 of this Draft EIR) and the **Oak Knoll Tree Mitigation Plan** (Figure 4.3-7 in Section 4.3, *Biological Resources*, of this Draft SEIR).

Development standards that would be part of the proposed rezoning of the Project site are also considered and generally reflected in the photosimulations based on the Oak Knoll Design Guidelines. The proposed changes are considered from the viewpoint of a person in the nearby area, looking at the project from a public place.

The photosimulations provide one possible scenario of building locations within lots and the general appearance and architectural style of buildings and other elements. The community layout of streets, neighborhoods, and open spaces used to create the photosimulations are as proposed in the Oak Knoll Master Plan, consistent with the Oak Knoll PUD/PDP. While the individual structures that would be built may diverge from the photosimulations, what is depicted is suitable for conveying (for CEQA purposes) the degree and nature of the potential aesthetics effects.

Further, final designs of specific development projects would be subject to City review and approval of Final Development Plans [FDPs] that ensure consistency the PUD/PDP and applicable guidelines and zoning standards. The project sponsor has submitted a draft of the first FDP for public areas of the Project site, including roadways, open spaces, parks and landscaping. These framework elements are represented in the photosimulations in this analysis. Subsequent FDPs that will be submitted by future home builders will include detailed plans (buildings and landscaping) for each of the individual development blocks; that level of detail is not available to be represented in the simulations. (Preliminary illustrations of the homes and neighborhoods from the proposed PDP and draft FDP are provided in support the visual character and visual quality analysis, Impact AES-2.) (Further specific detail regarding the photosimulations is discussed in Impact AES-1.)

Approach to Visual Character and Visual Quality Effects

Definitions

This analysis of visual character and quality focuses on whether the Project would substantially degrade the existing visual character and quality (collectively, "visual conditions") of the Project site and vicinity (Criterion "c"). The significance determination considers whether the extent of change in the appearance of the Project area would be substantially adverse, damaging, or degrading when compared to existing conditions. Considerations include the visual contrast and/or compatibility in physical appearance based on all aspects of the Project. These include (but are not limited to) overall design, building massing, relative building heights, project scale, and site plan layout. The analysis also considers public realm improvements (e.g., landscaping, parks, plaza/courtyards, open spaces, streetscape treatments and treatment of infrastructure and utilities).

The City's significance criteria for visual character and quality specifies that, for projects requiring design review, the CEQA assessment shall consider a project's consistency with the applicable design review criteria; a project consistent with the design review criteria will generally be found to result in a less-than-significant impact. Overall, the Oak Knoll Project is subject to PUD permit criteria (OPC Section 17.140.080) and Regular Design Review for Residential (OPC Section 17.136.020), which include certain criteria that most of the aforementioned considerations of visual character and quality.[2]

[2] This CEQA analysis is not the design review assessment of the Project. The City will separately evaluate all aspects of the Project against the design review criteria established in the Oakland Planning Code prior to acting on the Project.

Impacts Not Further Evaluated

Review and comparison of the existing setting conditions and the Project characteristics with the significance criteria clearly show that no impacts would be associated with the following criteria for the reasons stated below for each.

The Project would not introduce landscaping or structures that cast shadow on solar facilities (Criteria e and f).

The Project would not introduce landscape that would now or in the future cast substantial shadows on existing solar collectors (in conflict with California Public Resource Code sections 25980-25986); nor would the Project cast shadow that substantially impairs the function of a building using passive solar heat collection, solar collectors for hot water heating, or photovoltaic solar collectors. There would be no impact because no such facilities were identified on or near the Project site. The only structures in proximity of the Project site include the administrative offices of the Seneca Center and the Sea West Credit Union, and these structures do not have solar facilities. Given the topography of the Project site, including its elevations at the perimeter compared to nearby properties and structures, and factoring in the maximum height of proposed development, there also are no off-site locations where new landscaping or development on Oak Knoll could substantially impair the function of solar facilities. Thus, this topic is also not addressed in this SEIR. The 1998 EIS/EIR did not evaluate these criteria.

The Project would not require an exception (variance) causing a fundamental conflict regarding adequate light (Criterion i).

The Project does not require any variances to the Oakland General Plan, Planning Code, or Uniform Building Code that could result in a fundamental conflict regarding adequate light. The Oak Knoll Project would comply with development standards tailored for the Project site and that prescribe maximum building heights and setbacks that would not result in a substantial loss of light to existing surrounding uses, particularly since those uses would be separated from the proposed Project development by topographic barriers and proposed new and retained open spaces. Overall, the Project would not result in development that significantly impacts the availability of adequate light for surrounding uses.

The Project would not create wind hazards (Criterion j).

The Project does not meet any of the City's criteria for requiring an assessment of wind hazards. The Project does not propose buildings 100 feet tall or higher and is not located adjacent to a substantial water body or in Downtown.[3] Thus, the City's triggers to analyze wind hazards are not met and this topic is not addressed in this SEIR.

[3] Downtown is defined in the Land Use and Transportation Element of the General Plan (page 67) as the area generally bounded by West Grand Avenue to the north, Lake Merritt and Channel Park to the east, the Oakland Estuary to the south and I-980/Brush Street to the west.

New Information / Changed Circumstances

There have been changes in circumstances and conditions since preparation of the 1998 EIS/EIR that are relevant to the consideration of visual character and visual quality impacts under CEQA. Certain physical conditions on the Project site have further deteriorated due to lack of use, and all structures, with the exception of Club Knoll within the NMCO site were demolished by 2011.

Impacts and Mitigation Measures

Scenic Vistas and Resources

Impact AES-1: The proposed Project could adversely affect an existing scenic vista or substantially damage scenic resources within a state or locally designated scenic highway. (Criteria a and b) ***(Potentially Significant)***

1998 EIS/EIR.

The 1998 EIS/EIR analysis was general and based on the programmatic information available at that time. No detailed project description had been when the 1998 EIS/EIR was prepared, so the analysis was generalized based on the conceptual information available. The analysis focused on the potential effect of the proposed ridgetop or "skylined" single family development on the most visible and prominent portions of the Eastern Ridge. Appendix C to the 1998 EIS/EIR included two photos of the NMCO property from off-site locations: (1) looking south from residences on Ridgetop Skyline north of the site, and (2) looking north from the Sequoyah Hill residential neighborhood south of the site. The 1998 EIS/EIR assessment also addressed the potential effect to scenic vistas or visual contrast resulting from loss of trees and grading.

The 1998 EIS/EIR concluded that development of the Maximum Capacity Alternative would result in a significant aesthetic impact that could be reduced to less than significant with mitigation. Specifically, the significant but mitigable impact identified in the 1998 EIS/EIR was based on the proposed development of the "crest and northern end of Admiral's Hill" (which is delineated as an aesthetic feature that extends the entire length of what is referred to in this Draft SEIR as the Eastern Ridge, see Figure 4.1-2), and also considered the associated effect from the loss of trees and grading. The impact statement in the 1998 EIS/EIR (p.4-42) is:

> **1998 EIS/EIR Impact 1:** The introduction of new structures and grading on the crest and northern end of Admiral's Hill, together with potential loss of trees at the northern end, would cause significant and mitigable visual contrasts. These would be seen in views from NMCO use areas, Keller Avenue, and existing residences to the north, east, and south within foreground and middleground viewing distances. Admiral's Hill forms a prominent scenic feature in the immediate areas, and visual contrasts could be augmented by "skylining" of houses (appearance of houses along ridge of hills) in some closer views from the NMCO site.

The 1998 EIS/EIR analysis acknowledged that new development proposed on Admiral's Hill (the full Eastern Ridge) would be visible from eastbound Keller Avenue (north of the site) for a distance of approximately 1,000 feet; from Skyline Boulevard (northeast of the site); from I-580,

which is a scenic highway (west of the site); and potentially from other distant vantage points in the area. The 1998 EIS/EIR analysis further recognized that the visibility of new development in this area of the site would be limited by the distance of the off-site viewing locations and the short duration of motorists' views of the site. The analysis also found that new ridgetop development would retain most of the steeper hills and knolls in their existing state and would not conflict with policies in the Oakland Comprehensive Plan (subsequently revised in 1998 to be the current Oakland General Plan) that were intended to ensure "harmonious relationships" with surrounding landscapes and maintaining views and vistas, including those viewed from the I-580 scenic corridor (1998 EIS/EIR pp. 3-44 and 4-46). Nevertheless, the analysis concluded that the project would have a significant impact on the "crest and northern end of Admiral's Hill" (which extends the entire length of what is referred to in this Draft SEIR as the Eastern Ridge [see Figures 4.1-2 and 4.1-3]), when development on that portion of the site was considered with the loss of trees and grading.

The 1998 EIS/EIR identified Mitigation 1 to mitigate the significant impact resulting from development proposed on the northern and southern sections of the Eastern Ridge to less than significant:

> **1998 EIS/EIR Mitigation 1:** The impact is mitigable to a level that is less than significant through careful siting and design of new construction and minimizing losses of mature trees at the northern end of the hill. Contour grading should be used to minimize cuts and fills. Building design should avoid blank walls, flat roofs, and simple geometric forms which would increase the apparent scale and contrast of the structures. Buildings on steep slopes should be stepped down to avoid massive (3+) story facades. Design controls on buildings color, material reflectivity, and fencing should be established to reduce visual contrasts. Landscaping that is consistent with the more natural appearing vegetation on the surrounding hills should be developed to provide some screening and shade for new buildings. It is recommended that a site survey and detailed visual analysis be prepared prior to final design approval in order to identify the appropriate number, location, and design theme of ridge top buildings, consistent with retaining scenic quality.

Mitigation 1 called for the incorporation of site planning and building design measures in addition to detailed visual analysis prior to approval, to determine the appropriate level of ridgetop development, and to ensure the approved Project would reduce the identified impact to less than significant. The design directives in Mitigation 1 were identified to reduce the visibility and visible physical change (or "visual contrast") that would occur with new development proposed at the north and south areas (the Northern End and Admiral's Hill) of the Eastern Ridge – a "prominent scenic feature."

Proposed Project.

Overall, areas of change on most of the Project site would not be visible from most off-site locations due to (1) intervening development; (2) significant elevation changes at the edges of the site compared to adjacent and surrounding areas, forming the low-lying bowl-shaped property; and (3) the dense vegetation along segments of the site perimeter, as described in the Environmental Setting. Development that would be most visible within scenic vistas and scenic resources viewable from public locations would occur in the eastern area of the site (as noted in the 1998 EIS/EIR), as

well as portions of the southeast and northwest areas of the site. The aesthetic features relevant to the analysis of whether development of Oak Knoll would impact these scenic vistas or scenic resources are the same in this SEIR analysis as they were identified in the 1998 EIS/EIR, as discussed and illustrated in the Environmental Setting (Figures 4.1-2 and 4.1-3).

Visibility of Proposed Neighborhoods Development

The proposed Oak Knoll Project will result in a visible change to the existing scenic vistas and scenic resources within a State scenic highway (i.e., the adjacent segment of I-580), and this analysis focuses on those changes that are visible from public locations. Building development and changes in topography and vegetation as a result of proposed grading, tree removal, landscaping, and open space preservation/restoration throughout the Project site are discussed throughout this analysis of aesthetic effects.

The Project will develop Creekside Village neighborhoods in the low-lying areas of the Project site, and will develop Upland neighborhoods along some of the hillsides and a portion of the Eastern Ridge, as show in in Figure 4.1-2. The most visible scenic vistas through the Project site from public viewpoints include vistas of the site's notable aesthetic and/or natural features that are shown in Figure 4.1-2. (See Figure 4.1-4 further in this analysis which show the viewpoint [VP] locations referenced below.)

The entire length of I-580 highway within Alameda County is identified as part of the Caltrans Scenic Highways Program. The Project site is located approximately 300 feet directly east of I-580, however views of the Project site from I-580 motorists are intermittent and limited by intervening vegetation, residential buildings, and sound walls along the freeway. Southbound I-580 motorist can see the steep Northeast Hillside and Knoll, a glimpse of Club Knoll, and dense vegetation along the southernmost frontage of the site.

The following summarizes each proposed Oak Knoll neighborhoods (as depicted in Figure 4.1-2), describing visibility on the Project site or from public locations around the Project site.

- **Uplands East Neighborhood** would include low density, single family detached homes on lots ranging from 3,750 to over 6,000 square feet. Homes would be a maximum two stories or 25 feet tall. There are three distinct areas within Uplands East for purposes of considering aesthetics effects.
    - New development along the central and south end of the Eastern Ridge (the southeast most corner of the Project site) would be viewed from the west (see VP A from King Estates Open Space) and north (see VP B from lower Keller Avenue). This development includes proposed lots that would be "tiered custom homes" – the only homes in the Project that would be constructed on sloped parcels. These lots are described as "northeast of the elbow", referring to the sharp turn of Uplands Primary roadway as it reaches the ridge (see Figure 4.1-2). Substantial grading (cuts) (Figure 3-15b) and tree removal (Figure 3-18) would occur in this area to accommodate the proposed development. Replacement planting in this particular area close to the high point of the Project site would occur in accordance with the City's design guidelines for hillside homes to the extent that they exceed the Oak Knoll landscape guidelines for single family residential lots.

- New development along the lower hillside of the Southern Knoll would be seen from the certain viewpoints from the west (see VP A) and sit below the proposed preserved oak woodlands that would be established above on the broad Southeast Knoll. This area would also involve substantial grading (cuts) (Figure 3-15a) and tree removal to develop the new low-density homes. The slope banks below this new development would be revegetated (see Figure 3-16b [Section C] and Figure 4.3-7).

- New development at the foot of the Eastern Hillside would be visible from the west (see VP A from King Estates Open Space) and from the north (see VPs B, C, and D along Keller Avenue). The homes would appear below the proposed undisturbed open space and preserved hillside grasslands above the homes and would sit above revegetated slope banks where substantial corrective grading/stabilization (fill) would be required (Figures 3-10, 3-15b, and 3-16a [Section A]). Many of the existing trees on the Eastern hillside would be retained; they are excluded from limits of grading (Figure 3-18).

- **Uplands North Neighborhood** would include new medium density townhomes on lots ranging from 1,600 to 2,200 square feet. Development could be up to three stories or 35 feet, and townhomes should be organized in attached buildings of no more than 10 units. The development would sit below the proposed undisturbed open space and restored oak woodlands area, potentially visible from the west (see VP A) and south (see VPs E and F south of the Project site). Minimal changes are proposed to the terrain in this area (Figure 3-15c). However, the development will occur on graded terraces, which are remnants of building pads occupied by Navy buildings. Terraces would be separated by vegetation including slope banks revegetated with mitigation oak trees (Figure 3-10, Figure 3-16b [Section B], and Figure 4.3-7).

- **Uplands South Neighborhood** would include new low density, single family detached homes on lots ranging from 3,750 to over 6,000 square feet (same as described Uplands East neighborhood) in the southwest area of the site. The panhandle portion of this neighborhood would continue to sit higher than the existing area of the proposed adjacent Creekside South neighborhood and adjacent neighborhoods offsite to the south and east. However, this area of the Project site is not considered visually prominent or notable from public off-site locations. Minimal changes are proposed to the terrain in this area (Figure 3-15a), and the development would be surrounded by revegetated slope banks (Figures 3-10 and 4.3-7).

- **Creekside Village Neighborhood** would include a mix of townhomes and small lot single family homes on lots throughout the lowland areas of the Project site, adjacent to the creek corridor. Lots would be between 2000 and 3500 square feet, and the small homes would be 2 or 3 stories and not exceed 30 feet in height. Many of the changes proposed in the central parts of Creekside Village would not be visible from public off-site locations, such as I-580 or the King Estates Open Space (see VP A), given the site's topographic characteristics previously described. However, the Creekside Village area in the southwestern most area of the Project site would be visible from Mountain Boulevard (see close-in VPs F and G immediately southwest of the site); also portions of the northern Creekside Village area would be visible from locations along Keller Avenue (see VPs B and C). In addition, nearly all of the Creekside Village area (except potentially the southwestern most portion) would be visible from the highest elevations within the Project site, which occur along the Eastern Ridge where the Project proposes a new Oak Knoll memorial park (see VP OS-1 and Figure 3-10). Minimal grading would occur in these low-lying Creekside Village areas(excluding the creek corridor as part of the creek restoration project) and in the

southeast corner where notable grading (fill) would occur, the effect being visible from Mountain Boulevard in along that corner of the site.

- **Retail Village.** The proposed Retail Village would be developed near the main entrance to the Project site on Mountain Boulevard and center around a Main Street and Plaza. Public views of the Retail Village area would be intermittent for motorists, particular those on I-580 at high freeway speeds and given the intervening development that is not part of the Project nor presumed to be removed (i.e., existing multifamily development along Mountain Boulevard, immediately west of the Project site). Topography in the western part of the Project site means that the Retail Village would also not be highly visible within the expansive views from the King Estates Open Space to the west. Notable grading (cut) would occur to prepare this area for development.

Proposed Oak Knoll Site Alterations

The following subject paragraphs summarize the proposed site alterations or other Project or site elements that are within most visible areas of the Project site.

- **Grading and Tree Removal.** As indicated above in the descriptions of each Project neighborhood area, the Project involves substantial grading and associated tree removal in certain areas. Except for grading associated with the creek restoration (discussed below), the most substantial grading and tree removal would occur on the lower hillsides and the south end of the Eastern Ridge in Uplands East, and in the southeast portion of the Creekside Village. (See Figures 3-16b.) Some of these areas are being graded for corrective/stabilization and are designated for restored oak woodlands (in the Uplands North) and revegetated slope banks (in the lower portion of Uplands East) in visible areas of the Project site (see Figure 3-10).

  The Project is proposed to be developed in three phases the timing of each being informed by market conditions (see Figures 3-19 and 3-20). Also, the overall intent of the grading plan is to balance the amount of cut and fill throughout the Project site so that no soil will need to be imported or exported. To achieve that intent, rough grading of each phase may require earth movement in other phase areas to obtain the fill soil (or temporarily stockpile the cut/excavated soils) required to prepare the active phase for development. This would occur in the first main grading phase, when a borrow area would be used in the second development phase area to achieve a balance of cut and fill within the first phase development area. No other such areas are currently anticipated in the proposed grading plan. This would result in an area of the Project site where tree removal and/or earth movement and alterations would be required before active development may occur. The Project would implement standard erosion control practices which involve the prompt installation of adequate landscaping after grading. As a result, no area of the site would be graded and left undeveloped or unlandscaped for a longer than approximately 2 months.

- **Restored and Preserved Open Spaces.** In addition to the areas where vegetation onsite would be restored, existing vegetation in other site areas, particularly some of the most visible areas of the Project site from off-site locations, would not be altered by the Project and would be preserved oak woodlands (the Southeast Knoll [or Hardenstine parcel] and Uplands North) and preserved hillside grasslands (at the foot of the Eastern Ridge in Uplands East (Figure 3-10). As a result, of these restored and maintained vegetation and open space areas that exist mostly along the upper perimeter of the site, the visibility of site changes from grading and tree removal would be limited from public locations.

The Oak Knoll Parks and Plazas Plan (Figure 3-8) is intended to reflect the site's natural and indigenous character and to unify the residential neighborhoods and the commercial areas with natural open areas. Through adherence to the proposed Oak Knoll Landscape Master Plan, the Project will integrate Oak Knoll development into the existing context of hillsides, the creek corridor, oak woodlands, and adjacent neighborhoods (see Table 4.1-1). Overall, the Project will create approximately 78.7 acres of permanent open space (including undisturbed open space, revegetated slope banks, creek corridor and parks) that would be contiguous with the adjacent open space areas. This visual effect is conveyed in simulations from long- and mid-range viewpoints (see VP A, B, C, and E, and On-Site VP OS-1), specifically in the series of simulations that show landscaping matured to eight years.

- **Rifle Range Creek Corridor.** The Project proposes restoration and enhancement of approximately 16.7 acres of riparian areas along Rifle Range Creek which sits primarily in the low-lying area of the site. As previously mentioned and identified in Figures 4.1-2 and 4.1-3, the Creek's riparian corridor on the Project site is considered an element of "high natural resource or scenic value" (OSCAR Open Space Policy OS-3.2). It is the only designated "Resource Conservation Area" on the Project site, pursuant to the General Plan LUTE land use diagram (Figure 3-15 or Figure 4.9-2). Existing vegetation is overgrown within the creek corridor and will be removed and replaced with the creek restoration/enhancement. However, this natural resource in the low-lying are of the site is not visible from most public off-site locations. Limited views of the corridor exist from points near the Keller Avenue entrance (see VPs B and C).

- **Club Knoll.** Club Knoll is a historic resource in the southwest area of the Project site. It gains a fleeting view through existing dense vegetation from high-speed motorists on southbound I-580 as well as from Mountain Boulevard (see VP G). The Project would relocate and rehabilitate the Club Knoll structure for reuse as the proposed Oak Knoll Community Clubhouse in the Creekside Village. The general visibility of Club Knoll would be substantially increased at its new location, particularly from views from the west at higher elevations than the Project site. The building would be located in the new community park east of the Village Center Retail and Village Center townhomes, but at an elevation about 45 feet higher than the existing location (see Figure 3-15a). The relocated Club Knoll may also be more visible from points on Keller Avenue to the north, as well as from the highest onsite elevation points on the Eastern Ridge of the site; the building is currently tucked in the "panhandle" southwest corner of the site, largely blocked from views from the north and east given the site's topography and configuration. Overall, with the relocated Club Knoll becoming more visible from certain public locations, for purposes of this assessment of effects on scenic resources, the Project would enhance the view of a scenic vista that features Club Knoll.

Proposed Oak Knoll Design Guidelines Relevant to Aesthetics

Fundamental to the proposed Project's visibility and appearance are the proposed Oak Knoll Design Guidelines, which include the Oak Knoll Landscape Guidelines, and which is part of the proposed Oak Knoll PUD/PDP. Together with Oak Knoll development standards and regulations, these guidances provide Project-specific guidelines, standards, and regulations for all aspects of development on the Oak Knoll Project site – both at a neighborhood and community level.

The computer-generated photosimulations of the proposed Project presented in this section largely factor in the guidelines, standards, and regulations in these documents, as appropriate and feasible for the scope of each viewpoint (i.e., close-in or distant). For example, distant-view simulations may not incorporate detailed lot-specific landscaping requirements that would not be

discernable in the photosimulation. However, photosimulations showing close-in views represent specific lot and building standards (including landscaping) and overall design character pursuant to the Oak Knoll design documents. The documents are summarized as follows:

- **Oak Knoll Design Guidelines**. The proposed Oak Knoll Design Guidelines address the following topics critical to achieving the community vision of the Oak Knoll Project. Each topic is a chapter in the Design Guidelines document.

  - *Planning.* The Planning Guidelines chapter addresses guidelines, principles and concepts (guidance) of Oak Knoll neighborhood planning. It describes the overall character and layout of the proposed Oak Knoll neighborhoods: Retail Village, Creekside Village and Uplands, as discussed previously in this section (see Visibility of Proposed Neighborhoods Development). The Planning chapter also covers the function and appearance of streets (street trees, sidewalks, etc.), with standards to produce neighborhoods that have diverse streetscapes and architectural diversity.

  - *Architectural*. The Architectural Guidelines chapter defines a range of architectural styles and multiple design approaches to key architectural elements (e.g. roofs, windows, doors, porches/stoops, garages, lighting) that allow a range of architectural styles envisioned, including commercial development. The City will review all subsequent development projects for consistency with the Design Guidelines of the Oak Knoll PDP. However, individual building architecture is not considered in the impact analysis in this Draft SEIR. Instead, the emphasis is on the general effects of proposed building height and bulk that will align with new zoning standards.

  - *Landscaping*. The Landscaping chapter describes a vision of the Oak Knoll landscape design. It specifies guidelines for landscaping and other site elements and amenities for each lot and neighborhood or lot type at Oak Knoll. Relevant to this analysis, landscaping requirements address the requirements for number, type, and location of plantings for residential lots; front walkways to units; requirements for street trees in front of every lot; and locations and heights of retaining wall.

  - *Materials/Colors, Plants, etc*. The Oak Knoll Design Guidelines also include a materials and colors palette, a comprehensive and detailed list of approved and prohibited plants, and specifications for public realm elements (signage/monumentation, fences and retaining walls). These will guide development throughout Oak Knoll as different home builders implement the Project over time.

All submitted designs for development within Oak Knoll by future builder/applicants will be reviewed for their substantial consistency with the design set forth in the Oak Knoll Design Guidelines, as well as findings in the applicable City of Oakland Residential Design Review criteria and PUD/PDP permit criteria. **Table 4.1-1** includes more specific selected aspects from the Design Guidelines that are relevant to this CEQA assessment of aesthetics (all significance criteria).

Proposed Oak Knoll Rezoning Relevant to Aesthetics

The proposed Oak Knoll rezoning is relevant to this aesthetics analysis because, with application of the future zoning regulations that would apply to the Project site, certain development controls would change. Namely, the land use standards in the RH-3 and RH-4 zones would be replaced by

TABLE 4.1-1
CERTAIN OAK KNOLL DESIGN GUIDELINES PERTINENT IN DETERMINING AESTHETICS EFFECTS

NOTE: Project-specific terms referenced throughout and key to this analysis are bolded. This table is not a comprehensive list of all Oak Knoll Design Guidelines, but those most relevant to the evaluation of potential aesthetic effects under CEQA.

Community Vision
• The Community at Oak Knoll is planned as a walkable system of neighborhoods anchored by a community scale retail village, neighborhood parks, and natural and accessible open space. The neighborhoods are woven together through an extensive system of trails and carefully designed streets. The primary landscape features around which the land plan is shaped is the restored branch of the Rifle Range creek and the surrounding upland areas to the north, south and east of the creek.
• …the residential neighborhoods will present a diverse mix of residential sizes and types and are planned to be executed in a range of architectural styles appropriate to the setting.
Planning Guidelines
• Retail Village area is designed… as a cluster of buildings at varying scales fronting a 'Main St' and a 'Plaza'. It will feature landscape and street furnishings that give it a distinct identity similar to other neighborhood centers in the Oakland hills.
• Creekside Village neighborhoods are medium density residential …compact and walkable and feature a framework of parks and open space which connect to the creek.
• Uplands neighborhoods are designed to…provide a pleasing appearance as viewed from adjacent areas… offer a range of residential product types … connected to the surrounding community via a system of trails and preserved open space.
• A line of street trees flank both sides of the street (except within Creekside Village), with a generous sidewalk.
• An (Anti) Monotony Code…to create variation and hierarchy … giving the communities an appearance of growth over time. The Anti-Monotony Code will be enforced by the Design Review Committee of the Planning Commission.
Architectural Guidelines
• Bay Area…home-grown residential character … styles…are bound by common themes that…will inform the identity of Oak Knoll. These themes are buildings that connect to and are inspired by the natural setting; have simple building mass with additive elements; have natural materials (wood, stone, terra cotta, stucco; have subdued earth-tone paint colors and light colored stuccos.
• Oak Knoll Architectural guidelines address: - Massing of primary and secondary building volumes, as well as additive building elements; - Roof types, slopes, and materials, in addition to dormer sizing and siding; - High visibility facades, which are visible from the street and from open spaces; guidelines address entry façade compositions and corner-lot facades; - Openings and windows, specifically types, proportions, shutters and materials; - Exterior door types, proportions and materials; - Porch and stoop guidelines for all homes; guidelines address types, dimensions, details, and address markers; - Garage dimensions and details, such as location, doors, and roof pitch details; and - Architectural lighting types, styles, number, and styles
Landscape Guidelines – Lot Level
• Residential Landscape Design principles address specific landscape guidelines and requirements address unique landscape conditions for certain Oak Knoll housing types and lots. Landscapes are designed to respond to unique characteristics, such as lot configuration, topography, existing vegetation, and the design and location of the house and ancillary structures. Street trees are important thematic elements of the neighborhoods, where strong patterns reinforce the neighborhood identity, define road edges and provide a shaded overstory.
• Oak Knoll Landscape guidelines address: Signage and monumentation, site retaining walls, architectural materials and color palette.
Landscape Guidelines - Neighborhood Development
• Landscape Vision: To integrate the new community into its existing context of hillsides, creeks and drainages, and oak woodlands.
• Neighborhoods are woven together with natural open space settings and carefully designed streets with generous sidewalks, punctuated by neighborhood and pocket parks.
• Landscape materials emphasize the use of native materials and plant communities within natural settings, intended to restore the site's ecology and benefit wildlife….
• The native Oak woodland used as the predominant framework plantings, with other trees such as London Plane, Trident Maple, Red Maple and Brisbane Box as canopy street or parking lot trees.
• Open space network consists of a range of open spaces including existing Undisturbed Open Space, the Restored Rifle Range Creek Corridor, Revegetated Slope Banks (hillsides), Restored and Preserved Oak Woodlands, Preserved Hillside Grasslands, and publicly accessible Neighborhood Parks (see Figure 3-10 in this Draft SEIR).
• Tree mitigation occurs site-wide in a variety of locations (see Figure 4.3-7 in this Draft SEIR).
• For each trail type, there are concepts for width, longitudinal and cross slopes, user types, and other amenities (markers, etc.) (see Figure 4.12-1 in this Draft SEIR).

SOURCE: OKVA; Hart Howerton, 2016

the new zoning. This would change minimum lot sizes, lot setbacks, and certain maximum building heights where determined necessary to achieve the overall look, feel, and function of the Oak Knoll Project and to address certain site conditions, such as development adjacent to the Creek or the intent for mostly flat lots in hillside areas.

Proposed changes relevant to this analysis is the allowance for smaller lots with smaller setbacks and zero-lot line development that could be developed on most of the proposed developed portions of the Project site. Also, the new zoning would allow townhome development to accommodate the proposed Oak Knoll Project. The proposed rezoning would also provide for the type and scale of small commercial development that generally aligns with the "Community Commercial" General Plan land use designation currently on that portion of the Project site.

Photosimulations of the Proposed Project

The set of existing photographs and photosimulations prepared for this analysis follows. The methodology and approach to development of these photosimulations was previously discussed under *Approach to Analysis.* The photosimulations are intended to convey the appearance of the Project on existing conditions – factoring in all of the Project considerations described above in this Impact AES-1 discussion (development, grading, tree removal and replacement, Oak Knoll Design Guidelines, Landscape Master Plan and rezoning).

Landscape Maturity. There are two simulations presented for each of the 8 viewpoints. The first simulation (A) shows proposed new development with landscaping as it would appear upon installation. Pursuant to the Oak Knoll Landscape Mitigation Plan (Figure 4.3-7 in Section 4.3, Biological Resources, in this chapter), street trees will be installed in quantities and sizes required by the Oakland Tree Ordinance or applicable Oakland SCAs to help mitigate the removal of native trees. The Project proposes to supplement a majority of 24-inch box and 15-gallon size trees with substantially larger 36-inch box size trees (street trees in Uplands East and Uplands South); 48-inch box size trees (along the west side of Creekside Parkway, from the Keller Avenue entrance of the Project site to Retail Village); and 60-inch box size trees (around the proposed community center and park). The second simulation (B) shows new development with landscape conditions as expected after 8 years of growth.[4]

Scenic Vistas and Scenic Resources of Focus. The scenic vistas are largely the eastward view from King Estates open space toward the Oakland Hills (VP A in Figures 4.1-5A and 4.1-5B), and the westward view from the onsite Eastern Ridge toward Oakland and the Bay (VP OS-1 in Figures 4.1-12A and 4.1-12B). As defined in the *Environmental Setting*, the physical features that distinguish the Project site are (1) the Northwest Knoll and Hillside in Uplands North; (2) the Southeast Knoll and Hillside in Uplands East, and (3) the Eastern Ridge, Knoll and Hillside also in Uplands East (see Figure 4.1-2). Aesthetic features of consideration located offsite are the King Estates Open Space and Ridge to the west and the Sequoyah Hills and Skyline Boulevard Ridges to the east (see Figure 4.1-3).

[4] Tree growth rate for eight years was factored based on the specific species of trees proposed and the growth rates for those specific species in the Bay Area.

The simulations key to the Viewpoint Location Map in **Figure 4.1-4**.

Figure 4.1-5A and 4.1-5B – View from the King Estates Open Space (Viewpoint A).
This view is a scenic vista from an upper elevation public vantage point located to the west of the Project site and shows heavy vegetative cover throughout the Oakland Hills, mixed with areas of residential development on upper hillsides and ridges. While the western boundary of the site (along Mountain Boulevard and I-580) and the southwest area of the site are largely obscured by the slope up from Mountain Boulevard along the northwestern frontage of the site, some of the low-lying Creekside Village area of the site is visible. As also shown in the existing photo, much of the upper elevations of the Project site are visible from this viewpoint, particularly the prominent land forms of the Eastern Knoll and ridgeline (in the center of this view) and the grasslands sloping down (westward) to the vegetation at the foot of the ridge.

Scenic Vista of Uplands East.

- **Eastern Ridge.** The simulation shows that the Uplands East neighborhood would be visible from this viewpoint and new single family homes would affect a portion of the Eastern Ridge. The proposed development on the southern part of the Eastern Ridge is visible within the surrounding context of existing residential development along major ridges and hillside visible beyond the Project site at higher elevations to the east and southeast.

- **Southeast Hillside.** The simulation shows the prominent dual row of new single family homes that would occur at the foot of the Eastern Hillside (discussed below). This dual row of development creates a "benching" effect" in this area. Also, while less linear in appearance, and less visible from this viewpoint on the King Estates open space, the new single family homes on the Southeast Hillside present a visible change from existing conditions given the removal of a substantial number of existing trees. In both of these cases where new development occurs at the lower Southeast and East hillsides, the change is visibly apparent despite the proposed revegetated hillsides below that development (Figure 4.3-7)

- **Foot of the Eastern Hillside.** A dual row of new single family homes that create a "benching" effect at the foot of the Eastern Hillside is prominent in this viewpoint, largely because of its linear form within a visual context that *appears* more undulating and natural. Since the Eastern Ridge and Hillside are the topmost and visible inside edge of the bowl-like form of the Project site," any development in this foot of the East Hillside would be visible within this expansive scenic view, but would not be considered a prominent feature. The Maximum Capacity Alternative land use plan proposed to develop a 54-acre golf course with a 32-acre "residential area" (at 8.0 units per acre) per acre)" for the area that may encompass the two rows of new homes (at 8.2 du/ace) in the Oak Knoll Project. (The 1998 EIS/EIR referred to this area as "Hills above North Quadrant.") However, no detailed plan was prepared for the Maximum Capacity Alternative to allow comparison of where new residential development would occur and its visibility from offsite locations. The 1998 EIS/EIR analysis states on page 4-44, "The integration of an executive 9-hole golf course may improve the scenic quality of some hillslopes while being consistent with the existing open space landscape form." In addition, while this Draft SEIR analysis is based on a comparison of the proposed Project's effects compared to existing conditions (as opposed to previous pre-Base Closure conditions), previous navy buildings (Buildings A though O) were situated in this area at the foot of the Eastern Hillside. (**Appendix H** to this Draft SEIR includes aforementioned exhibits from the 1998 EIS/EIR relevant to aesthetics.)

Basemap source: ESRI, Suncal

0 2000
Feet

A → Public Viewpoint

③ → On-site Viewpoint

SOURCE: Environmental Vision

Oak Knoll Project . 120645

Figure 4.1-4
Viewpoint Locations

Existing view from King Estates Open Space looking northeast (VP A)

Visual simulation of proposed project with landscaping at installation

SOURCE: Environmental Vision

Figure 4.1-5A

Photo and Simulation-Viewpoint A (early landscaping)

Existing view from King Estates Open Space looking northeast (VP A)

Visual simulation of proposed project with landscaping at approximately 8-year maturity

Oak Knoll Project . 120645

SOURCE: Environmental Vision

Figure 4.1-5B

Photo and Simulation-Viewpoint A (8-year landscaping)

Taken together, development in areas of the Project site other than the Eastern Ridge (which the 1998 EIS/EIR found would be a nonsignificant effect for the Maximum Capacity Alternative) will represent a substantial and potentially significant change from existing site conditions, but are not substantially adverse, assuming incorporation of proposed measures for residential landscaping, grading and tree removal specified in the Oak Knoll Project plans and guidelines.

Uplands North. In the foreground of the photosimulation, the view includes the proposed townhome development and associated grading that would occur in the lower Creekside Village and Uplands North neighborhoods in the mid-ground or the image. While these graded slopes will be highly visible and in contrast to the surrounding mature vegetation in the short-term, the Project's proposed restored oak woodlands on these slopes will mature and become more consistent with surrounding vegetation along that northwestern frontage of the site over time (Figure 4.1-5B). While visible from I-580, this view of Uplands North is not considered a scenic resource within the scenic highway, given the lack of any particularly distinguishable features from this viewpoint.

Summary. Overall, this simulation conveys that Oak Knoll development would be visible from the public open space at King Estates (Viewpoint A), capturing the scenic vista that is the Eastern Ridge and hillside and the Eastern Knoll. Development on the southernmost section of the Eastern Ridge would not appear out of context with surrounding development and open spaces, would not have a substantially adverse effect on this scenic vista, and would not substantially damage the on-site scenic resources of the Eastern Knoll and ridgeline or its lower grasslands.

Figure 4.1-6A and 4.1-6B – View Looking East from Keller Avenue near Williams Street (Viewpoint B)

View of Uplands East and Rifle Range Creek This view captures the Eastern Knoll and ridgeline and the dense vegetation on the northern area of the site, as well as the entry of Rifle Range Creek into the Project site. From bottom (north) to top (southeast), the simulation shows the Creekside Village nearest Keller Avenue, the lower Uplands East area, as well as the uppermost Uplands East neighborhoods along the southern part of the Eastern ridgeline, which is notably visible along the ridge and horizon line from this viewpoint. Although these new ridgeline homes appear within a similar context when viewed from the more distant Viewpoint A (discussed above), from this viewpoint, they appear above the horizon line, creating a notable change. The revegetated hillsides along the Eastern Hillside, and the substantial Creekside Parkway landscaping are particularly visible in the matured landscaping simulation (Figure 4.1-6B), providing some "foundation" for the skyline homes given this particular perspective.

Overall, this simulation conveys that Oak Knoll development would not have a long-term substantially adverse effect on views of the northern end of Rifle Range Creek as a scenic resource, as the photosimulation shows that restoration and re-vegetation of the Creek will occur, and once the street trees mature, there will be additional vegetative screening of the new development. However, this photosimulation does demonstrate that new development within the upper portions of the Uplands East neighborhood would be visible and that would protrude above the ridgeline.

Existing view from Keller Avenue near Williams Street looking east (VP B)

Visual simulation of proposed project with landscaping at installation

SOURCE: Environmental Vision

Figure 4.1-6A

Photo and Simulation-Viewpoint B (initial landscaping)

Existing view from Keller Avenue near Williams Street looking east (VP B)

Visual simulation of proposed project with landscaping at approximately 8-year maturity

Oak Knoll Project . 120645

SOURCE: Environmental Vision

Figure 4.1-6B

Photo and Simulation-Viewpoint B (8-year landscaping)

Figure 4.1-7A and 4.1-7B – View Looking south from Keller Avenue near Campus Drive (Viewpoint C)

Further east on Keller Avenue near Campus Drive, the view is an example of the limited sight lines across or into the Project site from off-site locations northeast of the Project site. The simulation shows the northernmost area of the Uplands East neighborhood as well as the near-ground changes in topography and subsequent open space restoration (in Figures 4.1-7A and 4.1-7B, respectively). Overall, this photosimulation conveys that Oak Knoll residential development would be visible initially, but would not have a substantially adverse effect on a scenic vista because none is captured in this viewpoint; nor would this view substantially damage scenic resources in the short- or long-term because very little of the new development would be visible given the site topography, existing vegetation to remain, as well as new landscaping proposed.

Figure 4.1-8A and 4.1-8B – View Looking West to Project Site from Upper Keller Avenue (Viewpoint D)

This viewpoint provides the initial view of the Project site from pedestrians or westbound (downhill) motorists on upper Keller Avenue east of the site. The Project site is obscured by existing vegetation. Context includes hillside and ridge development in the distance to the north. The simulation shows the visibility of the Uplands East neighborhood on the south end of the Eastern Ridge near Keller Avenue, which would eventually become obscured with maturity of proposed landscaping. No scenic vista or scenic resource is visible from this viewpoint that would be affected by the Project, but is one of the few locations where the site is visible from nearby public streets that experience substantial travel.

Figure 4.1-9A and 4.1-9B – View Looking Northwest from Briarcliff Road, south of the Project Site (Viewpoint E)

Cross-Site Scenic Vista. This viewpoint is from the higher elevation south of the Project site and captures expansive and distant views, including area hillside development, dense vegetation, and distant views toward the Bay. Given these conditions, the view could reasonably be considered a scenic vista, particularly its sheer expanse. This view illustrates the bowl-shaped nature of the Project site, and the only portion of proposed Project development that is directly visible is the upper-level of the Uplands North neighborhood, which appears generally consistent with other existing hillside development (e.g., Sequoyah Community Church) to the north. This viewpoint is from a public street in a residential neighborhood, and is not heavily traveled; it is selected as one of few locations in the neighborhood south of the Project site from which the Project site is visible. Overall, this simulation conveys that Oak Knoll development would be visible initially, but would not have a substantially adverse effect on a scenic vista or substantially damage scenic resources in the short- or long-term because it is generally of a consistent visual character as other nearby development, and it would not obscure scenic features or horizon lines in this view.

Existing view from Keller Avenue west of Campus Drive looking south (VP C)

Visual simulation of proposed project with landscaping at installation

Oak Knoll Project . 120645

SOURCE: Environmental Vision

Figure 4.1-7A

Photo and Simulation-Viewpoint C (initial landscaping)

Existing view from Keller Avenue west of Campus Drive looking south (VP C)

Visual simulation of proposed project with landscaping at approximately 8-year maturity

SOURCE: Environmental Vision

Oak Knoll Project . 120645

Figure 4.1-7B

Photo and Simulation-Viewpoint C (8-year landscaping)

Existing view from Keller Avenue west of Hansom Drive looking northwest (VP D)

Visual simulation of proposed project with landscaping at installation

Oak Knoll Project . 120645

SOURCE: Environmental Vision

Figure 4.1-8A

Photo and Simulation-Viewpoint D (initial landscaping)

Existing view from Keller Avenue west of Hansom Drive looking northwest (VP D)

Visual simulation of proposed project with landscaping at approximately 8-year maturity

Oak Knoll Project . 120645

SOURCE: Environmental Vision

Figure 4.1-8B

Photo and Simulation-Viewpoint D (8-year landscaping)

Existing view from Briarcliff Road looking northwest (VP E)

Visual simulation of proposed project with landscaping at installation

Oak Knoll Project . 120645

SOURCE: Environmental Vision

Figure 4.1-9A

Photo and Simulation-Viewpoint E (initial landscaping)

Existing view from Briarcliff Road looking northwest (VP E)

Visual simulation of proposed project with landscaping at approximately 8-year maturity

Oak Knoll Project . 120645

SOURCE: Environmental Vision

Figure 4.1-9B

Photo and Simulation-Viewpoint E (8-year landscaping)

Figure 4.1-10A and 4.1-10B – View Looking North from the Intersection of Mountain Boulevard and Sequoyah Road (Viewpoint F)

View of Creekside South. This close-in viewpoint shows the change that would occur to the perimeter trees that limit views into the Project south from this southwest corner of the site. Sequoyah Road is a primary entrance to the Sequoyah Hills neighborhood that exists directly south of Oak Knoll. New development in the Creekside South neighborhood will occur in this corner of the site and will be immediately visible from this viewpoint. The Project proposes to retain the existing healthy trees along Sequoyah Road on the south edge of the Project site (seen to the right in the simulation). Also depicted is the proposed street frontage landscaping treatment along Mountain Boulevard. This change in visual character would not affect any significant scenic vistas or scenic resources, since the existing conditions do not constitute such features.

View of Uplands North. The proposed Uplands North neighborhood will be seen within the context of existing hillside and ridgetop development in the distance, with landscaping and street trees becoming more prominent as they mature. Overall, this simulation conveys that Oak Knoll development will remove much of the mature landscaping that fronts this southwest frontage of the Project site, and how it would be replanted with the improved streetscape and Creek restoration. From this vantage point the Project would not have a substantially adverse effect on a scenic vista (as no scenic vistas are currently visible from this location) or substantially damage scenic resources because new streetscape landscaping will replace existing vegetation in the long-term.

Figure 4.1-11A and 4.1-11B – View from Mountain Boulevard Looking directly East toward Existing Club Knoll (Viewpoint G)

View of Creekside South. This viewpoint is located in one of the few gaps in vegetation that exists on west perimeter of the Project site through which Club Knoll is visible in its meadow setting. This lower elevation precludes scenic vistas beyond the structure or to higher elevations of the Project site. The Project proposes to relocate Club Knoll to another area of the Project site (Creekside Village), and the simulation shows the proposed townhomes that would be developed in this Creekside Village South neighborhood, instead. Since no scenic vistas are present at this location, the introduction of new development would not impact a scenic vista or view, and the character of the new development would not be dissimilar to other surrounding residential development.

Scenic Resource from a Scenic Highway. Club Knoll is a scenic historic building that is immediately visible (if only for a brief moment) from a state and locally-designated scenic highway (I-580). Therefore, it is a scenic resource, pursuant to CEQA significance criterion b. The Project would not "substantially damage" this scenic resource, but rather would restore and relocate it to a more central and visually prominent location as the Oak Knoll Community Clubhouse within a central community park in the central area of Creekside Village.

Summary. Overall, this scenic resource will be restored and not substantially damaged, and although it will no longer be visible at its current location from the I-580 scenic highway, it's general visibility will be substantially increased at it new location. As such, the Project would not significantly impact this scenic resource.

Existing view from Mountain Boulevard at Sequoyah Road looking north (New VP F)

Visual simulation of proposed project with landscaping at installation

SOURCE: Environmental Vision

Oak Knoll Project . 120645

Figure 4.1-10A

Photo and Simulation-Viewpoint F (initial landscaping)

Existing view from Mountain Boulevard at Sequoyah Road looking north (New VP F)

Visual simulation of proposed project with landscaping at approximately 8-year maturity

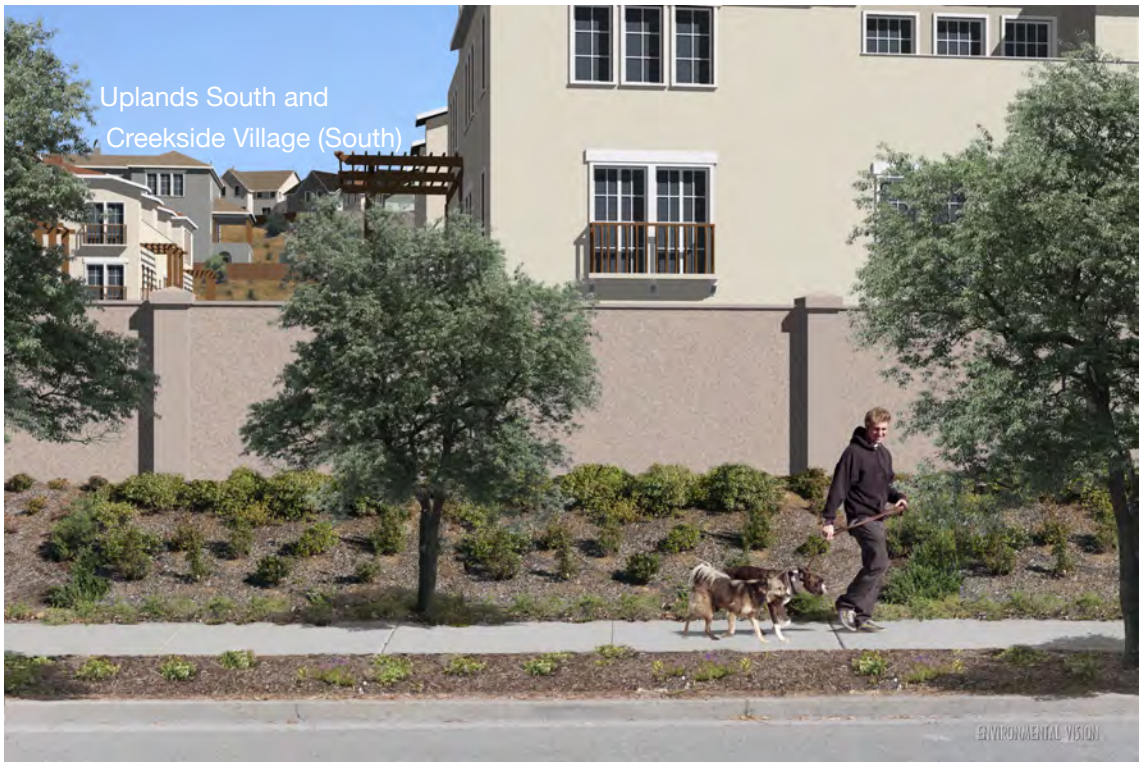
SOURCE: Environmental Vision

Oak Knoll Project . 120645

Figure 4.1-10B

Photo and Simulation-Viewpoint F (8-year landscaping)

Existing view from Mountain Boulevard near Sequoyah Road looking northeast (New VP G)



Visual simulation of proposed project with landscaping at installation

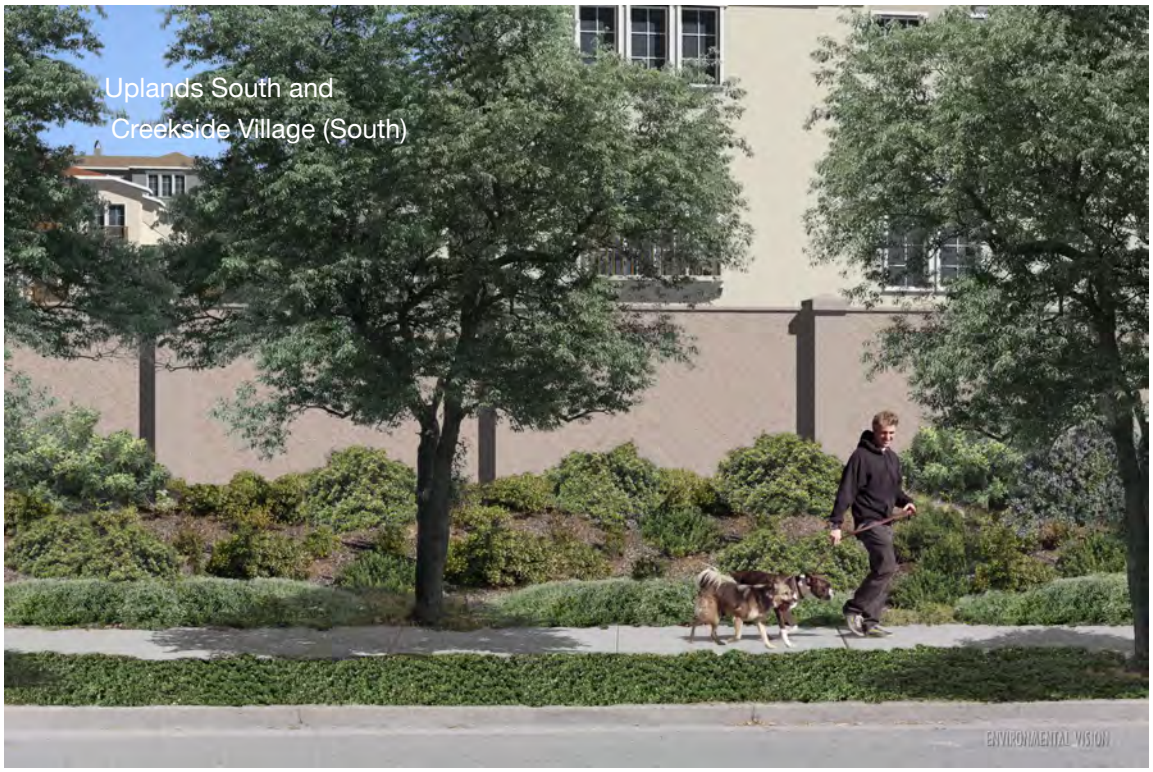
Oak Knoll Project . 120645

SOURCE: Environmental Vision

Figure 4.1-11A

Photo and Simulation-Viewpoint G (initial landscaping)

Existing view from Mountain Boulevard near Sequoyah Road looking northeast (New VP G)



Visual simulation of proposed project with landscaping at approximately 8-year maturity

SOURCE: Environmental Vision

Oak Knoll Project . 120645

Figure 4.1-11B

Photo and Simulation-Viewpoint G (8-year landscaping)

Figure 4.1-12A and 4.1-12B – Onsite View from the Eastern Ridge Looking West Across the Project Site (Viewpoint OS-1)

Cross-Site Scenic Vista. This viewpoint is from the point of highest elevation within the Projects site and encompasses expansive views west, across the Oakland flatlands and to the distant San Francisco Bay. The King Estates ridge (see Figure 4.1-3) limits mid-range views of the Oakland flatlands to the west. The western rise of the Project site obscures I-580 which runs directly beyond it. However, the hillside neighborhoods west of I-580 are visible to the right. This is a rare view of the Project site; public viewpoints from further east (or even from the northeast and southeast, as depicted in previous simulations) are limited by relative topography (primarily the high elevation of the Eastern Ridge which blocks much of the bowled Project site), intervening development in hillside neighborhoods, or sheer distance. The site is not discernable from points along Skyline Boulevard or the notable public viewpoints such as Knowland Park/Arboretum. While located onsite, this viewpoint is, however, where the Project proposes a new commemorative park, which will be a new publicly accessible viewpoint. This view is therefore considered a scenic vista. Overall, this viewpoint provides a broad and distant scenic vista westward, with the hillside developments of East Oakland neighborhoods in the midground, and most of the Oak Knoll development in the mid and foreground. Notable scenic resource from this viewpoint would be the distant water views and the King Estates Open Space and Ridge that creates the initial horizon line to the left of the simulation.

The Project would not have a substantially adverse effect on an existing public scenic vista, or from the new public vista at the Project's proposed park, because all of the Project's proposed new development is located below the distant scenic vista and below the horizon line of the King Estates ridge. Although the Project's new development will be immediately visible from this vantage point in the near and mid-views, its visual character will not be inconsistent with, or substantially dissimilar from, other surrounding residential areas or substantially damage scenic resources in the short- or long-term.

Summary of Impacts to Scenic Vistas and Scenic Resources

Project Impact. The simulations series for the Oak Knoll Project illustrates that, for the majority of new Project development, there would be less than significant effects on existing scenic vistas and scenic resources. In most cases other than the Eastern Ridge, the changes with the Project would not have substantially adverse effects because the Project is not highly visible from most public locations and/or would benefit from the proposed undisturbed, restored, or revegetated open space areas proximate to these areas of new development,

The proposed Oak Knoll Project would develop single family homes (and its related grading and tree removal) on the southern portion of the Eastern Ridge and throughout the Uplands East neighborhood. As viewed from the King Estates Open Space in particular (Viewpoint A), the view of these features is reasonably considered a scenic vista (as previously indicated under *Scenic Vistas and Scenic Resources of Focus*). However, the Uplands East development would not alter the prominent Knoll on the Eastern Ridge, which is the most visible and notable part of the Eastern Ridge from public off-site vantage point locations. (See Figures 4.1-5A and 4.1-5B.)

Existing view from Eastern Ridge (the knoll) looking west (VP Onsite OS-1)

Visual simulation of proposed project with landscaping at installation

SOURCE: Environmental Vision

Oak Knoll Project . 120645

Figure 4.1-12A

Photo and Simulation-Viewpoint OS-1 (initial landscaping)

Existing view from Eastern Ridge (the knoll) looking west (VP OS-1)

Visual simulation of proposed project with landscaping at approximately 8-year maturity

SOURCE: Environmental Vision

Oak Knoll Project . 120645

Figure 4.1-12B

Photo and Simulation-Viewpoint OS-1 (8-year landscaping)

Moreover, the simulation of the Eastern Ridge looking east from Keller Avenue near Williams Street (Viewpoint B) demonstrates that this same development would appear as new ridgetop development that would be highly visible and protrude above the skyline. (See Figures 4.1-16a and 4.1-16B.)

Taken together, the Project would have a less than significant aesthetic impacts with respect to scenic resources within a state or locally designated scenic highway.

However, the Project would have a substantially adverse effect on a scenic vista, which is the view of the Eastern Ridge from off-site viewpoints, such as Keller Avenue, where the skylined homes will be silhouetted against the sky, even after proposed or installed landscaping has matured or new buildings constructed. The proposed mitigation measure is a replacement to Mitigation 1 in the 1998 EIS/EIR to address the visibility of new single family home development on the crest and northern end of "Admiral's Hill" (which, as previously described, extends the entire length of what is referred to in this Draft SEIR as the Eastern Ridge).

Comparison to Findings in the 1998 EIS/EIR. The extent of the new development along the Eastern Ridge differs substantially from the Maximum Capacity Alternative that was analyzed in the 1998 EIS/EIR, which identified a significant impact due to effect of developing the full length of the Eastern Ridge (including the "crest and northern end of Admiral's Hill")[5]. The current Oak Knoll Project specifically does not propose to develop the Knoll, nor the northern reach of the Eastern Ridge, but instead proposes to retain these visual resources as undisturbed open space and parkland. Nevertheless, the Project's proposed homes on the southern end of the Eastern Ridge are still considered to have a significant impact, although a comparatively much reduced visual impact.

The significant but mitigable impact was identified for the Maximum Capacity Alternative also due to the absence of specific and detailed plans for siting the homes, or any project-specific design and development standards that would apply to the development. The 1998 Maximum Capacity Alternative was a highly conceptual plan. The currently proposed Oak Knoll Project described and analyzed in this Draft SEIR is highly detailed with guidance and development standards specified in the Oak Knoll Project PUD/PDP and that would be included with the proposed rezoning, respectively.

Replacement Mitigation Measure AES-1

Combined with implementation of the Oak Knoll Design Review Guidelines and the Landscaping Guidelines therein, in addition to adherence to all other components of the Oak Knoll PUD, the proposed zoning regulations, as well as applicable SCAs (discussed below), Replacement Mitigation Measure AES-1 would reduce the Project's impact to scenic vista to less than significant. The Project's adherence to all the aforementioned requirements would be overseen by the City through the FDP permit process and will adequately mitigate to a less than significant level the visual contrast resulting, in part, from tree removal, as well as the home and lot layout of the lots on the Eastern Ridge.

[5] 1998 EIS/EIR references to "Admiral's Hill" pertain to the entire Eastern Ridge defined in this SEIR (see Figure 4.1-3).

As specified in Replacement Mitigation Measure AES-1, homes (the specific lots/homes to be determined at the time of the FDP approval) that will be silhouetted against the sky from off-site public viewing points identified in this Draft SEIR will be individually designed and built based on the requirements of the purchaser and the particular topography of the lot (e.g. sloped versus flat). Specific measures from the City's Hillside Residential Design Review Guidelines are incorporated into Replacement Mitigation Measure AES-1.

The specific purpose of Replacement Mitigation Measure AES-1 is to ensure maximum variation and landscaping among the new structures on the Eastern Ridge and to require custom home building design to use appropriate techniques, imposed through the City's Design Review and FDP permit process. The intent is to minimize the visual contrast and "skylining effect" that would result from new structures, and potential tree loss specifically on the Eastern Ridge. (See *Effectiveness of Mitigation Measure AES-1*, further below).

Replacement Mitigation Measure AES-1 (modifies and expands 1998 EIS/EIR Mitigation 1):

Intent. The intent of this Replacement Mitigation Measure AES-1 is to require that new single family homes on the Eastern Ridge that are silhouetted against the sky from public viewing points identified in this Draft SEIR (whether the homes are to be built on graded flat or sloped lots) shall be custom designed utilizing appropriate techniques to minimize the appearance of a monotonous row of skylined development visible from off-site vantage points.

Requirements. The homes on the Eastern Ridge of the Oak Knoll Project site that will be silhouetted against the sky from off-site public viewing points identified in this Draft SEIR shall be individually designed by architects to meet client needs. The Oak Knoll Design Guidelines, as supplemented by this mitigation measure, require that the architects meet the community standards while providing flexibility to enable site specific alternatives for each lot. While not each of the specific principles will be applicable to each lot or building, the whole of this mitigation measure in concert with the Oak Knoll Design Guidelines direct the architect to combine form, bulk, scale, texture, and color in a manner which ensures the overall building and site design will meet City standards. The project applicant shall demonstrate alignment with the applicable standards through the Design Review and Final Development Plan (FDP) approval process prior to the issuance of any building permit for these lots.

The Preliminary Development Plan (PDP) for the Oak Knoll Project shall incorporate the following measures to be applied at the time of approval of an FDP for single family homes on the Eastern Ridge, which include applicable methods and techniques specified primarily in the *Oakland Interim Design Review Manual for One- and Two-Unit Residence*s (2005). These measures that shall specifically be implemented, as applicable, to each development lot proposed for the custom homes on the Eastern Ridge to ensure careful siting and design of new construction on custom home lots and to require specified landscaping on the lots.

A. General Site Design

(1) Design structures to minimize the appearance of an monotonous row of ridgetop development visible from off-site vantage points; clustering structures is one appropriate technique.

(2) On sloped lots, use courtyards and other spaces to organize building volumes and create transitions from house to land. Avoid filling up side yards with concrete stairs or paved areas that limit landscape and potential usable space. Maintain openness between structures to the extent feasible given the lot configurations and sizes. Avoid long and high building walls close to side lot lines. Provide sufficient side yard setbacks, especially at the front and rear elevations, to allow plantings between the structures to help the perceived mass.

(3) On sloped lots, major shifts in siting from the neighborhood pattern may be warranted to help break-up continuous walls of downslope facades and minimize their collective bulk.

(4) On sloped lots, step building massing with terrain. Step or slope rooflines with the terrain and avoid large gables on downslope lots.

(5) On sloped lots, position the building on the site to minimize height on the downslope side.

(6) At the time of FDP review for each custom lot created on the Eastern Ridge, designate a "buildable development zone" and a "landscape zone" for each sloped lot which shall be delineated to minimize loss of existing vegetation and ensure existing and new vegetation around and between new structures, except as limited for wildfire risk management.

B. Building Design

(1) Where applicable, adhere to all special height restrictions and measuring methods for buildings and retaining walls on sloped lots on the Eastern Ridge, which are established in Sections 17.108.020(B) and 17.09.040 of the Oakland Planning Code, as consistent with the approved PUD for the project, pursuant to Section 17.122.110c.

(2) Use materials and colors having naturalistic quality that will blend into the surrounding landscape.

(3) Avoid blank or under-designed walls from the street. Use multiple materials and/or detailing to break up walls and make large surfaces seem smaller.

(4) On front elevations on upslope lots, emphasize eave lines/roof planes as visually dominant features, group windows horizontally within all planes and at building corners.

(5) On sloped lots, break the building into multiple volumes with staggered setbacks to reflect the irregularity of hillside terrain.

(6) On sloped lots, place floor levels close to and/or partially inset into grade to avoid or minimize tall skirt walls and other tall support structures. Deemphasize skirt walls where they cannot be avoided, as follows:

a) Incorporate a strong horizontal molding or cap at the top of the skirt wall;

b) Change materials and/or colors at the skirt wall to contrast with primary building volume

c) Outwardly taper the skirt wall to create a buttress effect

d) Recess skirt wall from the face of the upper floors

(7) On rear elevations on downslope lots, symmetrically organize windows, decks (etc.) within individual building masses and aligned floor-to-floor, and incorporate windows that appear as "punch-outs" with adequate wall space between windows and balcony columns that read as a lighter open frame.

(8) Provide strong shadow patterns on downslope elevations.

(9) Consider the visual impact on neighborhood appearance and natural in the siting and design of long fences. Fences should not be dominant visual elements on hillsides. Tall fences around the property perimeter are often discouraged.

(10) Discourage placement of antennas on roofs.

C. Landscaping and Open Space

(1) Maintain ample open space between houses or cluster development to increase open space areas as feasible given lot sizes and configuration to assist in reducing building bulk.

(2) Incorporate landscaping that is consistent with the more natural appearing vegetation on the surrounding hills to provide some screening and shade for new buildings.

(3) At the skirt walls, intersperse native species' of trees and/or other landscaping with City-approved, non-native species.

(4) Use irregular plant spacing and plant trees in undulating groups to achieve a grove effect. Especially consider native, fire-resistant species such as coast live oaks, etc. Plant shrubs of varying heights and sizes among trees. (Guideline 10.8, text and figure)

(5) On sloped portions of lots, either maintain natural topography or use a series of stepped terrace/retaining walls to create grade transition between the street and the houses.

(6) Fully landscape all graded surfaces and buffer the structure using quantities of vegetation beyond the basic landscaping requirements of the Oak Knoll Design Guidelines Aim for a natural appearance on graded slopes.

(7) Plant feature trees to diffuse building mass.

(8) Preference should be given to planting and encouraging the growth of desirable low-combustion plant types found in the area. Contrived, non-native landscaping, such as cactus gardens, extreme plant shaping, etc., are inappropriate. Whenever removal of ordinance protected live trees, especially oaks and oak woodlands, is necessary, they shall be replaced by planting, prior to building occupancy, of trees, elsewhere on the property within view from public vantage points.

*Implementation. P*rior to the issuance of any single family residential building permit for the Project, the applicant shall submit FDP project plans that specify "detailed building and landscaping plans and elevations" pursuant to the City's Planned Unit Development (PUD)

procedures for review and approval of Final Development Plans (Chapter 17.140 of the Oakland Planning Code), as well as the City's Residential Design Review and approval process (Chapter 17.136 of the Oakland Planning Code). The City Planning Commission will review the FDP and determine whether it conforms to the approved PDP and Oak Knoll Design Guidelines and to these enhanced design measures.

Replacement Mitigation Measure AES-1 augments the Project's Oak Knoll Design Guidelines to mitigate to less than significant the aesthetics impact of adverse "visual contrast" that would result from new structures, and potential tree loss on the southern end of the Eastern Ridge. Replacement Mitigation Measure AES-1 includes specific measures that will reduce the visual contrast as they are applied, as appropriate for each single family home that is silhouetted against the sky from off-site public vistas through the FDP submittal process. As detailed above, the measures in Mitigation Measure AES-1 are feasible and, specific. Moreover, the Project sponsor has already incorporated some of the measures in Mitigation Measure AES-1 in its current site layout plans.

The adverse impact of the new single family homes on the Eastern Ridge on scenic vistas would be addressed by the homes' design and form (individually and/or collectively), the relative location between structures on adjacent lots, the treatment of intervening spaces, and the use of color and materials. Implementing Replacement Mitigation Measure AES-1 will mitigate the visual contrast impact within the scenic vista primarily by creating development that appears as natural and appropriate to its setting as possible.

On a broad scale, carefully locating building volumes, roof forms and orientations, and providing vegetation between buildings (can prevent several structures from appearing as a monotonous row of skylined buildings, particularly from lower, close-in locations to the Project site which do not capture the context of existing distant hillside development. Clustering techniques are included in and would be balanced with other measures in Replacement Mitigation Measure AES-1 requires use of open spaces, setbacks, landscaping between individual buildings. Landscaping will be implemented pursuant to the Oak Knoll Landscape Guidelines, as augmented by Mitigation Measure AES-1, in addition al full adherence to **SCA AES-2 (Landscape Plan)**. Specific measures will assure variation in how buildings relate to each other, to the topography and overall to the Eastern Ridge

Variations in rooflines, setbacks, colors, wall planes, and the "shapes" that create a particular structure will create significant visual contrast. For individual custom homes, breaking up or de-emphasizing large undifferentiated surfaces (continuous walls) (A.4) through the use of natural and compatible colors, materials and façade articulations (eaves, recessed or punched-out windows, etc.) avoids development that appears boxy or monolithic—a visual contrast to its setting (A.5, B.3 through B.8). The Project's effects can be avoided by the aforementioned measures as well as by positioning homes to minimize building heights (A.6), designing rooflines that step or slope (A.5) de-emphasizing skirt walls (B.6) staggering building setbacks to reflect the irregularity of the hillside terrain (B.5). Together, the implementation of Replacement Mitigation Measure 1 for the homes on of the Eastern Ridge that are silhouetted against the sky

from off-site public viewpoints, as appropriate for each lot, will reduce the visual contrast impact resulting from the proposed development to less than significant.

In summary, implementation of the Oak Knoll Design Guidelines as supplemented by Replacement Mitigation Measure AES-1, will reduce to less than significant the potential impact on scenic vistas resulting from the visual contrast that could result from the new structures, and potential tree loss on portions of the Eastern Ridge.

Impact Conclusion: Less than Significant with SCA and Mitigation.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact; Previous Mitigation Measure Replaced.

Visual Character and Quality

Impact AES-2: The Project would not substantially degrade the existing visual character or quality of the site and its surroundings. (Criterion c) ***(Less than Significant with SCA / Beneficial)***

1998 EIS/EIR.

The 1998 EIS/EIR indicated that development of the Maximum Capacity Alternative would result in beneficial changes to the visual quality of the project site, as well as adverse changes, but not to a significant level. The 1998 EIS/EIR specifically considered the following components of the Maximum Capacity Alternative that would substantially affect the visual quality or visual character of the NMCO site (discussed under the category of "visual resources" in that document):

- **Preservation and Enhancement of Rifle Range Creek.** The Maximum Capacity Alternative would retain, enhance, and extend (by approximately 1,200 feet)[6] the Rifle Range Creek corridor through the site, with substantial removal and revegetation of paved areas (approximately 360,000 square feet). The creation of a landscaped open space along the restored Creek through the center of the project site would result in a beneficial effect as seen from on-site and from adjacent elevated residential areas (i.e., Sequoyah Hills and Ridgemont Skyline).
- **Demolition of Hospital and Redevelopment of North Quadrant.** The Maximum Capacity Alternative would demolish this most dominant and large scale structure on the site, which would generally enhance views from on- and off-site and benefit the visual quality of the site and surrounding area. Redevelopment of this area would include residential buildings with heights of one to three stories and new landscaping.
- **Demolition and Redevelopment of the West Quadrant.** The Maximum Capacity Alternative would redevelop the west quadrant of the site with new commercial neighborhood retail buildings, parking, and signage – introducing a new and different

6 As indicated and assumed in the Initial Study and in this SEIR based on the analysis presented in the 1998 EIS/EIR, improvements to Rifle Range Creek with the Maximum Capacity Alternative would be limited to establishing a riparian habitat buffer zone.

visual character to a portion of Keller Avenue, visible from adjacent neighborhoods to the north. While this development could result in some new view blockage from vantage points along approximately 1,000 feet of Keller Avenue, the 1998 EIS/EIR concluded that the effect would be beneficial given the compatible architectural design and landscape treatment that would be employed.

Other characteristics of the Maximum Capacity Alternative that the 1998 EIS/EIR analyzed include the increased development of mixed uses near the Mountain Boulevard entrance to the site. The analysis determined this would result in "no impact" since the development would retain buffering vegetation, entail a more unified design theme for new construction, and have views to the "relaxed" backdrop of the proposed golf course. The increased public access to new viewing locations onsite – namely Admiral's Hill and the helipad area (i.e., the northwest corner of the site) that would be created was also considered a beneficial effect.

In summary, the 1998 EIS/EIR identified that the Maximum Capacity Alternative would result in "nonsignificant" (i.e., less-than-significant) impacts to visual character and visual quality, with likely beneficial effects. No mitigation was required.

Proposed Project.

The Project would change the visual character and visual quality (collectively, "visual conditions") of the site. It would transform the existing abandoned naval facility by replacing existing asphalt parking lots and previous building pads throughout the site with a new mixed-use community of residential neighborhoods, a retail center, and connected open spaces and recreational facilities. The Project also would restore the currently deteriorated conditions along Rifle Range Creek. New neighborhoods would have diverse housing types that take advantage of the varied topography and terrain of the area and that, collectively, create a substantial change to the existing conditions of the Project site.

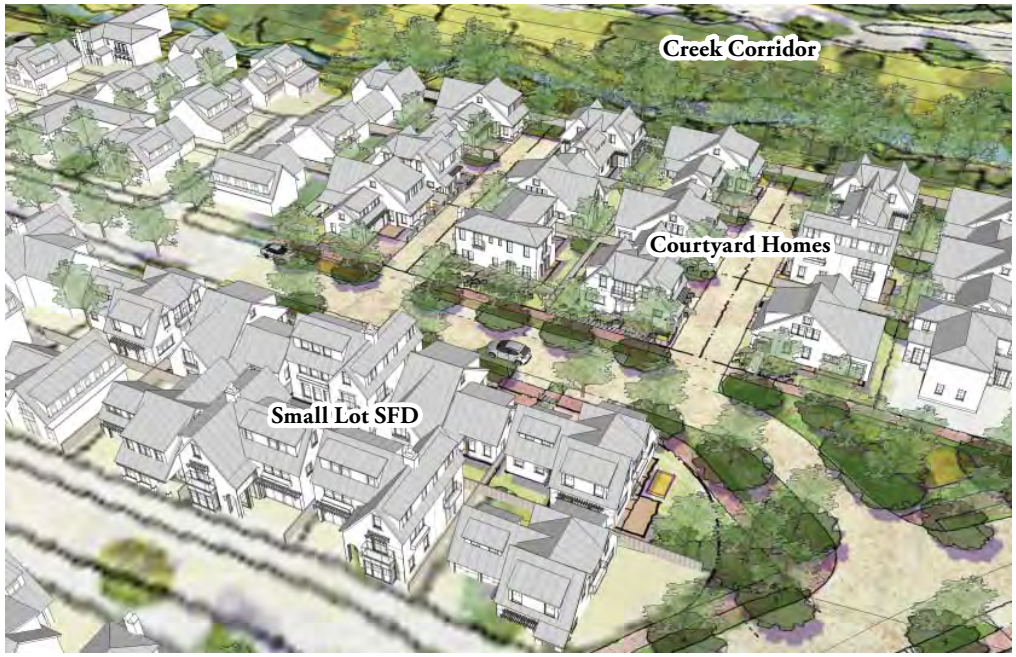
Simulating and Illustrating Change in Visual Conditions

Figures 4.1-5A and 4.1-5B (VP A) presents a simulation that encompass a broad view of nearly the entire Project site from the King Estates Open Space, west of I-580. The simulation, for purposes of this analysis of visual character, conveys the collective mass, height, relationships of Project buildings, and the overall development pattern and visual conditions that would be created compared to existing conditions and within the context of the surrounding area. At a more close-in view, the simulations in Figures 4.1-10A and 4.1-10B and Figures 4.1-11A and 4.1-11B represent the change in visual conditions on the site. Project illustrations prepared by the Project sponsor are shown in **Figures 4.1-13a** through **4.1-13c**, representing images of development in the various neighborhoods, the Village Center, as well as the main Oak Knoll entrance from Mountain Boulevard. As depicted in these simulations and illustrations (some previously discussed in Impact AES-1), the proposed Project would have a substantial change the visual conditions of the site, and the effect would not degrade the existing visual character of the area because it would be developed as part of an integrated and comprehensive development plan for the entire site, and because new development will not be of a substantially different visual character than other existing surrounding development.

SOURCE: Hart Howerton, 2015

Oak Knoll Project . 120645

Figure 4.1-13
Oak Knoll Visual Character and Quality



SOURCE: Hart Howerton / OKVA, 2016

Oak Knoll Project . 120645

Figure 4.1-13a

Small Lot and Courtyard Homes Visual Character

SOURCE: Hart Howerton / OKVA, 2016

Oak Knoll Project . 120645

Figure 4.1-13b

Uplands Visual Character

SOURCE: Hart Howerton / OKVA, 2016

Oak Knoll Project . 120645

Figure 4.1-13c
Typical Site Entrance Visual Character

As discussed in detail under Impact AES-1, the Project will be the combination of development that would occur pursuant to the Oak Knoll Project PUD/PDP, the Oak Knoll Design Guidelines, the Oak Knoll Landscape Master Plan and Complete Streets Guide, and the development standards that would be part of the proposed zoning. The Project-specific guidelines and standards included in these documents and relevant to this analysis are summarized in Tables 4.1-1 and 4.1-2. In addition, the Project will incorporate **SCA AES-1 (Graffiti Control)**, which would pertain primarily to the Village Center facilities and other public areas of the Project, such as the community center and parks and plazas.

As also discussed in Impact AES-1, the City will evaluate all aspects of the Project against the Oakland Planning Code prior to acting on the Project, and separate from the environmental analysis presented in this Draft SEIR. Specifically, all submitted final designs for development within Oak Knoll (e.g., Final Development Plans) will be reviewed for their consistency with the principles and regulations set forth in the Oak Knoll Design Guidelines, as well as findings in the applicable City of Oakland Residential Design Review criteria and PUD permit criteria, both discussed below.

Oakland Residential Design Review Criteria and PUD Permit Criteria

The City‘s significance criterion for visual character and quality (Criterion c) specifies that, for projects requiring design review (like the proposed Oak Knoll Project), the CEQA assessment shall consider a project’s consistency with the applicable design review criteria; a project consistent with the design review criteria will generally be found to result in a less-than-significant impact on visual character. As stated above, the City will conduct the design review of the Project separate from the environmental analysis this Draft SEIR

Summary

A significance determination here considers the extent of change in the appearance of the project area, and whether that change would be substantially adverse, damaging, or degrading when compared to baseline conditions. Additionally, the City’s significance criterion considers a project consistent with the applicable design review criteria in the Oakland Planning Code will have a less-than-significant impact. Based on the assessment of Impact AES-2 above, the Project would not have a negative effect on the existing visual conditions of the Project Site and it would generally meet the applicable residential design review criteria relevant to this topic. The Project’s impacts would be less than significant.

Lastly, beneficial effects to visual character and visual quality would result with specific aspects of the Project as well: the restoration of Rifle Range Creek; the introduction of restored oak woodland and open space areas; the proposed relocation and rehabilitation of Club Knoll to a prominent location within the Project site; and development of new, high-quality development that would be well-maintained and consistent with the surrounding hillside residential development.

Impact Conclusion: Less than Significant / Beneficial.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact; No Mitigation Measures Identified.

Light and Glare

Impact AES-3: The proposed Project would not create a new source of substantial light or glare which would substantially and adversely affect day or nighttime views in the area. (Criterion d) ***(Less than Significant with SCA)***

1998 EIS/EIR.

The 1998 EIS/EIR indicated that most of the proposed land uses in the Maximum Capacity Alternative would not cause significant light and glare issues since it would introduce residential and commercial land uses that would generate light and glare levels typical of similar residential mixed use development in the area. The exception was the high intensity outdoor lighting that would be associated with nighttime recreational facilities, such as the golf course, driving range, and ball fields, etc. Active, outdoor recreational facilities in particular (tennis courts, baseball and soccer fields, and 6-acre driving range) were proposed to be located in the southwest corner of the site, in close proximity to single family residences; however, no impact was identified in the 1998 EIS/EIR.

Proposed Project.

The proposed Project would create a new residential community that would generate light and glare levels typical of similar residential and neighborhood commercial developments in the area.

Retail Village

The approximately 72,000 square feet of commercial / retail uses that would be developed in the Village Center in the westernmost area of the Project site, in addition to approximately 10,000 square feet of community commercial uses in the relocated Club Knoll building, would create new sources of commercial lighting from the site. In the Village Center, the Project would incorporate fixed, indirect exterior lighting at building entrances and along streets, walkways, and plazas throughout, per the Commercial Development Standards in the Oak Knoll Design Guidelines.

The Village Center (and associated parking areas) would be located about 250 feet from existing apartments across Mountain Boulevard. Dense, mature landscaping exists on the residential property, creating a substantial visual barrier to these buildings. Existing pole lighting about 30-40-feet tall exist at the Mountain Boulevard entrance to the Oak Knoll site and as street lighting along Mountain Boulevard. While the change in visible lighting from the Village Center that would occur in this area may not be substantially greater than existing conditions. The Project will include specific lighting standards to prevent noticeable light spill to the nearby residential uses through compliance with the City's **SCA AES-3 (Lighting)**, which requires that all new exterior lighting fixtures shall be adequately shielded to a point below the light bulb and reflector

to prevent unnecessary glare onto adjacent properties. Outdoor lighting fixtures for the Project would be designed with downward-pointing lights, side shields, and visors to address commercial lighting levels cast toward residential uses. Further, architectural standards for the retail center would prohibit use of highly reflective exterior materials that could create glare effects on adjacent streets or at nearby properties.

Street Lighting

The proposed Project will incorporate street lighting throughout, with specific design, type and location will be specified in the FDP and, subject to review and approval by the City to ensure compliance with the PUD/PDP. The Project proposes street lighting at varying heights corresponding with their function and the street type. The 20-foot tall fixture would be placed along the primary collector street, Creekside Parkway, with the 16-foot tall fixture along local streets, such as Creekside Loop; and the 14-foot tall fixture on the upland and creekside roadways and Creekside Loop Bridge. The Project proposes to retain existing cobra head street lighting on the west side of Mountain Boulevard, offsite. Per the Greenhouse Gas Reduction Plan (GGRP) (provided in **Appendix W** to this Draft SEIR), the Project may provide for the installation of up to 230 new Light Emitting Diode (LED) street lights. LED streetlights cast a whiter and cleaner illumination than the yellow-ish and often hazy lighting emitted from typical high-pressure sodium gas luminaires. As mentioned above, the incorporation of SCA AES-3 (Lighting) as well as other City requirements will ensure no new adverse substantial light or glare at nighttime.

Parks, Open Space and Trails

As depicted in Figure 3-10, proposed parks, open spaces and plazas within Oak Knoll would include active and passive recreation facilities that would involve lighting for function and safety. Portions of the proposed trails network throughout the Project site also could be lighted. The lighting effects from these types of facilities proposed by the Oak Knoll Project would be typical of those that exist through nearby open space areas and near residential neighborhoods, i.e., low-scale, pedestrian oriented, and with low illumination levels sufficient to provide adequate night visibility.

Summary

In addition to the prescriptions for the location, types, and level of lighting that would be incorporated with all development on the Project site – especially in the Village Center and areas of active and passive recreation – potential adverse effects would be substantially limited by the existing topography and vegetation around the site which limits the visibility of the site from off-site locations. In summary, the Project would not create a new source of substantial light or glare that would adversely affect day or nighttime views in the area. The impact would be less than significant.

Impact Conclusion: Less than Significant with SCA.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact; No Mitigation Measure Identified.

Shadow on Public Open Spaces

Impact AES-4: The proposed Project would not cast shadow that substantially impairs the beneficial use of any public or quasi-public park, lawn, garden, or open space. (Criterion g) ***(Less than Significant)***

1998 EIS/EIR.

The 1998 EIS/EIR did not evaluate the Maximum Capacity Alternative's shadow effects on the existing solar collection facilities or existing publicly-accessible open spaces near the project site. No impact was identified.

Proposed Project.

There are no adjacent public open spaces that would be affected by shadow cast by Project buildings. The closest portion of the Leona Regional Open Space is located northeast of the site, approximately 200 linear feet (across Keller Avenue) from the dense vegetation along the northeast edge of the Oak Knoll Project site. The closest Project development would be located approximately 500 feet from (and at substantially higher elevation than) the Leona Regional Open Space and include single family residences in Uplands East (see simulation in Figure 4.1-8A and 4.1-8B). The maximum allowable height of these homes would be 30 feet (2.0 stories). Given the relative location and elevation of proposed development to this the nearby open space, even the worst-case shadow cast from the Uplands East single family homes would not extend to the open space and therefore could not substantially impair the use of the open space area.[7]

Additionally, the proposed Project includes restoration of Rifle Range Creek that flows across the site (generally north to south) and is identified in the General Plan OSCAR Element as a priority area for "creek restoration, conservation, or access." As shown in Figure 4.1-2, the Oak Knoll Master Plan, as factored into the Oak Knoll PUD/PDP and development standards, ample setbacks will be maintained from the Creek corridor or related recreational facilities (e.g., trails/paths).

The Creek itself, and its associated riparian habitat areas, would not be publicly accessible and are not necessarily shade sensitive. The area is currently overgrown and the existing vegetative canopy over the creek provides native habitat and shade that lowers water temperature in the creek, which is generally beneficial for native aquatic wildlife (ESA, 2016). The proposed Creek planting plans would maintain an adequate vegetative canopy for riparian habitat and wildlife (see **Appendix N** to this Draft EIR.) Therefore, remote potential for adverse shading within the Creek corridor and conservation area would not be considered an adverse effect.

In summary, the Project would not create substantial adverse shadow effects on existing nearby public open space areas (i.e., Leona Regional Open Space and Rifle Range Creek, pursuant to the OSCAR Element of the Oakland General Plan). The impact would be less than significant.

7 Worst-case shadows generally occur during winter and spring (between the winter solstice in December and the spring equinox in March) when shadows are longest.

Impact Conclusion: Less than Significant.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact, Not Previously Analyzed, No Mitigation Measure Identified.

Shadow on Historic Resources

Impact AES-5: The proposed Project would not cast shadow on a historic resource such that the shadow would materially impair the resource's historical significance. (Criterion h) ***(Less than Significant)***

1998 EIS/EIR.

The 1998 EIS/EIR did not evaluate the Maximum Capacity Alternative's shadow effects on historic resources, as defined for purposes of CEQA. The 1998 EIS/EIR concluded that there were no significant historic resources located on the property. At the time that document was prepared, Club Knoll was included on the City of Oakland's Local Register of Historic Resources as a "Designated Historic Property" and thus a historic resource under CEQA.), but no impact was identified.

Proposed Project.

As discussed in Section 4.4, *Cultural and Paleontological Resources*, in this Draft SEIR, Club Knoll is a historic resource. The Project proposes to relocate Club Knoll to the Creekside Village neighborhood, for use as the Oak Knoll community center with ancillary fitness club and retail space. A significant impact would occur if shadow cast by the Project would materially impair the historic significance of any historic resources on or near the Project site. Conservatively, this analysis presumes that Club Knoll will remain a CEQA historical resource after its relocation and rehabilitation.

As shown in Figures 3-10 and 3-14 and 3-14b, Club Knoll would be situated within a new "large community park" of approximately 2.7 acres in the Creekside Village neighborhood. The park would front Rifle Range Creek and be bordered on its remaining sides by the 58-foot wide (right-of-way) Creekside Loop street. The closest development to the park would be townhomes on the opposite side of Creekside Loop, at least approximately 100 feet from the park. The townhomes could be up to 40 feet in height and would be subject to standards for "High Visibility–Open Space," pursuant to the proposed Oak Knoll Design Guidelines and development standards that would be defined in the new zoning.

Factoring the proposed size of the park, the distance between the park's edge and the nearest proposed structures (townhomes), and the maximum height of the proposed Oak Knoll townhomes, it is not anticipated that the Project would cast shadow on Club Knoll for prolonged periods throughout the year or on any particular day. This presumes a worst-case scenario where the Club Knoll structure may be relocated to the edge of the proposed park – closest to the townhome development. Therefore, the Project would not cause substantial, if any, shadow that

would materially impair the relocated Club Knoll's historic significance. The impact would be less than significant.

Impact Conclusion: Less than Significant.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact, Not Previously Analyzed, No Mitigation Measure Identified.

Cumulative Impacts

Impact AES-6: The proposed Project would not result in a significant cumulative aesthetics impact when considering the combined effect of the Project, and past, present, approved, pending, and reasonably foreseeable future projects. (Less than Significant with SCAs)

Geographic Context

As analyzed throughout this section, the proposed Project would not result in a significant adverse aesthetics effects (Impacts AES-1 through AES-5). This analysis considers cumulative development (past, present, existing, approved, pending, and reasonably foreseeable future projects, as described in Section 4.0, Environmental Analysis), in combination with the proposed Project, to determine if their effects would combine to result in a significant cumulative impact.

The geographic context used for the cumulative assessment of aesthetics impacts includes areas with views to or across the Project site. The site is visible from very limited off-site locations due to (1) dense, mature vegetation along segments of the site perimeter, (2) intervening development, and (3) significant elevation changes at the edges of the Project site that create the effect of a low-lying bowl-shaped property. Potential effects to existing prominent visual features or scenic resources on the Project site are considered: the Northwest Knoll and Hillside; the Southeast Knoll and Hillside; and the Eastern Ridge, Knoll, and Hillside (see Figure 4.1-2).

Impact Discussion

The 1998 EIS/EIR did not identify a significant cumulative impact to visual resources, considering the Maximum Capacity Alternative in combination with cumulative development (e.g., Leona Quarry), since the two projects were not considered to be within the same viewshed (i.e. visible at the same time from a single viewpoint).

The currently Oak Knoll Project site vicinity is largely built out with residential neighborhoods and developments of varying density and building types, including neighborhood commercial nodes and regional open spaces. Development considered within Oakland's Cumulative Growth Scenario that could be considered within the cumulative visual context for the project is the Leona Quarry Residential Development that fronts I-580, approximately one mile north of the site, the relatively recently constructed Siena Hill development of approximately 32 new residences on Keller Avenue, between Greenridge Drive and Rilea Way (north of the project site); and three new residences recently developed further east on Keller Avenue. In addition to these recent projects, further past

development in the area and reflected in the regional growth model has aligned with the Oakland General Plan and Planning Code, creating the development pattern of largely hillside residential neighborhoods and regional open space described throughout this section.

Conservatively, it is anticipated that more future development or redevelopment could occur in the Oak Knoll vicinity – particularly in areas designated for residential or neighborhood commercial uses by the General Plan. However, the City has not identified any foreseeable major development projects that may occur within the Oak Knoll viewshed corridors. Moreover, because the surrounding area is substantially developed, there is little opportunity for more or substantial future development within the Oak Knoll viewsheds.

The previously mentioned Leona Quarry Residential Project is a major nearby development, the temporarily graded portions of which created a prominent visual effect as viewed from I-580, as well as from most mid- and long- range viewpoints in the west and southern areas of the city – as far away as the Oakland Estuary (and beyond, from southwest San Francisco). These views from distant locations to the west, such as the Oakland International Airport, are expansive of most of the southeast Oakland. These views could potentially capture the Oak Knoll Project site (although it is largely obscured by the King Estates Ridge just west of I-580), the Leona Quarry Project site, and the overall context of other existing hillside and ridge development that exists north and south of Oak Knoll (generally along I-580 and Highway 13), and south of Oak Knoll (generally between I-580 and the Oakland flatlands). Overall, viewpoints that capture the Project site in a cumulative context to assess combined effects to scenic vistas and scenic resources, visual character and visual quality, lighting and glare, as well as shadow effects, are limited or very distant to the west.

Although some of the existing development within the viewshed currently appears prominent along hillsides and ridges above (east) of the Project site, all future development would be required to adhere to existing regulations, standards, policies, and design criteria and guidelines that address building appearance, height, bulk, configuration and suitability to the environmental context. In particular, the City's design review criteria set forth in the Oakland Planning Code primarily considers a project's appropriateness to its physical setting. Also, the Oakland Design Review process, which will include a review of adherence to all applicable development standards, would help ensure that future cumulative development, taken together with the Oak Knoll Project, would not result in a significant cumulative aesthetic impacts.

In summary, the Project, in combination with other cumulative development that is or could be viewed in the future within the context of other hillside and ridge development throughout the Oakland Hills, would not result in cumulative changes that would substantially degrade existing aesthetics conditions on the Project site or its surroundings. The impact is less than significant

Impact Conclusion: Less than Significant with SCAs.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact. No Mitigation Measure Required.

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4.2 Air Quality

4.2.1 Introduction

This section assesses the potential for the Project to result in significant adverse air quality impacts. To determine whether the proposed Project would result in any new air quality impacts, or increases in the severity of air quality impacts previously disclosed in the 1998 EIS/EIR, this analysis considers the impacts that would result from construction and operation activities that would take place within the Project area, and compares these impacts to those identified in the previous EIS/EIR, and mitigation measures in that document. Potential impacts are discussed and evaluated, and appropriate mitigation measures or Standard Conditions of Approval (SCA) are identified, as necessary.

4.2.2 Physical Setting

Climate and Meteorology

Atmospheric conditions such as wind speed, wind direction, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants. The Project is located in the City of Oakland and is within the boundaries of the San Francisco Bay Area Air Basin (Bay Area). The Bay Area Air Basin encompasses the nine-county region including all of Alameda, Contra Costa, Santa Clara, San Francisco, San Mateo, Marin and Napa counties, and the southern portions of Solano and Sonoma counties. The climate of the Bay Area is determined largely by a high-pressure system that is almost always present over the eastern Pacific Ocean off the West Coast of North America. During winter, the Pacific high-pressure system shifts southward, allowing more storms to pass through the region. During summer and early fall, when few storms pass through the region, emissions generated within the Bay Area can combine with abundant sunshine under the restraining influences of topography and subsidence inversions to create conditions that are conducive to the formation of photochemical pollutants, such as ozone and secondary particulates, such as nitrates and sulfates.

More specifically, the Project Area lies within the Northern Alameda and Western Contra Costa Counties climatological subregion. This subregion extends from Richmond to San Leandro with San Francisco Bay as its western boundary, and its eastern boundary defined by the Oakland-Berkeley Hills. In this area, marine air traveling through the Golden Gate, as well as across San Francisco and the San Bruno Gap (a gap in the Coastal Range between the ocean and the San Francisco Airport), is a dominant weather factor. The Oakland-Berkeley Hills cause the westerly flow of air to split off to the north and south of Oakland, which causes diminished wind speeds. The air pollution potential in this subregion is relatively low for portions close to the Bay, due to the largely good ventilation and less influx of pollutants from upwind sources (Bay Area Air Quality Management District [BAAQMD], 2012a).

Wind measurements taken at Oakland International Airport indicate that the predominant wind flow is out of the west-northwest. Northwest winds occur approximately 46 percent of the time.

Average wind speeds vary from season to season with the strongest average winds occurring during summer and the lightest average winds during winter. Average wind speeds are 9.7 miles per hour (mph) during summer and 7.4 mph during winter. Temperatures in Oakland average 58 ^{o}F annually, ranging from an average of 40^{o}F on winter mornings to an average of mid-70s in the late summer afternoons. Daily and seasonal oscillations of temperature are small because of the moderating effects of the nearby ocean. In contrast to the steady temperature regime, rainfall is highly variable and confined almost exclusively to the "rainy" period from early November to mid-April. Oakland averages 18 inches of precipitation annually, but because much of the area's rainfall is derived from the fringes of mid-latitude storms, a shift in the annual storm track of a few hundred miles can mean the difference between a very wet year and near drought conditions.

Existing Air Quality

The BAAQMD operates a regional monitoring network that measures the ambient concentrations of the six criteria air pollutants. Existing and probable future levels of air quality in Oakland can generally be inferred from ambient air quality measurements conducted by the BAAQMD at its nearby monitoring stations. The monitoring station closest to the Plan Area is the International Boulevard station in Oakland, approximately two miles southwest of the Project Area. The International Boulevard station monitors all pollutants except PM_{10}. PM_{10} concentrations are not available for any of the monitoring stations in Oakland.

Since the major pollutants of concern in the San Francisco Bay Area are O_3 and PM, **Table 4.2-1** shows a five-year summary of monitoring data (2011 through 2015) for these pollutants from the International Boulevard station. Due to the proximity of the Project Area to the International Boulevard station, air quality measurements gathered at this station are understood to be generally representative of conditions within the Project Area. Table 4.2-1 also compares measured pollutant concentrations with State and national ambient air quality standards (see Regulatory Setting below).

Criteria Air Pollutants

Ozone (O_3)

Short-term exposure to ozone can irritate the eyes and cause constriction of the airways. Besides causing shortness of breath, ozone can aggravate existing respiratory diseases such as asthma, bronchitis, and emphysema. Ozone is not emitted directly into the atmosphere, but is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving reactive organic gases (ROG) and nitrogen oxides (NO_X). ROG and NO_X are known as precursor compounds for ozone. Significant ozone production generally requires ozone precursors to be present in a stable atmosphere with strong sunlight for approximately three hours. Ozone is a regional air pollutant because it is not emitted directly by sources, but is formed downwind of sources of ROG and NO_X under the influence of wind and sunlight. Ozone concentrations tend to be higher in the late spring, summer, and fall, when the long sunny days combine with regional subsidence inversions to create conditions conducive to the formation and accumulation of secondary photochemical compounds, like ozone.

TABLE 4.2-1
AIR QUALITY DATA SUMMARY (2011–2015) FOR THE PROJECT AREA

Pollutant	Standard	Monitoring Data by Year				
		2011	2012	2013	2014	2015
Ozone						
Highest 1-Hour Average (ppm)	0.09 ppm	0.091	0.072	0.076	0.083	0.0943
Days over State Standard		0	0	0	0	0
Highest 8-Hour Average (ppm)	0.070 ppm	0.052	0.045	0.064	0.068	0.074
Days over State Standard		0	0	0	0	2
Days over National Standard	0.075 ppm	0	0	0	0	0
Fine Particulate Matter ($PM_{2.5}$)						
Highest 24-Hour Average (µg/m^3)	35 µg/m^3	49.3	33.6	37.9	37.6	44.4
Measured Days over National Standard		3	0	2	1	1
State Annual Average (µg/m^3)	12 µg/m^3	10.1	9.4	10.3	8.5	-
National Annual Average (µg/m^3)	12.0 µg/m^3	10.1	9.5	10.4	8.6	8.4
Nitrogen Dioxide (NO_2)						
Highest Hourly Average (ppm)	0.18 ppm	0.056	0.065	0.06	0.082	0.048
Measured Days over State Standard		0	0	0	0	0
Carbon Monoxide (CO)						
Highest 8-Hour Average (ppm)	9.0 ppm	1.5	1.57	--	--	--
Measured Days over State Standard		0	0	--	--	--

NOTES:
1. "—"- indicates that data are not available. Measurements are from the International Boulevard Monitoring Station in Oakland.
2. Generally, State standards and national standards are not to be exceeded more than once per year.
3. A violation occurs only if the standard is exceeded. Because 0.092 rounds to 0.09, it is not considered a violation. A recorded concentration of 0.095 or greater would constitute a violation of the State standard.
4. ppm = Parts per million ; µg/m^3 = Micrograms per cubic meter

SOURCE: CARB, 2016.

Carbon Monoxide (CO)

Ambient carbon monoxide concentrations normally are considered a local effect and typically correspond closely to the spatial and temporal distributions of vehicular traffic. Wind speed and atmospheric mixing also influence carbon monoxide concentrations. Under inversion conditions, carbon monoxide concentrations may be distributed more uniformly over an area that may extend some distance from vehicular sources. When inhaled at high concentrations, carbon monoxide combines with hemoglobin in the blood and reduces the oxygen-carrying capacity of the blood. This results in reduced oxygen reaching the brain, heart, and other body tissues. This condition is especially critical for people with cardiovascular diseases, chronic lung disease, or anemia, as well as for fetuses.

Carbon monoxide concentrations have declined dramatically in California due to existing controls and programs and most areas of the state including the Plan Area region have no problem meeting the carbon monoxide state and federal standards. CO measurements and modeling were important in the early 1980s when CO levels were regularly exceeded throughout California. In more recent years, CO measurements and modeling have not been a priority in most California air districts

due to the retirement of older polluting vehicles, fewer emissions from new vehicles, and improvements in fuels. The clear success in reducing CO levels is evident in the first paragraph of the executive summary of the California Air Resources Board (CARB) *2004 Revision to the California State Implementation Plan for Carbon Monoxide Updated Maintenance Plan for Ten Federal Planning Areas* (CARB, 2004), shown below:

> "The dramatic reduction in carbon monoxide (CO) levels across California is one of the biggest success stories in air pollution control. Air Resources Board (ARB or Board) requirements for cleaner vehicles, equipment and fuels have cut peak CO levels in half since 1980, despite growth. All areas of the State designated as non-attainment for the federal 8-hour CO standard in 1991 now attain the standard, including the Los Angeles urbanized area. Even the Calexico area of Imperial County on the congested Mexican border had no violations of the federal CO standard in 2003. Only the South Coast and Calexico continue to violate the more protective State 8-hour CO standard, with declining levels beginning to approach that standard."

Nitrogen Dioxide (NO_2)

NO_2 is a reddish brown gas that is a by-product of combustion processes. Automobiles and industrial operations are the main sources of NO_2. NO_2 may be visible as a coloring component of a brown cloud on high pollution days, especially in conjunction with high ozone levels.

Nitrogen dioxide is an air quality concern because it acts as a respiratory irritant and is a precursor of ozone. Nitrogen dioxide is a major component of the group of gaseous nitrogen compounds commonly referred to as nitrogen oxides (NO_X). Nitrogen oxides are produced by fuel combustion in motor vehicles, industrial stationary sources (such as industrial activities), ships, aircraft, and rail transit. Typically, nitrogen oxides emitted from fuel combustion are in the form of nitric oxide (NO) and NO_2. NO is often converted to NO_2 when it reacts with ozone or undergoes photochemical reactions in the atmosphere. Therefore, emissions of NO_2 from combustion sources are typically evaluated based on the amount of NO_X emitted from the source.

Sulfur Dioxide (SO_2)

SO_2 is a combustion product of sulfur or sulfur-containing fuels such as coal and diesel. SO_2 is also a precursor to the formation of atmospheric sulfate, particulate matter, and contributes to potential atmospheric sulfuric acid formation that could precipitate downwind as acid rain.

Particulate Matter (PM)

PM_{10} and $PM_{2.5}$ consist of particulate matter that is 10 microns or less in diameter and 2.5 microns or less in diameter, respectively (a micron is one-millionth of a meter). PM_{10} and $PM_{2.5}$ represent fractions of particulate matter that can be inhaled into the air passages and the lungs and can cause adverse health effects. Some sources of particulate matter, such as wood burning in fireplaces, demolition, and construction activities, are more local in nature, while others, such as vehicular traffic, have a more regional effect. Very small particles of certain substances (e.g., sulfates and nitrates) can cause lung damage directly, or can contain adsorbed gases (e.g., chlorides or ammonium) that may be injurious to health. Particulates also can damage materials and reduce

visibility. Large dust particles (diameter greater than 10 microns) settle out rapidly and are easily filtered by human breathing passages. This large dust is of more concern as a soiling nuisance rather than a health hazard. The remaining fraction, PM_{10} and $PM_{2.5}$, are a health concern particularly at levels above the federal and state ambient air quality standards. $PM_{2.5}$ (including diesel exhaust particles) is thought to have greater effects on health, because these particles are so small and thus, are able to penetrate to the deepest parts of the lungs. Scientific studies have suggested links between fine particulate matter and numerous health problems including asthma, bronchitis, acute and chronic respiratory symptoms such as shortness of breath and painful breathing. Recent studies have shown an association between morbidity and mortality and daily concentrations of particulate matter in the air. Children are more susceptible to the health risks of PM_{10} and $PM_{2.5}$ because their immune and respiratory systems are still developing.

Mortality studies since the 1990s have shown a statistically significant direct association between mortality (premature deaths) and daily concentrations of particulate matter in the air. Despite important gaps in scientific knowledge and continued reasons for some skepticism, a comprehensive evaluation of the research findings provides persuasive evidence that exposure to fine particulate air pollution has adverse effects on cardiopulmonary health (Dockery and Pope, 2006).

Lead

Ambient lead concentrations meet both the federal and state standards in the Plan Area. Lead has a range of adverse neurotoxin health effects, and was formerly released into the atmosphere primarily via leaded gasoline products. The phase-out of leaded gasoline in California resulted in decreasing levels of atmospheric lead. Development under the proposed Project would not introduce any new sources of lead emissions; consequently, lead emissions are not required to be quantified and are not further evaluated in this analysis.

Air Quality Index

The U.S. EPA developed the Air Quality Index (AQI) scale to make the public health impacts of air pollution concentrations easily understandable. The AQI, much like an air quality "thermometer," translates daily air pollution concentrations into a number on a scale between 0 and 500. The numbers in the scale are divided into six color-coded ranges, with numbers 0-300 as outlined below:

- Green (0-50) indicates "good" air quality. No health impacts are expected when air quality is in the green range.
- Yellow (51-100) indicates air quality is "moderate." Unusually sensitive people should consider limited prolonged outdoor exertion.
- Orange (101-150) indicates air quality is "unhealthy for sensitive groups." Active children and adults, and people with respiratory disease, such as asthma, should limit outdoor exertion.
- Red (151-200) indicates air quality is "unhealthy." Active children and adults, and people with respiratory disease, such as asthma, should avoid prolonged outdoor exertion; everyone else, especially children, should limit prolonged outdoor exertion.

- Purple (201-300) indicates air quality is "very unhealthy." Active children and adults, and people with respiratory disease, such as asthma, should avoid prolonged outdoor exertion; everyone else, especially children, should limit outdoor exertion.

The AQI numbers refer to specific amounts of pollution in the air. They are based on the federal air quality standards for ozone, CO, NO_2, SO_2, PM_{10}, and $PM_{2.5}$. In most cases, the federal standard for these air pollutants corresponds to the number 100 on the AQI chart. If the concentration of any of these pollutants rises above its respective standard, it can be unhealthy for the public. In determining the air quality forecast, local air districts, including the BAAQMD, use the anticipated concentration measurements for each of the major pollutants, convert them into AQI numbers, and determine the highest AQI for each zone in a district.

Readings below 100 on the AQI scale would not typically affect the health of the general public (although readings in the moderate range of 50 to 100 may affect unusually sensitive people). Levels above 300 rarely occur in the United States, and readings above 200 have not occurred in the Bay Area in decades. Historical BAAQMD data indicate that the SFBAAB experienced air quality in the Red level (unhealthy) on two days between the years 2010 and 2014. As shown in **Table 4.2-2**, the SFBAAB had a total of 14 Orange-level (unhealthy for sensitive groups) days in 2010, 12 days in 2011, 8 days in 2012, 15 days in 2013, and 11 days 2014.

TABLE 4.2-2
AIR QUALITY INDEX STATISTICS FOR THE SAN FRANCISCO BAY AREA AIR BASIN

AQI Statistics for San Francisco Bay Area Air Basin	Number of Days by Year				
	2010	2011	2012	2013	2014
Unhealthy for Sensitive Groups (Orange)	14	12	8	15	11
Unhealthy (Red)	1	0	0	1	1

SOURCE: BAAQMD, 2016.

Toxic Air Contaminants (TACs)

TACs are air pollutants that may lead to serious illness or increased mortality, even when present in relatively low concentrations. Potential human health effects of TACs include birth defects, neurological damage, cancer, and death. There are hundreds of different types of TACs with varying degrees of toxicity. Individual TACs vary greatly in the health risk they present; at a given level of exposure, one TAC may pose a hazard that is many times greater than another. In 1998, the California Air Resources Board (CARB) classified diesel particulate matter (DPM) as a TAC, citing its potential to cause cancer and other health problems. The US Environmental Protection Agency (USEPA) concluded that long-term exposure to diesel engine exhaust is likely to pose a lung cancer hazard to humans and can also contribute to other acute and chronic health effects.

TACs do not have ambient air quality standards, but are regulated by the BAAQMD using a risk-based approach. This approach uses a health risk assessment to determine what sources and

pollutants to control as well as the degree of control. A health risk assessment is an analysis of exposure to toxic substances and human health risks from exposure to toxic substances is estimated, based on the potency of the toxic substances.[1]

The BAAQMD provides a publicly available inventory of TAC-related health risks for permitted stationary sources throughout the San Francisco Bay Area Air Basin as well as for freeways. The inventory presents community risk and hazards from screening tools and tables that are intentionally conservative. The screening-level risk factors derived from the BAAQMD's tool are intended to indicate whether additional review related to the impact is necessary and are not intended to be used to assess actual risk for all projects. The BAAQMD's most recently updated (May 2012) Google Earth-based inventory of stationary source risks and hazards indicates two permitted TAC sources (a gasoline dispensing facility and an emergency diesel generator) within a radius of 1,000 feet of the Project area. However, I-580, located adjacent to the western boundary of the Project area contributes to the majority of the risk at the Project site. There are no existing sources within the Project site.

Odorous Emissions

Though offensive odors from stationary sources rarely cause any physical harm, they still remain unpleasant and can lead to public distress generating citizen complaints to local governments. The occurrence and severity of odor impacts depend on the nature, frequency and intensity of the source; wind speed and direction; and the sensitivity of receptors. The CEQA Guidelines recommends that odor impacts be considered for any proposed new odor sources located near existing receptors, as well as any new sensitive receptors located near existing odor sources. Generally, increasing the distance between the receptor and the source would mitigate odor impacts.

The BAAQMD provides examples of odor sources which include wastewater treatments plants, landfills, confined animal facilities, composting stations, food manufacturing plants, refineries and chemical plants. In accordance with the recommendations in the BAAQMD Guidelines, the City has mapped known odor sources within its jurisdiction. The Project site is not located within the buffer areas of any of the odor sources mapped by the City mapped in accordance with the BAAQMD factors (City of Oakland, 2010).

4.2.3 Regulatory Setting

Ambient Air Quality Standards

The Federal Clean Air Act (FCAA) requires the U.S. Environmental Protection Agency (USEPA) to identify National Ambient Air Quality Standards (NAAQS or "national standards") to protect public health and welfare. National standards have been established for ozone, CO, NO_2, SO_2, respirable particulate matter (PM_{10} and $PM_{2.5}$), and lead. Pursuant to the 1990 FCAA amendments,

[1] A health risk assessment is required for permitting approval if the BAAQMD concludes that projected emissions of a specific air toxic compound from a proposed new or modified source suggest a potential public health risk. In these instances, a health risk assessment for the source in question must be prepared. Such an assessment generally evaluates chronic, long-term effects, calculating the increased risk of cancer as a result of exposure to one or more TACs.

the USEPA classifies air basins (or portions thereof) as "attainment" or "nonattainment" for each criteria air pollutants, based on whether or not the NAAQS had been achieved.

Table 4.2-3 shows the current national and State ambient air quality standards for each pollutant as well as the attainment status of the Bay Area with respect to these standards.

TABLE 4.2-3
AMBIENT AIR QUALITY STANDARDS AND
SAN FRANCISCO BAY AREA AIR BASIN ATTAINMENT STATUS

Pollutant	Averaging Time	State Standard	SF Air Basin Attainment Status for California Standard	Federal Primary Standard	SF Air Basin Attainment Status for Federal Standard
Ozone	8 Hour	0.070 ppm	Non-Attainment	0.070 ppm	Non-Attainment
	1 Hour	0.09 ppm	Non-Attainment	---	---
Carbon Monoxide	8 Hour	9.0 ppm	Attainment	9 ppm	Attainment
	1 Hour	20 ppm	Attainment	35 ppm	Attainment
Nitrogen Dioxide	Annual Average	0.030 ppm	---	0.053 ppm	Attainment
	1 Hour	0.18 ppm	Attainment	0.100 ppm	Unclassified
Sulfur Dioxide	Annual Average	---	---	0.030 ppm	Attainment
	24 Hour	0.04 ppm	Attainment	0.14 ppm	Attainment
	1 Hour	0.25 ppm	Attainment	0.075 ppm	Attainment
Respirable Particulate Matter (PM_{10})	Annual Arithmetic Mean	20 $\mu g/m^3$	Non-Attainment	---	---
	24 Hour	50 $\mu g/m^3$	Non-Attainment	150 $\mu g/m^3$	Unclassified
Fine Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	12 $\mu g/m^3$	Non-Attainment	12.0 $\mu g/m^3$	Unclassified/Attainment
	24 Hour	---	---	35 $\mu g/m^3$	Non-Attainment
Sulfates	24 Hour	25 $\mu g/m^3$	Attainment	---	---
Lead	Calendar Quarter	---	---	1.5 $\mu g/m^3$	Attainment
	30-Day Average	1.5 $\mu g/m^3$	Attainment	---	---
	3-Month Rolling Average	---	---	0.15 $\mu g/m^3$	Unclassified
Hydrogen Sulfide	1 Hour	0.03 ppm	Unclassified	No Federal Standard	---
Vinyl Chloride	24 Hour	0.010 ppm	No information available	---	---
Visibility Reducing Particles	8 Hour	Extinction of 0.23/km; visibility of 10 miles or more	Unclassified	No Federal Standard	---

ppm = parts per million
$\mu g/m^3$ = micrograms per cubic meter

SOURCE: BAAQMD, 2016

The FCAA requires each state to prepare an air quality control plan referred to as the State Implementation Plan (SIP). The FCAA amendments added requirements for states containing areas that violate the NAAQS to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is a living document that is periodically modified to reflect the latest emissions inventories, planning documents, and rules and regulations of air basins as reported by the agencies with jurisdiction over them. The USEPA has responsibility to review all state SIPs to determine if they conform to the mandates of the FCAA amendments and will achieve air quality goals when implemented. If the USEPA determines a SIP to be inadequate, it may prepare a Federal Implementation Plan (FIP) for the nonattainment area and may impose additional control measures. Failure to submit an approvable SIP or to implement the plan within mandated timeframes can result in sanctions being applied to transportation funding and stationary air pollution sources in the air basin.

State

The California Air Resources Board (CARB) manages air quality, regulates mobile emissions sources, and oversees the activities of county Air Pollution Control Districts and regional Air Quality Management Districts. CARB establishes state ambient air quality standards and vehicle emissions standards.

Ambient Air Quality Standards

As shown in Tables 4.2-3, California has adopted ambient standards that are more stringent than the federal standards for the criteria air pollutants and includes air quality standards for some pollutants for which there is no corresponding national standard. Under the California Clean Air Act (CCAA) patterned after the FCAA, areas have been designated as attainment or nonattainment with respect to the state standards.

Toxic Air Contaminants

The Health and Safety Code defines TACs as air pollutants which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health. The State Air Toxics Program was established in 1983 under Assembly Bill (AB) 1807 (Tanner). A total of 243 substances have been designated TACs under California law; they include the 189 (federal) HAPs adopted in accordance with AB 2728. The Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588) seeks to identify and evaluate risk from air toxics sources; however, AB 2588 does not regulate air toxics emissions. Toxic air contaminant emissions from individual facilities are quantified and prioritized. "High-priority" facilities are required to perform a health risk assessment and, if specific thresholds are violated, are required to communicate the results to the public in the form of notices and public meetings.

In August of 1998, CARB identified particulate emissions from diesel-fueled engines (diesel particulate matter, or DPM) as TACs. CARB subsequently developed the *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles* (CARB, 2000). The document represents proposals to reduce diesel particulate emissions, with the goal of

reducing emissions and associated health risks by 75 percent in 2010 and by 85 percent in 2020. The program aims to require the use of state-of-the-art catalyzed diesel particulate filters and ultra low sulfur diesel fuel on diesel-fueled engines.

In April 2005, CARB published Air Quality and Land Use Handbook: A Community Health Perspective (CARB, 2005). This handbook is intended to give guidance to local governments in the siting of sensitive land uses, such as residences, schools, daycare centers, playgrounds, or medical facilities, near sources of air pollution. There are no TAC sources currently operating within the Project area. However, there are two facilities within 1,000 feet of the Project area boundary, an emergency diesel generator and a gasoline dispensing facilities, in addition to freeways and high-volume roadways. Consistent with CARB guidance, the City of Oakland has adopted Standard Conditions of Approval (SCAs) that reduce the impact of TAC sources and sensitive receptors.

Regional

The regional agency primarily responsible for developing air quality plans for the Bay Area is the Bay Area Air Quality Management District (BAAQMD), the agency with permit authority over most types of stationary emission sources of air pollutants in the Bay Area.

BAAQMD Air Quality Plans

The 1977 CAA amendments require regional planning and air pollution control agencies to prepare a regional Air Quality Plan to outline the measures by which both stationary and mobile sources of pollutants can be controlled in order to achieve all standards specified in the CAA. The California CAA also requires development of air quality plans and strategies to meet state air quality standards in areas designated as non-attainment (with the exception of areas designated as non-attainment for the state PM standards). Maintenance plans are required for attainment areas that had previously been designated non-attainment in order to ensure continued attainment of the standards. (As indicated above, air quality plans developed to meet federal requirements are referred to as SIPs.)

For state air quality planning purposes, the San Francisco Air Basin is classified as a serious non-attainment area for the 1-hour ozone standard. The “serious” classification triggers various plan submittal requirements and transportation performance standards. One such requirement is that the BAAQMD update the Clean Air Plan every 3 years to reflect progress in meeting the air quality standards and to incorporate new information regarding the feasibility of control measures and new emission inventory data. The Bay Area’s record of progress in implementing previous measures must also be reviewed. The plans for the San Francisco Air Basin are prepared with the cooperation of the Metropolitan Transportation Commission (MTC), and the Association of Bay Area Governments (ABAG). On September 15, 2010, the BAAQMD adopted the most recent revision to the Clean Air Plan - the *Bay Area 2010 Clean Air Plan* (2010 CAP). The 2010 CAP serves to:

- Update the *Bay Area 2005 Ozone Strategy* in accordance with the requirements of the California CAA to implement “all feasible measures” to reduce ozone;
- Consider the impacts of ozone control measures on particulate matter, air toxics, and greenhouse gases in a single, integrated plan;

- Review progress in improving air quality in recent years; and
- Establish emission control measures to be adopted or implemented in the 2010 – 2012 timeframe (BAAQMD, 2010).

Under the California CAA, the BAAQMD is required to develop an air quality attainment plan for criteria pollutants that are designated as non-attainment within the air district. Several project components may be subject to BAAQMD rules and regulations governing criteria pollutants, toxic air contaminants, and odorous compounds even though permits may not be required. Stationary sources, such as generators, are required to have permits from the BAAQMD before constructing, changing, or operating the source. If the BAAQMD determines that the project would be subject to its permit requirements, it could issue two permits for the project, an Authority to Construct and a Permit to Operate. The 2010 CAP is currently in the process of being updated with a Final Draft expected to be circulated in October or November of 2016.

BAAQMD CEQA Guidelines and Thresholds of Significance

In December 1999, the BAAQMD adopted its *CEQA Guidelines – Assessing the Air Quality Impacts of Projects and Plans*, as a guidance document to provide lead government agencies, consultants, and project proponents with uniform procedures for assessing air quality impacts and preparing the air quality sections of environmental documents for projects subject to CEQA. The *BAAQMD CEQA Guidelines* is an advisory document and local jurisdictions are not required to utilize the methodology outlined therein. The document describes the criteria that the BAAQMD uses when reviewing and commenting on the adequacy of environmental documents. It recommends thresholds for use in determining whether projects would have significant adverse environmental impacts, identifies methodologies for predicting project emissions and impacts, and identifies measures that can be used to avoid or reduce air quality impacts.

The BAAQMD updated the 1999 CEQA Air Quality Guidelines in 2010. In May of 2011, the BAAQMD adopted an updated version of its Thresholds of Significance for use in determining the significance of projects' environmental effects under CEQA (Thresholds), and published their CEQA Guidelines for consideration by lead agencies. The Thresholds lowered the previous (1999) thresholds of significance for annual emissions of ROG, NO_X, and PM_{10}, and set a standard for $PM_{2.5}$ and fugitive dust. The 2011 CEQA Guidelines also include methodologies for evaluating risks and hazards for the siting of stationary sources and of sensitive receptors. The BAAQMD resolution adopting the significance thresholds in 2010 and 2011 was set aside by the Alameda County Superior Court on March 5, 2012. On August 13, 2013, the California Court of Appeals issued a full reversal of the Superior Court's judgment, and on December 17, 2015, the California Supreme Court reversed in part the appellate court's judgment and remanded the case for further consideration consistent with the Supreme Court opinion. The California Supreme Court ruled unanimously that CEQA review is focused on a project's impact on the environment "and not the environment's impact on the project." (*California Building Industry Association v. Bay Area Air Quality Management District* (December 17, 2015, Case No. S213478)). The Supreme Court confirmed that "agencies subject to CEQA generally are not required to analyze the impact of existing environmental conditions on a project's future residents or users." The Court also held that when a project has "potentially significant exacerbating effects on existing

environmental hazards" those impacts are properly within the scope of CEQA because they can be viewed as impacts of the project on "existing conditions" rather than impacts of the environment on the project. Based on this decision, any analysis below (or in the rest of this EIR) of the impacts of the environment on the project is provided for informational purposes only.

The BAAQMD most recently updated its CEQA Air Quality Guidelines in May 2012, and these guidelines continue to provide direction on recommended analysis methodologies but no longer recommend quantitative significance thresholds. In the revised Guidelines, the air district recommends that lead agencies develop their own thresholds of significance. The BAAQMD offers, as possibilities, its previous 1999 Guidelines thresholds and also presents a table of thresholds promulgated by other California air districts, as well as a reference to California Air Pollution Control Officers Association and State Air Resources Board guidance. Lead agencies may also reference the BAAQMD CEQA Thresholds Options and Justification Report developed by district staff in 2009. This latter option provides lead agencies with a justification for continuing to rely on the BAAQMD 2011 thresholds. As such, City Thresholds for air quality are generally based upon the BAAQMD 2011 CEQA Guidelines and Thresholds, but also account for the BAAQMD's 2012 guidance. Accordingly, this document references both the 2011 and 2012 BAAQMD CEQA Air Quality Guidelines.

Local

City of Oakland General Plan: OSCAR Element

The Open Space, Conservation and Recreation (OSCAR) Element of the Oakland General Plan contains the following Air Quality objective and policies that would apply to the proposed Project (City of Oakland, 1996).

- ***Objective CO-12: Air Resources.*** To improve air quality in Oakland and the surrounding Bay Region.
- ***Policy CO-12.1: Land Use Patterns Which Promote Air Quality.*** Promote land use patterns and densities which help improve regional air quality conditions by: (a) minimizing dependence on single passenger autos; (b) promoting projects which minimize quick auto starts and stops, such as live-work development, mixed use development, and office development with ground floor retail space; (c) separating land uses which are sensitive to pollution from the sources of air pollution; and (d) supporting telecommuting, flexible work hours, and behavioral changes which reduce the percentage of people in Oakland who must drive to work on a daily basis.
- ***Policy CO-12.4: Design of Development to Minimize Air Quality Impacts.*** Require that development projects be designed in a manner which reduces potential adverse air quality impacts. This may include: (a) the use of vegetation and landscaping to absorb carbon monoxide and to buffer sensitive receptors; (b) the use of low-polluting energy sources and energy conservation measures; and (c) designs which encourage transit use and facilitate bicycle and pedestrian travel.
- ***Policy CO-12.5: Use of Best Available Control Technology.*** Require new industry to use best available control technology to remove pollutants, including filtering, washing, or electrostatic treatment of emissions.

- ***Policy CO-12.6: Control of Dust Emissions.*** Require construction, demolition and grading practices which minimize dust emissions.

City of Oakland Municipal Code

Per the City of Oakland Municipal Code, Title 15 Buildings and Construction, Chapter 15.36 Demolition Permits, 15.36.100 Dust Control Measures,

> "Best Management Practices" shall be used throughout all phases of work, including suspension of work, to alleviate or prevent fugitive dust nuisance and the discharge of smoke or any other air contaminants into the atmosphere in such quantity as will violate any city or regional air pollution control rules, regulations, ordinances, or statutes. Water or dust palliatives or combinations of both shall be applied continuously and in sufficient quantity during the performance of work and at other times as required. Dust nuisance shall also be abated by cleaning and sweeping or other means as necessary. A dust control plan may be required as condition of permit issuance or at other times as may be deemed necessary to assure compliance with this section. Failure to control effectively or abate fugitive dust nuisance or the discharge of smoke or any other air contaminants into the atmosphere may result in suspension or revocation of the permit, in addition to any other applicable enforcement actions or remedies. (Ord. 12152 Section 1, 1999).

The City of Oakland has implemented Green Building principles in City buildings through the following programs: Civic Green Building Ordinance (Ordinance No. 12658 C.M.S., 2005), requiring, for certain large civic projects, techniques that minimize the environmental and health impacts of the built environment through energy, water and material efficiencies and improved indoor air quality, while also reducing the waste associated with construction, maintenance and remodeling over the life of the building; Green Building Guidelines (Resolution No. 79871, 2006) which provides guidelines to Alameda County residents and developers regarding construction and remodeling; and Green Building Education Incentives for private developers.

City of Oakland Standard Conditions of Approval and Uniformly Applied Development Standards Imposed as Standard Conditions of Approval

The City's SCAs that directly pertain to air quality and that apply to construction and operation of the proposed Project are listed below. If the Project is approved by the City, all applicable SCAs will be adopted as conditions of approval and required, as applicable, to help address construction period dust (or emissions). Because the conditions of approval are incorporated as part of the Project, they are not listed as mitigation measures.

- **SCA AIR-1: Construction-Related Air Pollution Controls (Dust and Equipment Emissions).** *During Project Construction.* The project applicant shall implement all of the following applicable air pollution control measures during construction of the project:

  Basic Controls:

  a. Water all exposed surfaces of active construction areas at least twice daily. Watering should be sufficient to prevent airborne dust from leaving the site. Increased watering frequency may be necessary whenever wind speeds exceed 15 miles per hour. Reclaimed water should be used whenever feasible.

b. Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard (i.e., the minimum required space between the top of the load and the top of the trailer).

c. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.

d. Pave all roadways, driveways, sidewalks, etc. within one month of site grading or as soon as feasible. In addition, building pads should be laid within one month of grading or as soon as feasible unless seeding or soil binders are used.

e. Enclose, cover, water twice daily, or apply (non-toxic) soil stabilizers to exposed stockpiles (dirt, sand, etc.).

f. Limit vehicle speeds on unpaved roads to 15 miles per hour.

g. Idling times on all diesel-fueled commercial vehicles over 10,000 lbs. shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes (as required by the California airborne toxics control measure Title 13, Section 2485, of the California Code of Regulations). Clear signage to this effect shall be provided for construction workers at all access points.

h. Idling times on all diesel-fueled off-road vehicles over 25 horsepower shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes and fleet operators must develop a written policy as required by Title 23, Section 2449, of the California Code of Regulations ("California Air Resources Board Off-Road Diesel Regulations").

i. All construction equipment shall be maintained and properly tuned in accordance with the manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.

j. Portable equipment shall be powered by electricity if available. If electricity is not available, propane or natural gas shall be used if feasible. Diesel engines shall only be used if electricity is not available and it is not feasible to use propane or natural gas.

Enhanced Controls (applies to projects that involve 114 or mores single family residential units or 240 or more multi-family residential units):

a. All exposed surfaces shall be watered at a frequency adequate to maintain minimum soil moisture of 12 percent. Moisture content can be verified by lab samples or moisture probe.

b. All excavation, grading, and demolition activities shall be suspended when average wind speeds exceed 20 mph.

c. Install sandbags or other erosion control measures to prevent silt runoff to public roadways.

d. Hydroseed or apply (non-toxic) soil stabilizers to inactive construction areas (previously graded areas inactive for one month or more).

e. Designate a person or persons to monitor the dust control program and to order increased watering, as necessary, to prevent transport of dust offsite. Their duties shall include holidays and weekend periods when work may not be in progress.

f. Install appropriate wind breaks (e.g., trees, fences) on the windward side(s) of actively disturbed areas of the construction site to minimize wind blown dust. Wind breaks must have a maximum 50 percent air porosity.

g. Vegetative ground cover (e.g., fast-germinating native grass seed) shall be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.

h. Activities such as excavation, grading, and other ground-disturbing construction activities shall be phased to minimize the amount of disturbed surface area at any one time.

i. All trucks and equipment, including tires, shall be washed off prior to leaving the site.

j. Site accesses to a distance of 100 feet from the paved road shall be treated with a 6 to 12 inch compacted layer of wood chips, mulch, or gravel.

k. All equipment to be used on the construction site and subject to the requirements of Title 13, Section 2449, of the California Code of Regulations ("California Air Resources Board Off-Road Diesel Regulations") must meet emissions and performance requirements one year in advance of any fleet deadlines. Upon request by the City, the project applicant shall provide written documentation that fleet requirements have been met.

l. Use low VOC (i.e., ROG) coatings beyond the local requirements (i.e., BAAQMD Regulation 8, Rule 3: Architectural Coatings).

m. All construction equipment, diesel trucks, and generators shall be equipped with Best Available Control Technology for emission reductions of NOx and PM.

n. Off-road heavy diesel engines shall meet the California Air Resources Board's most recent certification standard.

o. Post a publicly-visible large on-site sign that includes the contact name and phone number for the project complaint manager responsible for responding to dust complaints and the telephone numbers of the City's Code Enforcement unit and the Bay Area Air Quality Management District. When contacted, the project complaint manager shall respond and take corrective action within 48 hours.

When Required: During construction

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

The following condition applies to all projects that exceed the health risk screening criteria after a screening analysis is conducted in accordance with the BAAQMD CEQA Guidelines:

- **SCA AIR-2: Exposure to Air Pollution (Toxic Air Contaminants)**

  a. ***Health Risk Reduction Measures.*** *Prior to approval of construction-related permit.* The project applicant shall incorporate appropriate measures into the project design

in order to reduce the potential health risk due to exposure to toxic air contaminants. The project applicant shall choose one of the following methods:

i. The project applicant shall retain a qualified air quality consultant to prepare a Health Risk Assessment (HRA) in accordance with California Air Resources Board (CARB) and Office of Environmental Health and Hazard Assessment requirements to determine the health risk of exposure of project residents/occupants/users to air pollutants. The HRA shall be submitted to the City for review and approval. If the HRA concludes that the health risk is at or below acceptable levels, then health risk reduction measures are not required. If the HRA concludes that the health risk exceeds acceptable levels, health risk reduction measures shall be identified to reduce the health risk to acceptable levels. Identified risk reduction measures shall be submitted to the City for review and approval and be included on the project drawings submitted for the construction-related permit or on other documentation submitted to the City.

- or -

ii. The project applicant shall incorporate the following health risk reduction measures into the project. These features shall be submitted to the City for review and approval and be included on the project drawings submitted for the construction-related permit or on other documentation submitted to the City:

- Installation of air filtration to reduce cancer risks and Particulate Matter (PM) exposure for residents and other sensitive populations in the project that are in close proximity to sources of air pollution. Air filter devices shall be rated MERV-13 or higher. As part of implementing this measure, an ongoing maintenance plan for the building's HVAC air filtration system shall be required.
- Where appropriate, install passive electrostatic filtering systems, especially those with low air velocities (i.e., 1 mph).
- Phasing of residential developments when proposed within 500 feet of freeways such that homes nearest the freeway are built last, if feasible.
- The project shall be designed to locate sensitive receptors as far away as feasible from the source(s) of air pollution. Operable windows, balconies, and building air intakes shall be located as far away from these sources as feasible. If near a distribution center, residents shall be located as far away as feasible from a loading dock or where trucks concentrate to deliver goods.
- Sensitive receptors shall be located on the upper floors of buildings, if feasible.
- Planting trees and/or vegetation between sensitive receptors and pollution source, if feasible. Trees that are best suited to trapping PM shall be planted, including one or more of the following: Pine (*Pinus nigra* var. *maritima*), Cypress (*X Cupressocyparis leylandii*), Hybrid popular (*Populus deltoids X trichocarpa*), and Redwood *(Sequoia sempervirens*).
- Sensitive receptors shall be located as far away from truck activity areas, such as loading docks and delivery areas, as feasible.

- Existing and new diesel generators shall meet CARB's Tier 4 emission standards, if feasible.
- Emissions from diesel trucks shall be reduced through implementing the following measures, if feasible:
  - Installing electrical hook-ups for diesel trucks at loading docks.
  - Requiring trucks to use Transportation Refrigeration Units (TRU) that meet Tier 4 emission standards.
  - Requiring truck-intensive projects to use advanced exhaust technology (e.g., hybrid) or alternative fuels.
  - Prohibiting trucks from idling for more than two minutes.
  - Establishing truck routes to avoid sensitive receptors in the project. A truck route program, along with truck calming, parking, and delivery restrictions, shall be implemented.

When Required: Prior to approval of construction-related permit

Initial Approval: Bureau of Planning

Monitoring/Inspection: Bureau of Building

b. ***Maintenance of Health Risk Reduction Measures.*** *Ongoing.* The project applicant shall maintain, repair, and/or replace installed health risk reduction measures, including but not limited to the HVAC system (if applicable), on an ongoing and as-needed basis. Prior to occupancy, the project applicant shall prepare and then distribute to the building manager/operator an operation and maintenance manual for the HVAC system and filter including the maintenance and replacement schedule for the filter.

When Required: Ongoing

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

- **SCA AIR-4: Naturally-Occurring Asbestos.** The project applicant shall comply with all applicable laws and regulations regarding construction in areas of naturally-occurring asbestos, including but not limited to, the Bay Area Air Quality Management District's (BAAQMD) Asbestos Airborne Toxic Control Measures for Construction, Grading, Quarrying, and Surface Mining Operations (implementing California Code of Regulations, section 93105, as may be amended) requiring preparation and implementation of an Asbestos Dust Mitigation Plan to minimize public exposure to naturally-occurring asbestos. Evidence of compliance shall be submitted to the City upon request.

  When Required: Prior to approval of construction-related permit

  Initial Approval: Applicable regulatory agency with jurisdiction

  Monitoring/Inspection: Applicable regulatory agency with jurisdiction

The following Standard Condition of Approval that addresses parking and transportation demand management and that applies to all projects that generate 50 or more net new AM or PM peak hour vehicle trips, is stated in full in the assessment of traffic in Section 4.13, *Transportation and Circulation*:

- **SCA TRA-4: Parking and Transportation Demand Management**

Sensitive Land Uses

Some persons are considered more sensitive than others to air pollutants. The reasons for heightened sensitivity may include health problems, proximity to the emissions source, and duration of exposure to air pollutants. Land uses such as schools, hospitals, and convalescent homes are considered to be relatively sensitive to poor air quality because the very young, the old, and the infirm are more susceptible to respiratory infections and other air-quality-related health problems than the general public. Residential areas are considered sensitive to poor air quality because people are often at home for extended periods. Recreational land uses are moderately sensitive to air pollution, because vigorous exercise associated with recreation places a high demand on the human respiratory system.

The Project site is surrounded by sensitive uses. There are several residential neighborhoods, daycare centers, home care centers, and schools within 0.1 miles of the Project area boundaries. Refer to Table 4.10-3, Section 4.10, *Noise,* for a list of all sensitive receptors in the vicinity of the Project site. As noted in the assessment of toxic air contaminants below (Impact AIR-4), the Seneca Center for Children and Families (Seneca) is not located on the Oak Knoll Project site but is immediately adjacent to it; it is an outparcel within the NMCO property (see Figure 3-3 in Chapter 3 [Project Description]). Seneca has submitted an application for to expand their facilities to include an elementary school, preschool and residential treatment facilities, and this Draft SEIR conservatively treats Seneca as an existing sensitive receptor for the air quality health risk impact analyses. The Seneca expansion project is assumed to become operational at or about the same time as the Project begins to be implemented (i.e., Phase 1). Nearby residential areas nor the Oakland Zoo and parks in the surrounding area – other sensitive receptors – are not as close to the Project site as the Seneca Center.

4.2.4 Discussion of Impacts

Significance Criteria

The City of Oakland has established thresholds of significance for CEQA impacts (City of Oakland, 2013). The City's thresholds of significance for air quality impacts are generally based on the thresholds adopted by the BAAQMD in June 2010.

Except for impacts related to TACs and odors, air quality impacts are by their nature cumulative impacts because one project by itself cannot generate air pollution that would violate regional air quality standards.

The proposed Project would cause significant adverse air quality impacts if it would:

Project-level Impacts:

a) During project construction result in average daily emissions of 54 pounds per day of ROG, NOx, or PM2.5 or 82 pounds per day of PM10;

b) During project operation result in average daily emissions of 54 pounds per day of ROG, NOx, or PM2.5 or 82 pounds per day of PM10; or result in maximum annual emissions of 10 tons per year of ROG, NOx, or PM2.5 or 15 tons per year of PM10;

c) Contribute to carbon monoxide (CO) concentrations exceeding the California Ambient Air Quality Standards (CAAQS) of nine parts per million (ppm) averaged over eight hours and 20 ppm for one hour [**CITY OF OAKLAND NOTE**: Pursuant to BAAQMD CEQA Guidelines, localized CO concentrations should be estimated for projects in which (a) project-generated traffic would conflict with an applicable congestion management program established by the county congestion management agency or (b) project-generated traffic would increase traffic volumes at affected intersections to more than 44,000 vehicles per hour (or 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited, such as tunnels, parking garages, bridge underpasses, natural or urban street canyons, and below-grade roadways). In Oakland, only the MacArthur Maze portion of Interstate 580 exceeds the 44,000 vehicles per hour screening criteria.];

d) For new sources of Toxic Air Contaminants (TACs), during either project construction or project operation expose sensitive receptors to substantial levels of TACs resulting in (a) an increase in cancer risk level greater than 10 in one million, (b) an increase in non-cancer risk (chronic or acute) hazard index greater than 1.0, or (c) an increase of annual average $PM_{2.5}$ of greater than 0.3 micrograms per cubic meter; or, under cumulative conditions, resulting in (a) a cancer risk level greater than 100 in a million, (b) a non-cancer risk (chronic or acute) hazard index greater than 10.0, or (c) annual average $PM_{2.5}$ of greater than 0.8 micrograms per cubic meter [**NOTE**: Pursuant to the BAAQMD CEQA Guidelines, when siting new TAC sources consider sensitive receptors located within 1,000 feet. For this threshold, sensitive receptors include residential uses, schools, parks, daycare centers, nursing homes, and medical centers. The cumulative analysis should consider the combined risk from all TAC sources.];

e) Expose new sensitive receptors to substantial ambient levels of Toxic Air Contaminants (TACs) resulting in (a) a cancer risk level greater than 100 in a million, (b) a non-cancer risk (chronic or acute) hazard index greater than 10.0, or (c) annual average $PM_{2.5}$ of greater than 0.8 micrograms per cubic meter (This discussion is provided for informational purposes only pursuant to the California Supreme Court's decision in *CBIA v. BAAQMD*) [**NOTE**: Pursuant to the BAAQMD CEQA Guidelines, when siting new sensitive receptors consider TAC sources located within 1,000 feet including, but not limited to, stationary sources, freeways, major roadways (10,000 or greater vehicles per day), truck distribution centers, airports, seaports, ferry terminals, and rail lines. For this threshold, sensitive receptors include residential uses, schools, parks, daycare centers, nursing homes, and medical centers]; or

f) Frequently and for a substantial duration, create or expose sensitive receptors to substantial objectionable odors affecting a substantial number of people [**NOTE**: For this threshold, sensitive receptors include residential uses, schools, daycare centers, nursing homes, and medical centers (but not parks).].

Approach to Analysis

As described above, the City of Oakland has generally relied on the BAAQMD's 2011 CEQA Guidelines to develop significance thresholds for air quality.

The analysis of potential air quality impacts uses the project-level analysis methodology identified by the BAAQMD. Based on the 2011 CEQA Air Quality Guidelines, both construction and operational emissions from the Project are quantified and compared to the significance thresholds. The California Emissions Estimator Model (CalEEMod version 2013.2.2) has been used to quantify emissions. The model quantifies direct emissions from construction and operations (including vehicle use), as well as indirect emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use. The mobile source emission factors currently embedded in the model (EMFAC2011) were updated with EMFAC2014 which were adopted by the U.S. EPA in December 2015 and include the Pavley emission standard requirements.

Impacts related to project construction are evaluated by comparing estimated construction emissions to the significance thresholds, which for short-term construction emissions are 54 pounds per day for ROG, NOX, and PM2.5; and 82 pounds per day for PM10. Only the exhaust portion of PM2.5 and PM10 emissions are compared against the construction thresholds. The BAAQMD recommends that analyses focus on implementation of dust control measures rather than comparing estimated levels of fugitive dust to a quantitative significance threshold. Rather, the BAAQMD considers implementation of the BAAQMD-recommended mitigation measures for fugitive dust sufficient to ensure that construction-related fugitive dust is reduced to a less-than-significant level. The BAAQMD Guidelines provide feasible control measures for construction emission of PM_{10}. If the appropriate construction controls are implemented, air pollutant emissions for construction activities would be considered mitigated to a less-than-significant level.

For long-term operations, impacts are evaluated by comparing the operational emissions estimated using CalEEMod with the appropriate significance thresholds. BAAQMD has two sets of significance thresholds, including daily thresholds that are the same as the construction thresholds, and annual thresholds that are 10 tons per year for ROG, NO_X, and $PM_{2.5}$; and 15 tons per year for PM_{10}.

The health risk analysis contained herein relied on the BAAQMD's conservative screening-level data to screen out low-emitting existing sources of TACs that pose no substantial threat to increased cancer risk level exposure. For TAC sources not eliminated through this screening process, such as construction emissions, a more refined concentration modeling analysis was conducted and the result evaluated.

A Health Risk Assessment (HRA) for the Project was conducted to evaluate health impacts on existing and proposed sensitive receptors from DPM emissions from off-road construction equipment and haul trucks from the proposed project as well as cumulative health impacts from nearby permitted stationary sources, local roadways, and Interstate 580. The HRA was used to

determine health impacts, in terms of excess cancer risk and non-cancer hazards, using the significance levels[2] identified by the BAAQMD CEQA Air Quality Guidelines (BAAQMD, 2012a). In accordance with the BAAQMD guidelines, the HRA also evaluated concentrations of $PM_{2.5}$. The HRA was prepared based on the California Office of Environmental Health Hazard Assessment (OEHHA)'s Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments (OEEHA, 2015) using the USEPA approved dispersion model, AERMOD (Version 15181) to estimate 1-hour maximum and annual average concentrations (in $\mu g/m^3$) at the affected receptors.

For projects that are considered new sources of TAC or $PM_{2.5}$ (such as construction activity, stationary sources, industrial sources, or roadway projects), it is generally appropriate to use both the project-level and cumulative-level thresholds because the project-level threshold identifies project's incremental contribution to health impacts, while the cumulative threshold assesses project's cumulative contribution to health impacts. However, for projects that consist of new receptors (such as proposed residences or schools), it is generally appropriate to use only the cumulative-level threshold because the project itself is not a source of TAC or $PM_{2.5}$ and, thus, the individual project-level threshold is not relevant. As the Project includes construction emissions over a period of six years, during which it would also introduce new receptors to the area, the results of the HRA were compared to both the project-level and cumulative-level thresholds for both existing and proposed receptors.

Regarding the assessment of cumulative impacts, a project's contribution to cumulative impacts to regional air quality would be considered significant if the project's impact individually would be significant (i.e., exceeds the BAAQMD's quantitative thresholds). For a project that would not result in a significant impact individually, the project's contribution to any cumulative impact would be considered less than significant if the project is consistent with the local general plan and the local general plan is consistent with the applicable regional air quality plan. In this case, the applicable regional air quality plan is the 2010 CAP.

2 In June of 2010, the Air District's adopted thresholds of significance were challenged in a lawsuit (California Building Industry Association v Bay Area Air Quality Management District). On December 15, 2015, the California Supreme Court (S213478) concluded that agencies subject to CEQA generally are not required to analyze the impact of existing environmental conditions on a project's future users or residents. Nevertheless, an analysis of the health impacts from existing sources such as Interstate 580 on the proposed residents is presented within this document.

Impacts and Mitigation Measures

Project Construction Impacts

Impact AIR-1: Demolition and construction associated with the Project would not result in average daily emissions that would exceed the City's construction significance thresholds of 54 pounds per day of ROG, NO_X, or $PM_{2.5}$ or 82 pounds per day of PM_{10}. (Criterion a) (*Less than Significant with SCA*)

1998 EIS/EIR.

The 1998 EIS/EIR determined that the Maximum Capacity Alternative would result in a significant impact associated with the generation of dust during building demolition, renovation, and construction activities. The 1998 EIS/EIR identified the following Mitigation 3 to reduce fugitive dust emissions and reduce the resulting impact to less than significant:

> **1998 EIS/EIR Mitigation 3:** Use the following control practices during demolition, construction, and renovation activities:
>
> - Use mowing rather than discing for week control, thus minimizing ground disturbance and leaving a soil cover in place;
> - Seed and water inactive portions of construction sites to maintain a grass cover;
> - Minimize the area disturbed by clearing, earthmoving, or excavation activities;
> - Prevent excessive dust generation by using water or dust control solution on all unpaved areas subject to vehicle traffic, grading, or excavation;
> - Ensure that any petroleum-based dust control products used on the site meet BAAQMD regulations for cutback asphalt paving materials;
> - Halt all site clearing, grading, earthmoving, and excavation activities during periods of sustained strong winds (hourly average wind speeds 20 mph or greater);
> - Sweep streets adjacent to the construction vehicles and avoid excessive idling of inactive equipment.

Proposed Project.

Project-related construction would generate air pollutant emissions through the use of heavy-duty construction equipment, from truck trips hauling materials, and from construction workers traveling to and from the project site. Mobile source emissions, primarily NO_X, would be generated from the use of equipment such as excavators, bulldozers, wheeled loaders, and cranes during the grading and construction phases. During the finishing phases, paving operations and the application of asphalt, architectural coatings (i.e., paints) and other building materials would release ROG. The assessment of construction air quality impacts considers each of these sources, and recognizes that construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation, and for dust, the prevailing weather conditions.

The Project would be developed in three phases over a combined period of approximately six years from 2017 to 2023. Full buildout and operation would be in 2024. Phase 1 is anticipated to

commence in 2017 and would include removal of existing on site concrete pads and pipelines, creek improvements, grading and construction of roadways in the Village Center area of the site, development of the Village Center and construction of 232 townhomes and 100 single family homes as part of the residential development in the south and west portions of the site.

For the removal of existing concrete pads and other impervious surfaces and the removal of existing defunct underground infrastructure (e.g., water pipes, etc.), two options are under consideration: on-site crushing and off-site hauling. In the on-site crushing scenario, the materials would be crushed and re-distributed on site with no off-site hauling required. In the off-site hauling scenario, the debris is loaded onto haul trucks to be disposed of at an appropriate location. Only one of these scenarios will be implemented during Project construction, but emissions have been analyzed and presented for both scenarios. Phase 1 would also involve up to 1.6 million cubic yards of cut and fill required for correcting existing unstable areas and grading associated with the proposed creek improvements, proposed building pads and roadways over a 67.6 acre area. Phase 2 and 3 would involve grading and construction for 263 homes and 340 homes, respectively, as well as roadway development in the east, west, and north areas of the site. The earthwork volume for cut and fill is anticipated to be approximately 1 million cubic yards in Phase 2 and approximately 430,000 cubic yards in Phase 3. (See Figure 3-20, Grading by Phase, in Chapter 3 of this Draft SEIR.)

Emissions from construction of the Project were estimated using the CalEEMod land use emissions model. Emissions were estimated separately for each of the construction phases of the Project and for both on-site crushing and off-site hauling scenarios under Phase I. Under each CalEEMod run, the construction process is separated into stages: demolition, grading, paving, structural building, and architectural coating. The grading phase is separated into emissions from fugitive dust, emissions from off-road equipment, and worker vehicle trips. The paving phase estimates emissions from off-road equipment, on-road trucks worker vehicle trips, as well as off-gassing of ROG emissions from asphalt (primarily parking lot and roadway surfaces).[3] Emissions from the structural building phase would consist of off-road equipment emissions, worker vehicle trips and vendor vehicle trips. Grading activities were assumed to have been conducted prior to the other activities. The construction duration for each stage and other project specific assumptions are detailed in CalEEMod outputs, which are included in Appendix I.

Average daily construction-related criteria pollutant emissions resulting from Project construction are presented in **Table 4.2-4**. The table shows average daily emissions for each phase as well as the average over all three phases of Project construction. The emissions in each phase are shown only for informational purposes; the daily emissions averaged over the three phases are used for comparison with the significance thresholds (which are in terms of average daily emissions) to determine the impact significance. As shown, the combined average daily project emissions would exceed the BAAQMD significance thresholds for NOx. However, SCA AIR-1 (Construction-Related Air Pollution Controls - Dust and Equipment Emissions) would be implemented as part of the Project to reduce fugitive dust as well as construction equipment exhaust emissions. SCA AIR-1 includes the BAAQMD's Best Management Practices for fugitive

[3] "Off gassing" refers to the release of gaseous compounds from a solid material such as asphalt.

dust control and would be required for all construction activities associated with the Project. In addition, SCA AIR-1 requires all construction equipment, diesel trucks, and generators be equipped with Best Available Control Technology for emission reductions of NOx and PM. Table 4.2-4 shows reduced Project construction emissions using equipment with Tier 3 engines.

TABLE 4.2-4
AVERAGE DAILY CONSTRUCTION EMISSIONS

	Average Daily Construction Emissions (lb/day)			
	ROG	**NO_X**	**PM_{10}**	**$PM_{2.5}$**
Scenario: On-site crushing in Phase 1				
Phase 1	22.1	48.5	1.9	1.8
Phase 2	16.1	32.6	1.4	1.3
Phase 3	12.1	23.4	1.1	1.0
Daily average over all three phases	35.5	**74.4**	3.1	2.9
Threshold	54	54	82	54
Exceeds Threshold?	No	**Yes**	No	No
Average Daily Emissions using Tier 3 Equipment	31.9	**57.2**	0.36	0.35
Exceeds Threshold?	No	**Yes**	No	No
Scenario: Off-site hauling in Phase 1				
Phase 1	21.8	46.0	1.75	1.6
Phase 2	16.1	32.6	1.4	1.3
Phase 3	12.1	23.4	1.1	1.0
Daily average over all three phases	35.3	**72.4**	3.0	2.8
Threshold	54	54	82	54
Exceeds Threshold?	No	**Yes**	No	No
Average Daily Emissions using Tier 3 Equipment	31.9	**56.4**	0.7	0.68
Exceeds Threshold?	No	**Yes**	No	No

SOURCE: ESA, 2016; Technical Detail in Appendix I

Although using equipment with Tier 3 engines would reduce both NOx and PM emissions, the reduction in NOx would not be sufficient to bring emissions below the 54 pounds per day significance threshold. However, using a combination of equipment with Tier 3 and Tier 4 engines would reduce Project NOx emissions to levels below the significance threshold. In order to comply with the requirements of SCA AIR-1 and to satisfy the requirement that the Project use Best Available Control Technology, Project construction would include a combination of Tier 3 and Tier 4 equipment to ensure that NOx emissions are below the threshold.

SCA AIR-1 does not specifically prescribe what "Best Available Control Technology" is required to reduce the NOx emission to below the threshold. The SCA is required for all projects, with the necessary technology to be determined on a case-by-case basis to achieve the necessary reduction below threshold levels. To effectively implement the performance standard of SCA AIR-1, the Project applicant could, for example, require its contractors to require at least 50 percent of all off-road construction equipment to have Tier 4 engines. Off-road equipment with Tier 4 engines

currently make up approximately 22 percent of the statewide construction fleet (SFDOE, 2015). Calculation of emissions assuming 100 percent of construction equipment with Tier 4 engines would reduce the Project's construction NOx emissions to 29 pounds per day compared to 57 pounds per day if 100 percent Tier 3 engines were used (as shown in Table 4.3-4). Adhering to at least a 50 percent requirement would reduce emissions to 43 pounds per day which would be less than the significance threshold, and therefore less than significant. Because SCAs become part of the Project and are approved as Conditions of Approval, the Project applicant will be required to demonstrate use of Best Available Control Technology.

Impact Conclusion: Less than Significant with SCA.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact, No Mitigation Measure Identified.

Project Operational Impacts (Criteria Pollutants and Precursors)

Impact AIR-2: Operation of the Project would result in operational average daily emissions of more than 54 pounds per day of ROG, NO_X, or $PM_{2.5}$ or 82 pounds per day of PM_{10}; or result in maximum annual emissions of 10 tons per year of ROG, NO_X, or $PM_{2.5}$ or 15 tons per year of PM_{10}. (Criterion b) (*Significant and Unavoidable*)

1998 EIS/EIR.

The 1998 EIS/EIR indicated that criteria pollutant emissions associated with vehicle trips generated by the Maximum Capacity Alternative would exceed the significance threshold for PM_{10} emissions and therefore would result in a significant impact under project and cumulative conditions. (The 1998 analysis was conducted using the EMFAC7F model to estimate emissions.) The 1998 EIS/EIR did not recommend mitigation measures to reduce the significant impacts associated with emissions from project trips, but indicated that because State law effectively prohibited *mandatory* trip reduction programs in the Bay Area for use as required mitigation, the City of Oakland would have few mechanisms to achieve significant additional reductions in emissions from vehicle traffic. The impact was identified as significant and unavoidable in that no other feasible mitigation measure could be imposed to reduce this impact to a level of less than significant.

Proposed Project.

Operation of the proposed Project would result in an increase in criteria air pollutant and precursor emissions, including ROG, NO_X, PM_{10} and $PM_{2.5}$ from a variety of emissions sources, including onsite area sources (e.g., natural gas combustion for space and water heating, landscape maintenance, use of consumer products such as hairsprays, deodorants, cleaning products, etc.) and mobile on-road sources. These operational emissions associated with the Project were calculated using the CalEEMod land use emissions model program.

The transportation analysis for the Project estimates that upon buildout, the Project would result in approximately 12,360 net new vehicle trips per day after accounting for use of alternative modes of

transportation and internal trip capture. **Table 4.2-5** summarizes daily mobile and onsite area emissions of criteria pollutants that would be generated by the Project upon full buildout in 2024. It compares these emissions with City of Oakland significance thresholds. As indicated in Table 4.2-5, Project-related operational emissions of ROG would exceed the significance thresholds.

TABLE 4.2-5
AVERAGE DAILY OPERATIONAL EMISSIONS

	Average Daily Operational Emissions (pounds/day)			
	ROG	**NO_X**	**PM_{10}**	**$PM_{2.5}$**
Area Sources	42.9	0.6	1.3	1.3
Energy Sources	0.8	7.2	0.55	0.55
Mobile Sources	37.8	38.4	0.4	0.4
Total Project Emissions	**81.5**	46.1	2.2	2.2
Threshold	54	54	82	54
Exceeds Threshold?	Yes	No	No	No
Total Project Emissions with TDM Plan	**78.0**	42.5	2.2	2.2
Exceeds Threshold?	**Yes**	No	No	No

SOURCE: ESA, 2016; Technical Detail in Appendix I

Table 4.2-6 summarizes the maximum annual criteria pollutants emissions upon full Project buildout, 2024. Project-related operational emissions of ROG would exceed the City of Oakland significance thresholds.

TABLE 4.2-6
MAXIMUM ANNUAL OPERATIONAL EMISSIONS

	Maximum Annual Operational Emissions (tons/year)			
	ROG	**NO_X**	**PM_{10}**	**$PM_{2.5}$**
Area Sources	7.8	0.1	0.24	0.24
Energy Sources	0.15	1.31	0.10	0.10
Mobile Sources	6.9	7.0	0.07	0.07
Total Project Emissions	**14.9**	8.4	0.4	0.4
Threshold	10	10	15	10
Exceeds Threshold?	**Yes**	No	No	No
Total Project Emissions with TDM Plan	**14.2**	7.8	0.4	0.4
Exceeds Threshold?	**Yes**	No	No	No

SOURCE: ESA, 2016; Technical Detail in Appendix I

SCA TRA-4 requires that a Transportation Demand Management (TDM) program be developed and implemented for individual projects generating 50 or more a.m. or p.m. peak trips to reduce use of single-occupant vehicles and to increase the use of rideshare, transit, bicycle and walk modes for trips to and from, as well as within the Project Area (see Section 4.13, *Transportation*

and Circulation Appendix V). For projects generating more than 100 a.m. and p.m. peak hour trips, such as the proposed Project, the SCA sets a goal for the TDM program to reduce trips by 20 percent. Trip generation estimates for the Project used in this analysis already include adjustments for development scale, density, and diversity of uses, as well as alternative transportation trips (walk, bike, and transit) and carpooling. Therefore, many key elements of alternative mode strategies have already been incorporated into the trip generation assumptions and substantial additional reduction would be difficult to achieve. The TDM program for the Project achieves a 10 percent reduction in vehicle trips, as described in detail in Section 4.13 and presented in Appendix BB to this Draft SEIR.

The TDM Plan includes strategies such as the provision of BART shuttles between the Project area and the Coliseum BART station, designation of car-share spaces on site, provision of carpool and ride-matching assistance, guaranteed ride home program, employee transit fare subsidy, bicycle facility monitoring, a designated TDM coordinator, TDM marketing and employee/resident education and coordination with AC Transit for shuttle service. The plan also provides additional TDM measures to help achieve the required 20 percent reduction, if necessary, such as expanded shuttle service and resident transit fare subsidies.

SCA GHG-1 requires that projects develop a Greenhouse Gas Reduction Plan (GGRP) to increase energy efficiency and reduce GHG emissions. The GGRP developed for the Project (and included in Appendix W) specifies how the Project proposes to meet SCA GHG-1 requirements through the purchase sufficient offset credits to reduce the Project's temporary GHG emissions (Phase 1, and combined Phase 1 and Phase 2. This would also further reduce criteria pollutant emissions. In addition, Project sources would be subject to the requirements of the City of Oakland Green Building Ordinance – Bay Friendly Landscapes (SCA GHG-2), as well as requirements of CALGreen, California's Green Building Code.

Tables 4.2-5 and 4.2-6 show emission reductions achieved from the implementation of the TDM program. However, these reductions would not be sufficient to reduce Project operational ROG emissions to levels below the significance threshold. The traffic reduction assumed under the TDM program already exceeds the best reduction estimates for TDM and other programs and measures (BAAQMD, 2012b). Implementation of some or all of the measures in the GGRP would further reduce operational criteria pollutant emissions, though not to less than significant levels. Consequently, development under the proposed Project would still result in significant environmental effects on air quality and contribute substantially to an existing air quality violation for ozone precursors (primarily ROG). And all feasible mitigation is required to the extent practicable.

> **New Mitigation Measure AIR-2.1: Use Low and Super-compliant VOC Architectural Coatings in Maintaining Buildings through CC&Rs.** While Regulation 8 Rule 3 of the BAAQMD places limits on the VOC content of paint and other architectural coatings, use of lower VOC coatings available to consumers can further reduce operational ROG emissions. Low- and Super-Compliant VOC paints are manufactured and sold by numerous companies. "Low-VOC" refers to paints that meet the more stringent regulatory limits in South Coast AQMD Rule 1113; however, many manufacturers have reformulated to levels

well below these limits. These are referred to as "Super-Compliant" Architectural Coatings (http://www.aqmd.gov/home/regulations/compliance/architectural-coatings/super-compliant-coatings).

New Mitigation Measure AIR-2.2: Promote use of Green Consumer Products. To reduce ROG emissions associated with the project, the project sponsor and/or future developer(s) shall provide education for residential and commercial tenants concerning green consumer products. Prior to receipt of any certificate of final occupancy and every five years thereafter, the project sponsor and/or future developer(s) shall develop electronic correspondence to be distributed by email annually to residential and/or commercial tenants of each building on the project site that encourages the purchase of consumer products that generate lower than typical VOC emissions. The correspondence shall encourage environmentally preferable purchasing.

New Mitigation Measure AIR-2.2 would require the project applicant to educate residential tenants and encourage commercial tenants to purchase products that are safer and better for the environment. However, given the project applicant does not have authority to require use of certain consumer products by building occupants or tenants, no reduction in ROG emissions can be attributed to this measure. ROG emissions would remain above the significance threshold of 54 pounds per day and 10 tons per year.

Given these various factors it is difficult to predict the magnitude of health effects from the Project's exceedance of significance criteria for regional ROG emissions. The increase in emissions associated with the proposed Project represents a fraction of total SFBAAB regional ROG emissions (up to 78 pounds per day compared to 265 tons per day in the SFBAAB region in 2012). Although Table 4.2-1 indicates that the most stringent applicable ozone standards were not exceeded at the International Boulevard monitoring station between 2011 and 2014, the SFBAAB region experienced an average of 8.4 days of exceedance per year between 2010 and 2014. The proposed Project's ROG increases could contribute to new or exacerbated air quality violations in the SFBAAB region by contributing to more days of ozone exceedance or result in AQI values that are unhealthy for sensitive groups and other populations. As shown in Table 4.2-2, the SFBAAB has averaged between 8 and 15 days per year that are considered unhealthy for sensitive groups and had 3 unhealthy (red) days in the last five years for which data are available. On unhealthy days, persons are recommended to avoid both prolonged and heavy exertion outdoor activities.

Ultimately, the Project's NO_X and ROG emissions are low enough that their regional impact on ambient ozone levels would not be detectable in the regional air quality models that are currently used to determine ozone levels. Emissions would need to be approximately an order of magnitude greater to determine the Project specific health impacts. Thus, in this case, it would not be feasible to directly correlate Project emissions of NO_X or ROG with specific health impacts from ozone.

In summary, implementation of New Mitigation Measures AIR-2.1 and AIR 2.2 could reduce level of ROG emissions by the Project, but not to levels required to be below the significance criterion (54 pounds per day). Therefore, this impact would remain significant and unavoidable for emissions of ROG.

Impact Conclusion: Significant and Unavoidable after Mitigation.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact, New Mitigation Measures Identified

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Carbon Monoxide

Impact AIR-3: Traffic associated with the development of the proposed Project would not contribute to carbon monoxide (CO) concentrations exceeding the California Ambient Air Quality Standards (CAAQS) of nine parts per million (ppm) averaged over eight hours and 20 ppm for one hour. (Criterion c) (Less than Significant)

1998 EIS/EIR.

The 1998 EIS/EIR identified that several of the study intersections analyzed for the Maximum Capacity Alternative would operate at an unacceptable level of service (LOS) (LOS F) during peak periods under the existing (1998) plus Maximum Capacity Alternative conditions. Increased traffic at these intersections could lead to localized elevated levels of carbon monoxide (CO), or "hotspots" due to increased traffic congestion and intersection delay. However, the 1998 EIS/EIR determined that, using the CALINE4 model (developed and made available by the California Department of Transportation [Caltrans]) to estimate local carbon monoxide (CO) concentrations from motor vehicles, the 1-hour and 8-hour CO concentration levels resulting with the Maximum Capacity Alternative would not exceed federal and state standards and would be "nonsignificant" (i.e., less than significant).

Proposed Project.

Pursuant to BAAQMD CEQA Guidelines, localized CO concentrations should be estimated for projects in which (a) project-generated traffic would conflict with an applicable congestion management program established by the county congestion management agency or (b) project-generated traffic would increase traffic volumes at affected intersections to more than 44,000 vehicles per hour (or 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited, such as tunnels, parking garages, bridge underpasses, natural or urban street canyons, and below-grade roadways). In Oakland, only the MacArthur Maze portion of Interstate 580 exceeds the 44,000 vehicles per hour screening criteria, which is over 8 miles northwest of the Project site. Further, ambient CO standards have not been exceeded in the Bay Area for over a decade, largely due to reformulated fuels in California. Therefore, development under the proposed Project would not be required to estimate localized CO concentrations as it would not contribute to CO concentrations exceeding CAAQS. The impact would be less than significant.

Impact Conclusion: Less than Significant, no mitigation required.

Comparison to 1998 EIS/EIR Findings: No New Impact or Change.

Toxic Air Contaminants

Impact AIR-4: Construction and operation of the Project would not generate substantial levels of toxic air contaminants (TACs). (Criterion d) (Less than Significant with SCAs)

1998 EIS/EIR.

The 1998 EIS/EIR did not assess the Maximum Capacity Alternative's potential effects of diesel emissions, Toxic Air Contaminant (TACs), or the exposure of persons to these emissions. No impact was identified.

Proposed Project.

Pursuant to the BAAQMD CEQA Guidelines, when siting new TAC sources, receptors located within 1,000 feet of new sources or construction activities should be considered.

Project Construction Impacts on Existing Receptors

Construction activities associated with the Project would constitute a new source of DPM and $PM_{2.5}$ emissions. Studies have demonstrated that DPM from diesel-fueled engines is a human carcinogen and that chronic (long-term) inhalation exposure to DPM poses a chronic health risk. Project construction activities would produce DPM and $PM_{2.5}$ emissions from construction equipment exhaust as well as haul truck trips. These emissions could result in elevated concentrations of DPM and $PM_{2.5}$ at nearby sensitive receptors which could lead to an increase in the risk of cancer or other health impacts.

As previously discussed under *Sensitive Receptors* in the *Environmental Setting*, close to Project site primarily include residential uses that surround the project site. Existing residences are located as close as 50 feet from the project site boundary. Seneca has submitted an application for to expand their facilities to include an elementary school, preschool and residential treatment facilities, and this Draft SEIR conservatively treats Seneca as an existing sensitive receptor for this analysis. The Seneca expansion project is assumed to become operational at or about the same time as the Project begins to be implemented (i.e., Phase 1). Nearby residential areas nor the Oakland Zoo and parks in the surrounding area – other sensitive receptors – are not as close to the Project site as the Seneca Center.

The HRA conducted for the Project pursuant to SCA AIR-2 (presented below and detailed in **Appendix J** to this Draft SEIR) analyzes the incremental cancer risks to existing sensitive receptors in the vicinity of the proposed Project, using emission rates (in pounds per hour) from CARB's CalEEMod emission model. DPM (reported as exhaust of $PM_{2.5}$) emission rates were input into the USEPA's AERMOD atmospheric dispersion model to calculate ambient air concentrations at receptors in the Project vicinity. Established cancer potency factors and acceptable reference concentrations for non-cancer health effects were applied to the highest estimated concentrations of TACs at the receptors analyzed to estimate cancer and non-cancer risks. The cancer risk also takes into account the OEHHA-recommended age sensitivity factors and breathing rates, as well as the fraction of time spent at home over an exposure duration of 30 years. Age-sensitivity factors reflect the greater sensitivity of infants and small children to

cancer causing air pollutants. Detailed methodology and assumptions used in the HRA are provided in Appendix Jto this Draft SEIR.

Cancer Risk Impacts

Table 4.2-7 shows the HRA results for existing receptors from proposed Project construction activities and cumulative emission sources. As shown in the table, the maximum cancer risk from Project construction emissions for a residential-adult receptor would be 0.9 per million and for a residential-child receptor would be 35.9 per million. The cancer risk for the scenario with on-site concrete crushing during Phase 1 of Project construction would be slightly higher than the scenario with off-site hauling (i.e., 35.9 per million vs. 30.6 per million for a residential-child receptor). The maximum cancer risk from construction emissions for a school child (preschool and K-12), teacher, and residential receptor (Seneca) would be 17.3. 8.7, 1.1, and 3.4 per million, respectively. The maximum concentrations occurred at a residential receptor on St Andrews Boulevard to the southwest of the proposed Project. Thus, the cancer risk due to construction activities of the Project is potentially above the BAAQMD threshold of 10 per million and potentially significant.

TABLE 4.2-7
ESTIMATED HEALTH IMPACTS FOR EXISTING RECEPTORS

	Cancer Risk (child/adult)	Hazard Index (acute/chronic)	$PM_{2.5}$ Concentration
Proposed Project			
Proposed Project	**35.9/0.9**	**0.04/0.03**	**0.14**
Significance Threshold	10	1.0	0.3
Exceeds Threshold?	**Yes**	No	No
Cumulative			
Naval Medical Command, 8750 Mountain Blvd	0	0	0
Keller Avenue [a]	Beyond 1,000 feet from receptor		
Mountain Boulevard [a]	Beyond 1,000 feet from receptor		
Interstate 580 [b]	11.7	0.04/0.01	0.08
Proposed Project	35.9/0.9	0.04/0.03	0.14
Cumulative Impact	**47.6**	**0.08/0.04**	**0.22**
Significance Threshold	100	10	0.8
Exceeds Threshold?	No	No	No

NOTES

[a] Cancer risk, health impact and $PM_{2.5}$ concentration values for local roadways are based on BAAQMD's Roadway Screening Analysis Calculator, dated April 16, 2015.

[b] Cancer Risk, Hazard Impact, and $PM_{2.5}$ Concentration values for Interstate 580 are based on BAAQMD's Highway Screening Analysis Tool, dated April 29, 2011.

SOURCE: Appendix J

The receptor most affected by emissions from Project construction, or the maximum exposure individual (MEI), is located beyond 1,000 feet of Interstate 580 and other cumulative sources. Nevertheless, given the traffic volume on Interstate 580, it was included in the cumulative analysis while the contribution from the other cumulative sources was assumed to be minimal. As shown in Table 4.2-7, the cumulative cancer risk from the cumulative scenario including Project

construction emissions and traffic on Interstate 580 would be 47.6 per million. Thus, the cumulative cancer risk would be below the BAAQMD threshold of 100 per million and the impact would be less than significant.

As discussed under Impact AIR-1, SCA AIR-1 would be implemented as part of the Project to reduce fugitive dust as well as construction equipment exhaust emissions. In order to comply with the off-road construction equipment related enhanced controls under SCA AIR-1, the construction equipment fleet for the Project would be required to include a combination of Tier 3 and Tier 4 equipment.

Table 4.2-8 shows the HRA results taking into account the implementation of SCA AIR-1 conservatively assuming all Tier 3 equipment. The cancer risk for a residential-adult receptor would be 0.1 per million and for a residential-child receptor would be 3.2 per million. The maximum cancer risk from construction emissions for a school child (preschool and K-12), teacher, and residential receptor (Seneca) would be 2.3. 1.3, 0.2, and 0.5 per million, respectively. Therefore, with the implementation of SCA AIR-1, cancer risk due to construction activities would be below the BAAQMD threshold of 10 per million. Cumulative cancer risk from the mitigated construction activities plus other nearby emission sources would also be below the BAAQMD threshold of 100 per million and would also be less than significant. This impact would therefore be less than significant.

TABLE 4.2-8
ESTIMATED HEALTH IMPACTS FOR EXISTING RECEPTORS WITH SCA AIR-1

	Cancer Risk (child/adult)	Hazard Index (acute/chronic)	$PM_{2.5}$ Concentration
Proposed Project			
Proposed Project with SCA AIR-1	**3.2/0.1**	**<0.01/<0.01**	**0.01**
Significance Threshold	10	1.0	0.3
Exceeds Threshold?	No	No	No
Cumulative			
Naval Medical Command, 8750 Mountain Blvd	0	0	0
Keller Avenue [a]	Beyond 1,000 feet from receptor		
Mountain Boulevard [a]	Beyond 1,000 feet from receptor		
Interstate 580 [b]	11.7	0.04/0.01	0.08
Proposed Project with SCA AIR-1	3.2/0.1	<0.01/<0.01	0.01
Cumulative Impact	**14.0**	**0.04/0.01**	**0.09**
Significance Threshold	100	10	0.8
Exceeds Threshold?	No	No	No

NOTES

[a] Cancer risk, health impact and $PM_{2.5}$ concentration values for local roadways are based on BAAQMD's Roadway Screening Analysis Calculator, dated April 16, 2015.

[b] Cancer Risk, Hazard Impact, and $PM_{2.5}$ Concentration values for Interstate 580 are based on BAAQMD's Highway Screening Analysis Tool, dated April 29, 2011.

SOURCE: Appendix J

Non-Cancerous Health Impacts

Both acute (short-term) and chronic (long-term) adverse health impacts unrelated to cancer are measured against a hazard index (HI), which is defined as the ratio of the predicted incremental DPM exposure concentration from the proposed Project to a reference exposure level (REL) that could cause adverse health effects. A HI of greater than 1.0 is considered significant.

The chronic HI for the Project was estimated to be 0.03, based on a maximum annual diesel concentration of 0.14 $\mu g/m^3$ (per dispersion modeling analysis). With the implementation of SCA AIR-1, the chronic HI would be less than 0.01. As the chronic HI would be below the project-level threshold of 1.0, the impact of the proposed Project would therefore be less than significant.

The acute HI for the Project was estimated to be 0.04 based on a maximum 1-hour diesel concentration of 8.43 $\mu g/m^3$ and acrolein speciation of 1.3 percent for DPM. With the implementation of SCA AIR-1, the acute HI would further reduce to less than 0.01. As the acute HI would be below the project-level threshold of 1.0, the impact of the proposed Project would be less than significant.

Project Operational Impacts on Existing Receptors

The proposed Project would develop the 188 acre site with residential, commercial and open space uses. There are no specific stationary sources of TACs proposed as part of the Project. Any back-up diesel generators proposed at the commercial uses would be required to obtain a permit and an Authority to Construct from the BAAQMD which would evaluate emissions based on size and require Best Available Control Technology, if warranted. Per its Policy and Procedure Manual, the BAAQMD would deny an Authority to Construct or a Permit to Operate for any new or modified source of TACs that exceeds a cancer risk of 10 in one million or a chronic or acute hazard index of 1.0. Therefore this impact would be less than significant.

Impact Conclusion: Less than Significant with SCAs

Comparison to 1998 EIS/EIR Findings: No New Significant Impact.

Impact AIR-5: Construction of the Project would not expose proposed sensitive receptors to substantial levels of toxic air contaminants (TACs). (Criterion e) (Less than Significant)

The following analysis is provided for informational purposes only, as this analysis is not required pursuant to the California Supreme Court's December 17, 2015 decision in California Building Industry Association v. Bay Area Air Quality Management District. The City's CEQA significance thresholds require that new projects containing sensitive receptors be evaluated to determine whether those receptors would be exposed to health risks from existing nearby sources of TACs. When siting new sensitive receptors, both the BAAQMD and the City of Oakland recommend considering all existing TAC sources located within 1,000 feet including, but not limited to, stationary sources, freeways, major roadways (10,000 or greater vehicles per day), truck distribution centers, ports, and rail lines. For this threshold, sensitive receptors include

residential uses, schools, parks, daycare centers, nursing homes, and medical centers. Pursuant to SCA AIR-2, a health risk assessment was conducted to assess the risks to residences proposed by the Project from exposure to existing cumulative sources such as permitted sources (i.e., diesel generators, gasoline stations), vehicle traffic on Interstate 580, Keller Avenue, and Mountain Boulevard as well as proposed Project construction.

The maximum cancer risk from Project construction alone for a new residential-adult receptor was estimated to be 1.7 per million and 59.8 per million for a new residential-child receptor. The health impacts for the scenario with the on-site concrete recycling processing plant would be slightly higher than the scenario with the off-site hauling trucks (i.e., 59.8 per million vs. 50.1 per million for a residential-child receptor). However, with the implementation of SCA AIR-1, the maximum cancer risk from Project construction emissions reduces to 0.1 per million for a new residential-adult receptor and 5.1 per million for a new residential-child receptor.

The effects are considered for residential receptors (of the Project, which would be closest to the construction and operational activities), particularly factoring in subsequent construction phases. The maximum concentrations were found to occur at a residential receptor within the Phase 1 development, and resulted from exposure to emissions from the later portion of Phase 1 as well as the construction of Phase 2 and 3. The potential cancer risk impacts on a Phase 1 residential receptor due to a portion of Phase 1 construction as well as construction of Phase 2 and 3, would be 5.1 per million. The potential cancer risk impacts on a Phase 2 residential receptor due to a portion of Phase 2 construction as well as construction of 3, would be 3.4 per million. The potential cancer risk impacts on a Phase 3 residential receptor due to a portion of Phase 3 construction, would be 4.7 per million. The health risk assessment followed the methodology outlined in BAAQMD's most recent Health Risk Assessment Guidelines.

With implementation of SCA AIR-1 and SCA AIR-2 as part of the Project, the impact to new receptors from Project construction would be less than significant given the required use of the Best Available Control Technology, such as use of MERV-13 or higher air filter devices in HVAC systems, or passive electrostatic filtering systems, for example (see SCA AIR-2). These and/or other Best Available Control Technologies would reduce the maximum cancer risk from Project construction emissions to below the applicable threshold. The cumulative cancer risk, 7.2 per million, would be well below the BAAQMD cumulative significance threshold of 100 per million for new residential receptors and would also be less than significant.

Table 4.2-9 shows the cumulative cancer risks, hazard indices, and $PM_{2.5}$ concentrations impacting the proposed Project residences from BAAQMD-permitted stationary sources, major and local roadways within 1,000 feet of the proposed project, and also includes the effects of Project construction activities.

As a conservative estimate of cumulative health impacts on proposed receptors, the proposed receptor nearest to Interstate 580 was also examined. This receptor is located within the southwestern portion of Phase I and approximately 300 feet from Interstate 580 and approximately 200 feet from Mountain Boulevard. The proposed Project construction contribution would be 2.2 per million. The contribution from Interstate 580 would be 45.6 per

million and the contribution from Mountain Boulevard would be 3.3. Thus, the cumulative cancer risk would be 51.1 per million, which is below the BAAQMD threshold of 100 per million and would be less than significant.

TABLE 4.2-9
ESTIMATED HEALTH IMPACTS FOR PROPOSED RECEPTORS

	Cancer Risk (child/adult)	Hazard Index (acute/chronic)	$PM_{2.5}$ Concentration
Proposed Project with SCA AIR-1	5.1/0.1	<0.01/<0.01	0.02
Naval Medical Command, 8750 Mountain Blvd	0	0	0
Keller Avenue [a]	0.3	<0.01	0.01
Mountain Boulevard [a]	Beyond 1,000 feet from receptor		
Interstate 580 [b]	1.8	0.03/<0.01	0.01
Cumulative Impact	**7.2**	**0.05**	**0.04**
Significance Threshold	100	10	0.8
Exceeds Threshold?	No	No	No

NOTES:

[a] Cancer risk, health impact and $PM_{2.5}$ concentration values for local roadways are based on BAAQMD's Roadway Screening Analysis Calculator, dated April 16, 2015.

[b] Cancer Risk, Hazard Impact, and $PM_{2.5}$ Concentration values for Interstate 580 are based on BAAQMD's Highway Screening Analysis Tool, dated April 29, 2011.

SOURCE: Appendix J

The HRA for TAC concentrations reveals that the siting new sensitive receptors within any portion of the Project site would not result in exposure to substantial levels of TACs resulting in (a) a cumulative cancer risk level greater than 100 in a million, (b) a cumulative non-cancer risk (chronic or acute) hazard index greater than 10.0, or (c) annual average $PM_{2.5}$ concentration contributions of greater than 0.8 micrograms per cubic meter. Therefore, this impact would be less than significant

Impact Conclusion (For Informational Purposes Only): Less than Significant with SCAs.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact Identified.

Impact AIR-6: The Project would not create objectionable odors that would affect a substantial number of people. (Criterion f) (Less than Significant)

1998 EIS/EIR.

The 1998 EIS/EIR did not assess the Maximum Capacity Alternative's potential odor effects. No impact was identified. However, based on the proposed uses identified for the Maximum Capacity Alternative, the alternative would not involve the development of the types of land uses typically associated with odor issues (e.g., wastewater treatment plants, landfills, composting

facilities, refineries, etc.). The Maximum Capacity Alternative could include restaurant uses that could potentially emit objectionable odors. Because such uses would be subject to the requirements of BAAQMD Regulation 7 – Odorous Substances, any odor impacts would be maintained at a less than significant level. Regulation 7 defines and specifies standards for the discharge of odorous substance (e.g., dilution rates, method of sample collection and analysis). Therefore, it is reasonable to conclude that the Maximum Capacity Alternative would not result in a significant impact regarding odor effects. The impact would be less than significant.

Proposed Project.

The BAAQMD Guidelines identify wastewater treatment plants, oil refineries, asphalt plants, chemical manufacturing, painting/coating operations, coffee roasters, food processing facilities, recycling operations and metal smelters as odor sources of particular concern, and recommends buffer zones of one to two miles around them to avoid potential odor conflicts. All of these odor sources are present within the City of Oakland. However, odor is a subjective impact and perception of odor can vary depending on receptor sensitivity, climate, wind patterns, topography.

In accordance with the recommendations in the BAAQMD Guidelines, the City of Oakland has created a map of known odor sources including: food processing facilities; coffee roasters; chemical manufacturers; asphalt batch plants; and the EBMUD wastewater treatment facility (City of Oakland, 2010). This map presents a reasonable estimation of all the odor sources of concern within the City of Oakland, based upon City's business tax records of the industry categories identified by the BAAQMD. In addition, buffer zones were drawn around the identified sites, based on the aforementioned BAAQMD criteria. There are no odor sources located in the vicinity of the Project Area that future occupants of the Project could be exposed to. All mapped odor sources are located at distances considered adequate to allow dilution of odors and avoid odor impacts to occupants at the Project site. Therefore, the potential for new sensitive receptors proposed by the Project to be impacted by substantial objectionable odors affecting a substantial number of people would be less than significant.

The Project would not introduce any new significant sources of odor. Any proposed restaurant uses within the Village Center would be subject to BAAQMD's Regulation 7 which limits emission of odorous substances. This would ensure that odor impacts from such uses would be less than significant.

Impact Conclusion: Less than Significant.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact Identified.

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4.3 Biological Resources

4.3.1 Introduction

This section assesses the effects of the proposed Oak Knoll Project (Project) on biological resources. To determine whether the proposed Project would result in any new impacts related to biological resources, or increases in the severity of biological resources impacts previously disclosed in the 1998 EIS/EIR, this analysis considers the impacts that would result from construction and operation activities that would take place within the Project area, (i.e. the Project site and relevant surrounding vicinity) under current environmental and regulatory circumstances and compares these impacts to those identified in the previous EIS/EIR, and mitigation measures in that document.

The information on natural communities, plant and animal species, and sensitive biological resources used in the preparation of this section was obtained from: the California Natural Diversity Database (CDFW, 2015c), the California Native Plant Society (CNPS) Electronic Inventory (CNPS, 2015a), the U.S. Fish and Wildlife Service (USFWS, 2015), standard biological literature, eBird.org (eBird, 2015), and reconnaissance-level and focused surveys of the Project site. ESA conducted reconnaissance botanical and wildlife surveys of the Project site on June 29, 2015 to characterize existing conditions, assess habitat quality, and assess the potential presence of special-status species and sensitive natural communities.

WRA Environmental Consultants (WRA) conducted focused surveys of the Project site in the spring and summer of 2015 and prepared several reports detailing their results to support the Project biological resources impact analysis. These reports include the following and are the primary sources of information on biological resources within the Project site in addition to the creek restoration documents prepared by Environmental Science Associates (ESA):

- Biological Resources Assessment, (WRA, 2015b) (Appendix M)
- Rare Plant Survey Report, (WRA, 2016a) (Appendix P)
- Tree Survey Report, (WRA, 2015c) (Appendix Q)
- WRA Environmental Consultants, Memorandum: Oak Knoll Mixed Use Development Project Tree Removal Impact Mitigation Plan, Oak Knoll, November 25. (2015d) (Appendix R)
- Delineation of Potential Jurisdictional Wetlands and "Other Waters" under Section 404 of the Clean Water Act, (WRA, 2007b; Corps, 2013) (Appendix K)
- Delineation of Potential Jurisdictional Wetlands and Non-Wetland Waters under Section 404 of the Clean Water Act, Hardenstine Parcel (WRA 2015a) (Appendix L)
- Oak Knoll Mixed Use Community Development Project Regulatory Permit Application Package (WRA, 2016b)
- Demographic Analysis of the Alameda Whipsnake at the Former Oak Knoll Naval Hospital (The Wildlife Project, 2015)

- Hydrology Report (Rifle Range Creek Basis of Design, Oakland, CA) (ESA, 2016b) (part of Appendix N)
- Rifle Range Creek: Hydrology Report, Restoration Plan and Preliminary Creek Protection Plan (ESA, 2016a) (part of Appendix N
- Rifle Range Creek Riparian Restoration and Monitoring Plan (WRA, 2016c). (Appendix O)

In addition, several studies describing biological resources within the Project site were previously prepared and have also been reviewed to support the analysis of potential environmental impacts of the Project:

- Oak Knoll Redevelopment Rifle Range Creek Restoration Plan (PWA, 2006)
- Biological Assessment Report (WRA, 2006a)
- Draft Rare Plant Survey (WRA, 2006b)
- Alameda Whipsnake Survey Report (Swaim Biological Inc., 2006)

Each of the aforementioned documents are included as appendices to this Draft SEIR and/or cited under *References – Biological Resources* at the end of this Section 4.3.

4.3.2 Setting

This section describes the regional and Project area setting, defined as the Project area of disturbance (Project site) and relevant areas of similar habitat composition surrounding the Project site, including a description of habitats and species known or likely to occur in the Project site.

Regional Setting

The Project is located in the Bay Area–Delta Bioregion,[1] as defined by the State of California's Natural Communities Conservation Program. This bioregion consists of a variety of natural communities that range from the open waters of San Francisco Bay and Delta to salt and brackish marshes to grassland, chaparral, and oak woodlands. The temperate climate is mediterranean, with relatively mild, wet winters and warm, dry summers. The high diversity of vegetation and wildlife in the region is a result of soil, topographic, and microclimate variations, which combine to promote relatively high levels of endemism.[2] This, in combination with a long history of uses that have altered the natural environment and the increasingly rapid pace of development in the region, has endangered some of the local flora and fauna.

[1] A bioregion is an area defined by a combination of ecological, geographic, and social criteria and consists of a system of related interconnected ecosystems. The Bay-Delta bioregion is considered the immediate watershed of the Bay Area and the Delta, not including the major rivers that flow into the Delta. It is bounded on the north by the northern edge of Sonoma and Napa Counties and the Delta and extends east to the edge of the valley floor; on the south, it is bounded by the southern edge of San Joaquin County, the eastern edge of the Diablo Range, and the southern edge of Santa Clara and San Mateo Counties.

[2] Endemism refers to the degree to which organisms or taxa are restricted to a geographical region or locality and thus are individually characterized as endemic to that area.

Project Setting

The Project site consists of approximately 166-acres of the 183-acre former Naval Medical Center Oakland (NMCO) property, an adjacent 15-acre undeveloped parcel (known as the "Hardenstine parcel"), and an adjacent 7-acre property owned by the City, for a total Project site of approximately 188 acres, all located in the southeast portion of the Oakland East U.S. Geological Survey (USGS) 7.5' Quadrangle map (USGS 2015), approximately seven miles southeast of downtown Oakland.

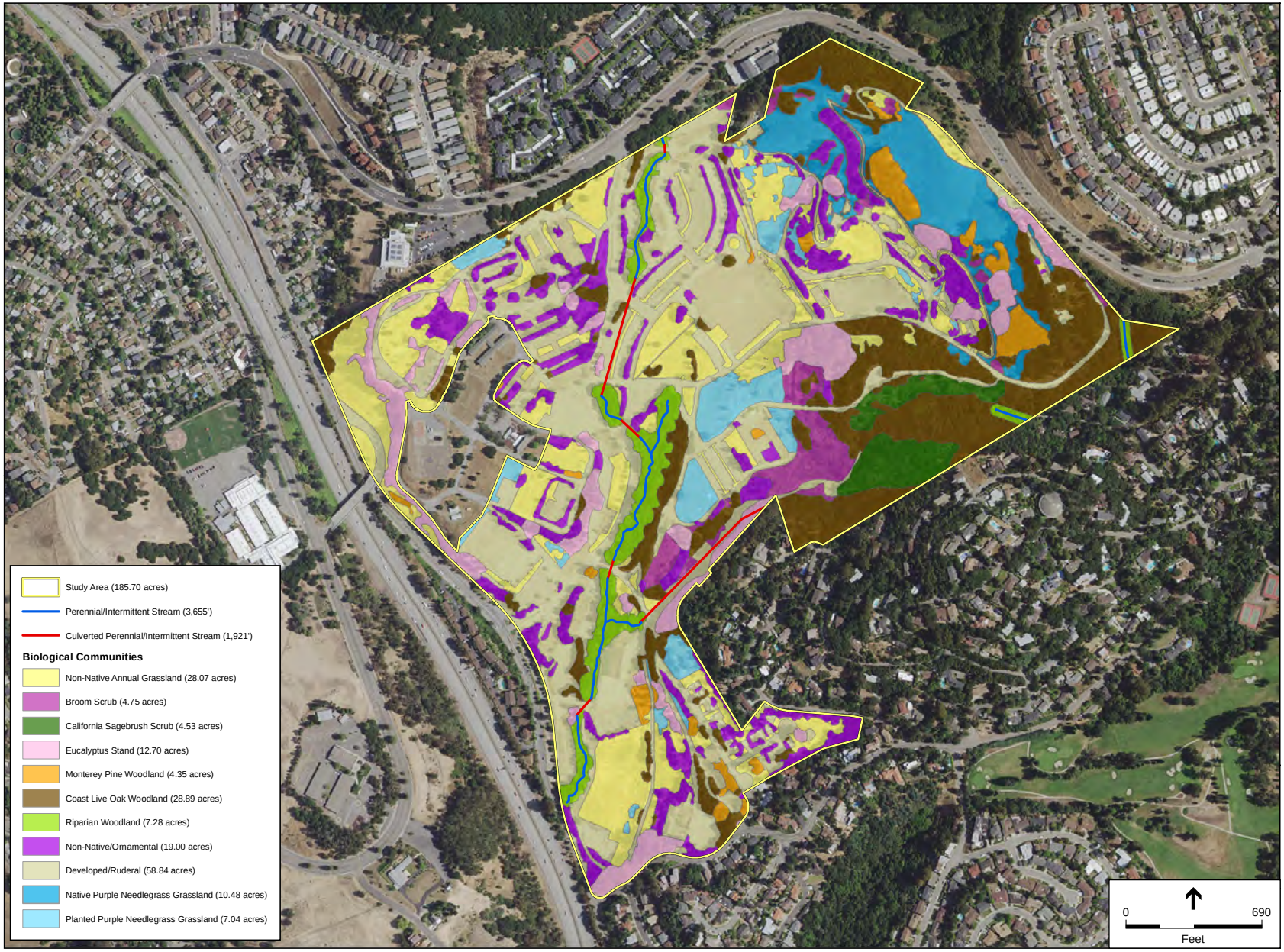
The site is bounded by Mountain Boulevard and Interstate 580 to the west, Keller Avenue to the north and east, and Sequoyah Road to the south (see Figure 3-2, Site Aerial). In general, topography in the Project site slopes down toward the southwest from a prominent ridge at the eastern side of the property. Elevations range from approximately 670 feet on the eastern ridge to 230 feet in the southwestern corner. The majority of the Project site has been significantly altered from its natural state by previous infrastructure development associated with the former naval base and medical center, and subsequent abandonment and demolition.

The Project site is characterized by disturbed or planted vegetation types including non-native annual grassland, developed/ruderal vegetation, eucalyptus (*Eucalyptus globulus*, and *E. camaldulensis*) stands, and non-native/ornamental tree stands, which are generally situated in the previously developed, lower elevation areas with relatively flat topography. The eastern and southeastern portions of the Project site are characterized by steep, hilly topography with relatively undisturbed, natural vegetation types, including coast live oak (*Quercus agrifolia*) woodland, California sagebrush (*Artemisia californica*) scrub, and native purple needlegrass (*Stipa pulchra*) grassland. Rifle Range Creek, a tributary of Arroyo Viejo, flows from north to south across the center of the Project area. Rifle Range Creek is bordered by riparian woodland and is one of the site's most prominent natural features. Surrounding land uses of the Project site are primarily residential development, small local commercial centers interspersed with undeveloped, open areas and regional open space.

Vegetation Communities and Wildlife Habitats

Natural communities are assemblages of plant and wildlife species that occur together in the same area, which are defined by species composition and relative abundance. The Project site contains several distinct vegetation communities which were identified during a series of in-depth field surveys performed by WRA in the spring and summer 2015 and confirmed by ESA during the reconnaissance survey of the Project site in 2015. **Figure 4.3-1**, Oak Knoll Vegetation Communities, depict the twelve distinct vegetation alliances mapped by WRA (WRA 2015b).

These twelve alliances have been summarized into the following seven communities which are described in detail, below: developed/landscaped/ruderal, grassland, coastal scrub, non-native forest, perennial/intermittent stream, riparian woodland, and coast live oak woodland.



SOURCE: WRA Envronmental Consultants

Oak Knoll Project . 120645

Figure 4.3-1

Oak Knoll Vegetation Communites

Developed/Ruderal/Landscaped

The Project site includes 58.84 acres of developed/ruderal or landscaped areas that are generally unvegetated but may support sparse, non-native opportunistic, weedy species that thrive in disturbed areas such as French broom (*Genista monspessulana*), stinkwort (*Dittrichia graveolens*), ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), and yellow annual sweetclover (*Melilotus indicus*). Prickly pear cactus (*Opuntia* sp.) occur infrequently nearby former building locations and along some streets within the Project site.

Landscaped and ruderal areas can provide cover, foraging, and nesting habitat for a variety of bird species as well as reptiles and small mammals, especially those that are tolerant of disturbance and human presence. Birds commonly found in such areas include non-native species such as house sparrow (*Passer domesticus*), rock dove (*Columba livia*), Eurasian collard dove (*Streptopelia decaocto*), and European starling (*Sturnus vulgaris*) as well as birds native to the area, including American robin (*Turdus migratorius*), house finch (*Haemorhous mexicanus*), mourning dove (*Zenaida macroura*), northern mockingbird (*Mimus polyglottos*) and western scrub jay (*Aphelocoma californica*). Other wildlife found in such areas can include black-tailed deer (*Odocoileus hemionus*), striped skunk (*Mephitis mephitis*), raccoon (*Procyon lotor*), grey fox (*Urocyon cinereoargenteus*), and common bats, as well as the non-native Virginia opossum (*Didelphis virginiana*). Red-tailed and red-shouldered hawks (*Buteo jamaicensis; B. lineatus*) prey on Botta's pocket gophers (*Thomomys bottae*) and other small rodents are also supported in such environments.

Grassland

Non-native annual grassland, planted perennial purple needlegrass grassland, and native perennial purple needlegrass grassland are distinct alliances within the general grassland vegetation community of the Project site.

Non-native annual grassland covers 28.07 acres of the Project site and is dominated by non-native grasses and forbs with scattered natives, including slender oat (*Avena barbata*), ripgut brome, rattail fescue (*Festuca myuros*), English plantain (*Plantago lanceolata*), Italian ryegrass, and longbeak stork's bill (*Erodium botrys*).

Areas supporting at least 10 percent relative cover of purple needlegrass were designated purple needlegrass grassland. Planted purple needlegrass grassland covers 7.04 acres of the Project site and is present where buildings were demolished and seeding of native species, including purple needlegrass, followed demolition as part of the Stormwater Pollution Prevent Plan (SWPPP). These areas are located primarily in the west portion of the site and are fragmented by former building locations and medians, among ruderal and non-native grassland plants. Naturally occurring or native purple needlegrass grassland covers 10.48 acres of relatively intact habitat on the eastern ridges. Purple needlegrass co-occurs with non-native annual grasses and forbs including slender oat, ripgut brome, rattail fescue, English plantain, and longbeak stork's bill. However, several native species are also present, including naked buckwheat (*Eriogonum nudum* var. *nudum*), foothill plantain (*Plantago erecta*), hairy gumweed (*Grindelia hirsutula*), and Wrangel's lotus (*Acmispon wrangelianus*). Native purple needlegrass grassland has a sensitivity ranking of G4 S3, indicating that it is apparently globally secure but vulnerable in California

(CDFW 2015c, NatureServe 2010). Annual and perennial grassland communities support a similar set of wildlife species as described above for developed, ruderal or landscaped areas.

Coastal Scrub

California sagebrush scrub covers 4.53 acres of the Project site in two locations on steep slopes within coast live oak woodland in the southeastern portion of the site. California sagebrush, coyote brush (*Baccharis pilularis* ssp. *consanguinea*), chamise (*Adenostoma fasciculatum* var. *fasciculatum*), and hairy manzanita (*Arctostaphylos crustacea* ssp. *crustacea*) are dominant within this alliance. Common herbaceous species in the interstitial areas between shrubs include ripgut brome, longbeak stork's bill, scarlet pimpernel (*Lysimachia arvensis*), and coffee fern (*Pellaea andromedifolia*). Non-native broom scrub, dominated by the noxious weed French broom, covers 4.75 acres of the Project site and is generally located in disturbed areas throughout the site and in undisturbed areas in the southeast portion of the Project site. French broom is often dense but co-occurs with other non-native grasses and forbs of the site. Coastal scrub alliances support alligator lizard (*Elgaria* spp.), western fence lizard (*Sceloporus occidentalis*) and gopher snakes (*Pituophis catenifer*); small rodents such as deer mouse (*Peromyscus maniculatus*), vagrant shrew (*Sorex vagrans*), and California vole (*Microtus californicus*); and a variety of birds such as white-crowned sparrow (*Zonotrichia leucophrys*), Bewick's wren (*Thryomanes bewickii*), and common bushtit (*Psaltriparus minimus*).

Non-native Forest

The non-native forest throughout the Project site primarily consists of blue gum eucalyptus and red river gum (12.70 acres) in a matrix of landscaped and developed areas; discontinuous stands of Monterey pine (4.35 acres); and non-native ornamentals (19.00 acres) which include a diverse array of native and non-native tree species that were historically planted as landscaping throughout the Project site. As these trees have matured, and in some cases naturalized, significant non-native and ornamental tree cover has developed, ranging from open rows to dense forest. Commonly occurring trees include blackwood acacia (*Acacia melanoxylon*), ponderosa pine (*Pinus ponderosa*), Italian stone pine (*P. pinea*), Deodar cedar (*Cedrus deodara*), olive (*Olea europaea*), cherry plum (*Prunus cerasifera*), California pepper (*Schinus molle*), and Brazilian pepper (*S. terebinthifolius*). Native species such as American robin, pygmy nuthatch (*Sitta pygmaea*), Anna's hummingbird, California towhee (*Melozone crissalis*), tree swallow (*Tachycineta bicolor*), western grey squirrel (*Sciurus griseus*) and the non-native eastern fox squirrel (*Sciurus niger*) may occur in non-native forest.

Coast Live Oak Woodland

Coast live oak (*Quercus agrifolia*) woodland occurs in upland settings throughout the Project site and covers 28.89 acres. In the western and central portions of the Project site, it occurs mainly as small patches in a matrix of landscaped and developed areas. In the northeastern and southeastern portions of the Project site, larger, more contiguous stands of oak woodland occur. Some of these larger stands appear to predate development in the Project site and have a higher diversity of native plant species within the understory compared to elsewhere in the Project site. The overstory is composed of dense coast live oak with occasional California bay (*Umbellularia californica*). The understory is relatively open with poison oak and French broom. Common

understory herbaceous species include bracken fern (*Pteridium aquilinum* var. *pubescens*), California maidenhair fern (*Adiantum jordanii*), and wall barley (*Hordeum murinum* ssp. *murinum*). Acorn woodpecker (*Melanerpes formicivorous*), oak titmouse (*Baeolophus inornatus*), and chestnut-backed chickadee (*Poecile rufescens*) are common birds observed in this community, as are western grey squirrel and non-native eastern fox squirrel.

Coast live oak woodland has a sensitivity ranking of G5 S4 indicating that it is globally secure and apparently secure in California. The East Bay Chapter of CNPS lists coast live oak woodland as locally rare (A2) in their publication, *Rare, Unusual, and Significant Plants of Alameda and Contra Costa Counties, 8th Edition*. Although coast live oak is a common species in Alameda and Contra Costa counties, the species was included on the locally rare list because "many trees [are] being attacked by Sudden Oak Death" (Lake, 2010). Sudden Oak Death has been reported in the vicinity of the Project site (Geospatial Innovation Facility and Kally Research and Outreach Lab, 2015).

Perennial/Intermittent Stream

The Project site comprises six reaches of Rifle Range Creek and two associated tributaries, Powerhouse Creek and Hospital Creek. Rifle Range Creek is a perennial stream, while the associated tributaries are characterized by intermittent hydrology. Vegetation composition and wildlife use of the stream corridor are discussed under *Riparian Woodland.*

Riparian Woodland

Riparian woodland occurs on and adjacent to the banks of Rifle Range Creek and its tributaries covering 7.28 acres of the Project site. The overstory is generally dense and composed primarily of coast live oak, though 18 other tree species are present at low cover, including white alder (*Alnus rhombifolia*) and red willow (*Salix laevigata*). The understory is generally open with shrub species including poison oak and California blackberry (*Rubus ursinus*). Common understory herbaceous species include panic veldtgrass (*Ehrharta erecta*), dogtail grass (*Cynosurus echinatus*), poison hemlock (*Conium maculatum*), and hedge parsley (*Torilis arvensis*). This community is regulated as a sensitive community by the California Department of Fish and Wildlife (CDFW) under the California Department of Fish and Game (CDFG) Code (Section 1600 et seq.). Black phoebe (*Sayornis nigricans*), Wilson's warbler (*Cardellina pusilla*), orange-crowned warble (*Oreothlypis celata*), Bewick's wren, Cooper's hawk (*Accipiter cooperii*), Sierran treefrog (*Pseudacris sierra*), bullfrog (*Rana catesbeiana*), raccoon and opossum are commonly observed in riparian corridors.

Sensitive Natural Communities

A sensitive natural community is a biological community that is regionally rare, provides important habitat opportunities for wildlife, is biologically diverse, or is in other ways of special concern to local, state, or federal agencies. Most sensitive natural communities are given special consideration because they perform important ecological functions, such as maintaining water quality and providing essential habitat for plants and wildlife. Some plant communities support a unique or diverse assemblage of plant species and therefore are considered sensitive from a botanical standpoint. The most current version of the CDFW's *List of California Terrestrial Natural Communities* (CDFG, 2010) indicates which natural communities are of special status given the

current state of the California classification. The CDFW formerly tracked sensitive natural communities in the CNDDB. Due to funding cuts no new occurrences of sensitive natural communities have been added to the CNDDB since the mid-1990s, although the database continues to include those occurrences recorded prior to the program being defunded.

The CNDDB reports four sensitive natural community occurrences for the nine-quadrangle area containing and surrounding the Project site that include Northern Coastal Salt Marsh, Northern Maritime Chaparral, Serpentine Bunchgrass, and Valley Needlegrass Grassland (CDFW, 2015c). Of these four sensitive natural communities of the regional study area, only Northern Maritime Chaparral and Serpentine Bunchgrass occur within the Oakland East quadrangle; neither of these communities are documented within the Project site.

However, as described above, native purple needlegrass grassland is considered to be a sensitive natural community due to its limited distribution in the state and has a state rarity ranking of S3?. Coast live oak woodland is also considered a sensitive natural community that occurs within the Project site, with a sensitivity ranking of S4 indicating that it is apparently secure in California. The spread of Sudden Oak Death has caused the East Bay Chapter of CNPS to list this community as rare (A2) (Lake 2010).

Wetlands and Other Jurisdictional Waters

Wetlands are ecologically complex habitats that support a variety of both plant and animal life. Section 404 of the Clean Water Act defines wetlands for purposes of federal jurisdiction as "areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support (and do support, under normal circumstances) a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3[b] and 40 CFR 230.3). Under normal circumstances, the federal definition of wetlands requires three wetland identification parameters be present: wetland hydrology, hydric soils, and hydrophytic vegetation. Examples of federally jurisdictional wetlands include freshwater marsh, seasonal wetlands, and vernal pool complexes that have a hydrologic link to other waters of the U.S. (see definition below for "other waters of the U.S."). The Corps is the responsible agency for regulating wetlands under Section 404 of the Clean Water Act, while the U.S. Environmental Protection Agency (USEPA) has overall responsibility for the Act. The Regional Water Quality Control Board (RWQCB) regulates federally jurisdictional wetlands under Section 401 of the Clean Water Act. The RWQCB also has regulatory authority over wetlands, including those that are "isolated" and therefore not considered federally jurisdictional, under California's Porter-Cologne Water Quality Control Act. The CDFW does not normally have direct jurisdiction over wetlands unless they are subject to jurisdiction under Section 1600 of the California Fish and Game Code as regulated under Lake or Streambed Alteration Agreements (LSAA), or they support state-listed endangered species; however, CDFW has trust responsibility for wildlife and habitats pursuant to California law. It should be noted that most state laws protecting wetlands do not necessarily require all three identification parameters for wetlands, as cited for the federal Clean Water Act requirements above (see the State section of the *Regulatory Setting* for state definitions of wetlands); some state laws only require the presence of a single wetland identification parameter for a waterbody to be considered a wetland.

In addition to wetlands, other waterbodies and features are regulated under federal and state law. "Other waters of the U.S." refers to those aquatic features that are regulated by the Clean Water Act but are not wetlands, and are defined under the Clean Water Act at 33 CFR 328.4. To be considered federally jurisdictional, these features generally must exhibit a defined bed and bank and an ordinary high-water mark. Examples of other waters of the U.S. include rivers, creeks, intermittent and ephemeral channels, ponds, lakes, and the ocean. Waters of the State of California are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (California Water Code §13050(e)) and include all federally jurisdictional waters. Waters of the State are broadly construed to include both public and private waters in natural and artificial channels (SWRCB, 2008).

In May and June 2006, WRA conducted a routine wetland delineation of the 183-acre Oak Knoll Naval Hospital Site (the current Project site excluding the Hardenstine and City-owned parcels) to determine the presence of potential wetlands and "other waters" subject to federal jurisdiction under Section 404 of the Clean Water Act (WRA 2007b). The delineation found a total of 5,200 linear feet (0.72 acres) of potential jurisdictional "other waters" within the 2006 study area. With the exception of 0.03 acres of in-stream wetlands, no other potential jurisdictional wetlands were identified in the 2006 study area. The delineation was verified by the Corps in 2007 (Corps File No. 2006-400240S). The 2006 delineation was re-verified by the Corps on April 18, 2013, as documented in a letter issued on May 16, 2013 (Corps 2013) (Appendix K to this Draft SEIR).[1]

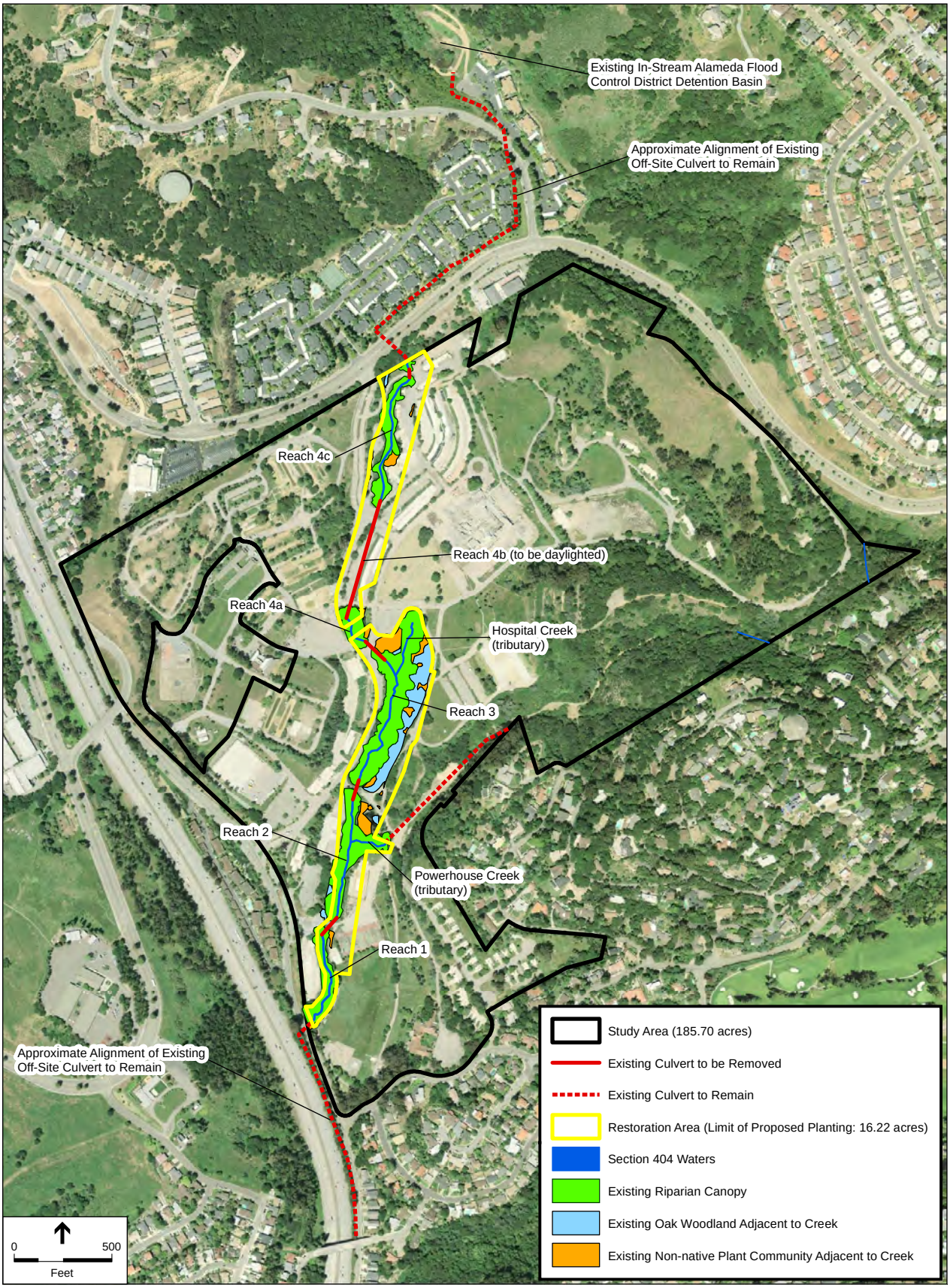
In January and February 2015, WRA surveyed the 14.8-acre Hardenstine parcel as an addendum to the 2006 delineation and identified a total of 376 linear feet (0.03 acre) of potential jurisdictional "other waters" (non-wetland waters of the U.S.) (WRA 2015a) (Appendix L to this Draft SEIR). The 2015 surveys of the Hardenstine parcel were verified by the Corps on June 6, 2016.

The locations and extent of jurisdictional features are depicted in **Figure 4.3-2**, Jurisdictional Features within the Oak Knoll Project Site, with a summary also provided in **Table 4.3-1**.

Wildlife Movement Corridors

Wildlife movement corridors are considered an important ecological resource by CDFW and USFWS and under CEQA. Movement corridors may provide favorable locations for wildlife to travel between different habitat areas such as foraging sites, breeding sites, cover areas, and preferred summer and winter range locations. They may also function as dispersal corridors allowing animals to move between various locations within their range. Topography and other natural factors, in combination with urbanization, can fragment or separate large open-space areas. Areas of human disturbance or urban development can fragment wildlife habitats and impede wildlife movement between areas of suitable habitat. This fragmentation creates isolated "islands" of vegetation that may not provide sufficient area to accommodate sustainable populations, and can adversely affect genetic and species diversity. Movement corridors mitigate the effects of this fragmentation by allowing animals to move between remaining habitats, which in turn allows depleted populations to be replenished and promotes genetic exchange between separate populations.

[1] The 2013 jurisdictional determination of the 2006 wetland delineation expires on May 16, 2018.



SOURCE: WRA Envronmental Consultants

Oak Knoll Project . 120645

Figure 4.3-2

Jurisdictional Features within the Oak Knoll Project Site

TABLE 4.3-1
POTENTIAL FEDERALLY JURISDICTIONAL FEATURES
WITHIN THE WETLAND DELINEATION STUDY AREA

Type of Feature	Length (linier feet)	Area (square feet)	Area (acres)
Oakland Naval Hospital Site			
Other Waters of the U.S.			
Rifle Range Creek (perennial)	2,779	18,774	0.43
Powerhouse Creek (intermittent)	201	1,206	0.03
Hospital Creek (intermittent)	299	1,794	0.04
Subtotal Other Waters of the U.S.	*3,279*	*21,774*	*0.50*
Culverted Waters of the U.S			
Rifle Range Creek (perennial)	1,041	5,197	0.11
Powerhouse Creek (intermittent)	880	4,400	0.10
Subtotal Culverted Waters of the U.S	*1,921*	*9,597*	*0.21*
Subtotal Jurisdictional Waters Oakland Naval Hospital Site	***5,200***	***31,371***	***0.72***
Hardenstine Parcel			
Other Waters of the U.S.			
Powerhouse Creek (ephemeral)	376	1,128	0.03
Total Section 404 Waters	***5,576***	***32,499***	***0.75***

SOURCE: WRA, 2007b; WRA, 2015a

Large areas of undeveloped open space occur in the Project vicinity and support local wildlife. These include Leona Regional Open Space to the north of the Project site, Chabot Regional Park to the east of the Project site, and Knowland State Arboretum and Park to the south of the Project site. Each of these open space areas is separated from the Project site by existing residential or commercial development or by major thoroughfares which border the Project site acting as major barriers to wildlife entry and include Keller Avenue to the north and east, and Mountain Boulevard and the MacArthur Freeway to the west. The Rifle Range Creek corridor could be used by local wildlife moving within or through the Project site; however, large culverted sections of the creek upstream, within, and downstream of the Project site reach limit wildlife use for moving between areas of open space.

Special-Status Species

A number of species known to occur in the regional study area, the nine USGS 7.5 quadrangles surrounding the Project site, are protected pursuant to federal and/or state endangered species laws, or have been designated species of special concern by the CDFW. In addition, Section 15380(b) of the CEQA Guidelines provides a definition of rare, endangered, or threatened species that are not currently included in an agency listing, but whose "survival and reproduction in the wild are in immediate jeopardy" (endangered) or which are "in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens" or "is likely to become endangered within the foreseeable future throughout all or a significant portion of

its range and may be considered 'threatened' as that term is used in the federal Endangered Species Act."[2] Species recognized under these terms are collectively referred to as "special-status species." For the purpose of this EIR, special-status species include:

1. Species listed or proposed for listing as threatened or endangered under the federal Endangered Species Act (50 CFR 17.12 [listed plants], 17.11 [listed animals], and various notices in the Federal Register [FR] [proposed species]).

2. Species that are candidates for possible future listing as threatened or endangered under the federal Endangered Species Act (61 FR 40, February 28, 1996);

3. Species listed or proposed for listing by the State of California as threatened or endangered under the California Endangered Species Act (14 Cal. Code Regs. 670.5);

4. Species formerly designated by the USFWS as species of concern or species designated by the CDFW as species of special concern;[3]

5. Species designated as "special animals" by the state;[4]

6. Species designated as "fully protected" by the state (there are about 35, most of which are also listed as either endangered or threatened);[5]

7. Raptors (birds of prey), which are specifically protected by California Fish and Game Code Section 3503.5, thus prohibiting the take, possession, or killing of raptors and owls, their nests, and their eggs;[6]

8. Plants listed as rare or endangered under the California Native Plant Protection Act (California Fish and Game Code, Section 1900 et seq.);

9. Species that meet the definitions of rare and endangered under CEQA. CEQA Section 15380 provides that a plant or animal species may be treated as "rare or endangered" even if not on one of the official lists (CEQA Guidelines, Section 15380); and

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2 For example, the CDFW interprets Ranks 1A, 1B, 2A, and 2B of the California Native Plant Society's *Inventory of Rare and Endangered Vascular Plants of California* to consist of plants that, in a majority of cases, would qualify for listing as rare, threatened, or endangered. However, the determination as to whether an impact is significant is made by the lead agency, absent the protection of other laws.

3 A California species of special concern is one that: has been extirpated from the state; meets the state definition of threatened or endangered but has not been formally listed; is undergoing or has experienced serious population declines or range restrictions that put it at risk of becoming threatened or endangered; and/or has naturally small populations susceptible to high risk from any factor that could lead to declines that would qualify it for threatened or endangered status.

4 Species listed on the current CDFW "special animals" list (October 2015), which includes 905 species. This list includes species that CDFW considers "those of greatest conservation need." (CDFW, 2015a)

5 The "fully protected" classification was California's initial effort in the 1960s to identify and provide additional protection to those animals that were rare or faced possible extinction. The designation can be found in the Fish and Game Code.

6 The inclusion of birds protected by Fish and Game Code Section 3503.5 is in recognition of the fact that these birds are substantially less common in California than most other birds, having lost much of their habitat to development, and that the populations of these species are therefore substantially more vulnerable to further loss of habitat and to interference with nesting and breeding than most other birds. It is noted that a number of raptors and owls are already specifically listed as threatened or endangered by State and federal wildlife authorities.

10. Plants considered by the CNPS to be "rare, threatened or endangered in California" under the California Rare Plant Ranking system (CNPR) which include Rank 1A, 1B, 2A, and 2B as well as Rank 3 and 4[7] plant species.

In addition, this EIR addresses active nests of any birds, which are protected by California Fish & Game Code section 3503 and migratory birds protected under the Migratory Bird Treaty Act.

Lists of special-status plant and animal species that have the potential to occur within the Project study area for biological resources were compiled based on previous surveys of the Project site, relevant biological literature, eBird (2015), and data contained in the CNDDB (CDFW, 2105c), the USFWS IPaC Trust Report (USFWS, 2015), and the CNPS Inventory of Rare and Endangered Plants (CNPS, 2015a) for the Oakland East USGS 7.5 minute quadrangle containing the Project site, and eight surrounding quadrangles that collectively represent the regional study area and include Oakland West, Richmond, San Leandro, Walnut Creek, Briones Valley, Hayward, Hunters Point, and Las Trampas Ridge. Several species not included on these lists are also discussed based on documentation of their presence in the Project study area presented in prior reports or environmental literature. Locally significant plants are incorporated based on the document *Rare, Unusual and Significant Plants of Alameda and Contra Costa Counties, Eighth Edition* produced by the East Bay Chapter of CNPS (Lake, 2010).

An inclusive list of special-status species, their status, their habitat requirements and plant blooming periods, potential occurrence within the Project study area, and recommendations considered in this analysis is presented in Appendix C of the WRA Biological Resources Assessment (WRA 2015b) (Appendix M to this Draft SEIR).

Based on review of the biological literature of the region, information presented in previous environmental documentation, and an evaluation of the habitat conditions of the Project study area, a species was designated as "no potential" if: (1) the species' specific habitat requirements (e.g., serpentine grasslands, as opposed to grasslands occurring on other soils) are not present, or (2) the species is presumed, based on the best scien**tific information available, to be extirpated from the project area or region. A species was designated** as having a "unlikely" for occurrence if: (1) its known current distribution or range is outside of the study area or (2) only limited or marginally suitable habitat is present within the study area. A species was designated as having a "moderate potential" for occurrence if: (1) there is low to moderate quality habitat present within the study area or immediately adjacent areas or (2) the study area is within the known range of the species, even though the species was not observed during biological surveys. A species was designated as having a "high potential" for occurrence if: (1) moderate to high quality habitat is present within the study area, and (2) the study area is within the known range

[7] Rank 3 plants may be analyzed under CEQA Guidelines Section 15380 if sufficient information is available to assess potential impacts to such plants. Factors such as regional rarity vs. statewide rarity should be considered in determining whether cumulative impacts to a Rank 4 plant are significant even if individual project impacts are not. CRPR Rank 3 and 4 may be considered regionally significant if, e.g., the occurrence is located at the periphery of the species' range, or exhibits unusual morphology, or occurs in an unusual habitat/substrate. For these reasons, CRPR Rank 3 and 4 plants should be included in the special-status species analysis. Rank 3 and 4 plants are also included in the CNDDB Special Vascular Plants, Bryophytes, and Lichens List. The current online published list is available at: http://www.dfg.ca.gov/biogeodata (CDFW, 2015b).

of the species. A species was designated as "present" for occurrence if it was observed onsite during focused or reconnaissance surveys conducted in support of this analysis.

Many of the species listed in Appendix C of the WRA Biological Resources Assessment (WRA 2015b) (Appendix M to this Draft SEIR) are either unlikely to occur or have no potential for occurrence in the Project study area and were eliminated from further evaluation, primarily because the Project site does not provide suitable habitat for them or the Project site is located outside of their known range. **Table 4.3-2**, Special-Status Species, presents species, their status, their habitat requirements and plant blooming periods, and potential for occurrence within the Project site for species determined to have at least a "moderate" potential to occur. **Figure 4.3-3**, Special-Status Plants within the Oak Knoll Project Vicinity, and **Figure 4.3-4**, Special-Status Animals within the Oak Knoll Project Vicinity, identifies the locations of regional special-status species occurrences as reported in CNDDB.

Figure 4.3-4 shows an occurrence of the Bay checkerspot butterfly in the vicinity of the Project site. There are two CNDDB occurrence records of Bay checkerspot butterfly (*Euphydryas editha bayensis*) within the vicinity of the Project area. One occurrence record is centered in Joaquin Miller Park and the other is centered just north of the Project area. Both of these occurrences are considered extirpated and this species' current distribution is restricted to Santa Clara County and reintroduction sites in San Mateo County (CDFW 2015c). The Joaquin Miller Park population was extirpated due to habitat modification by non-native plant species and the population immediately north of the Project area was extirpated by development (Murphy and Ehrlich 1980). Bay checkerspot butterflies have not been observed at either site since the 1970s (CDFW 2015c).

Special-Status Plants

Special-status plant species listed in Table 4.3-2 were determined to be present or have at least a moderate potential to occur in the Project site due to the presence of suitable habitat, the presence of nearby populations, or existing or previously documented populations within the Project site. Other special-status plant species documented in the Project study area that were considered but dismissed from further discussion after being determined to have "unlikely" or "no potential" for occurrence in the Project site are described in Appendix C of WRA's Biological Resources Assessment (WRA 2015b) and within the 2016 Rare Plant Survey Report (WRA 2016a) (Appendix M and P, respectively, to this Draft SEIR). One statewide special-status plant species, Oakland star-tulip, has been documented during 1995, 2006, and 2015 rare plant surveys of the Project site (Tetra Tech 1995), (WRA 2006b), (WRA 2016a). In addition, three other locally-significant species were observed during WRA's protocol-level rare plant surveys of the Project site on March 25 and April 20, 2015 that include slender-footed sedge (*Carex leptopoda*), Douglas iris (*Iris douglasiana*), and coast live oak. (WRA 2016a).

The following special-status plant species were determined to have at least a moderate potential to occur in the Project site:

- Oakland star-tulip
- Locally significant species

TABLE 4.3-2
LIST OF SPECIAL-STATUS SPECIES WITH AT LEAST A MODERATE POTENTIAL TO OCCUR IN THE PROJECT SITE

Common Name ***Scientific Name***	**Listing Status USFWS/ CDFW/CRPR/ Other**	**General Habitat / Blooming Period**	**Potential to Occur in the Project Site**[a,b]
Plants			
Oakland star-tulip (*Calochortus umbellatus*)	--/--/4.2/LS	Broad-leafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland/often serpentine. 100-700m. Blooms March - May	**Present.** Approximately 723 individuals of this species were observed in the southeast portion of the Project site in Monterey pine woodland, coast live oak woodland, purple needlegrass grassland, and California sagebrush scrub.
Locally Significant Species			
slender-footed sedge (*Carex leptopoda)*	--/--/--/LS	Coastal sage scrub, coastal prairie, red fir forest, yellow pine forest, Douglas-fir forest, and wetland riparian areas, typically on slopes. 10-3120m.	**Present.** A single individual was observed a disturbed upland area of Rifle Range Creek during the WRA 2015 rare plant surveys of the Project site (WRA 2016a) (Appendix P to this Draft SEIR.
Douglas iris (*Iris douglasiana*)	--/--/--/LS	Mixed evergreen forest and coastal prairie. 0-900m. Blooms February - June	**Present.** Several plants observed in the native purple needlegrass community at the base of the knoll during the WRA 2015 rare plant surveys of the Project site (WRA 2016a) (Appendix P to this SEIR).
Coast live oak (*Quercus agrifolia*)	--/--/--/LS	Mixed evergreen forest, foothill woodland, and southern oak woodland. 0-1980m. Blooms February - April	**Present.** This species is abundant within the Project site; approximately 4,400 individuals at least 4.0 inches diameter at breast height were inventoried during the WRA 2015 tree surveys (WRA 2015c) (Appendix Q to this Draft SEIR). This species occurs in abundance in the oak woodland and riparian woodland communities of the Project site.
Birds			
Cooper's hawk (*Accipiter cooperii*)	--/WL, §3503.5/--/--	Forests, woodlands, and fields. Will also inhabit trees in suburban areas in parks and neighborhoods. Typically nests in riparian growths of deciduous trees and live oak woodlands. Becoming more common as an urban breeder.	**Moderate (Potential to Nest).** Suitable foraging and nesting habitat is present in the oak and riparian woodland of the Project site.
Sharp-shinned hawk *(Accipiter striatus*)	--/WL, §3503.5/--/--	Nests in riparian areas and oak woodlands, forages in open areas.	**Moderate (Potential to Nest).** Suitable foraging and nesting habitat is present in the oak and riparian woodland of the Project site.
Oak titmouse (*Baeolophus inornatus*)	BCC/--/--/--	Open, dry oak woodlands.	**High (Potential to Nest).** Suitable foraging and nesting habitat is present in the oak woodlands of the Project site. This species was observed during WRA surveys of the Project site.
Red-tailed hawk (*Buteo jamaicensis*)	--/§3503.5/--/--	Desert, scrublands, grasslands, roadsides, fields and pastures. Commonly found at field edges and perched on fences, poles, and trees. Inhabits almost any open habitat, including grassland and urbanized areas.	**Moderate (Potential to Nest).** Suitable foraging and nesting habitat is present in the non-native forest, oak and riparian woodland, and grasslands of the Project site.

TABLE 4.3-2 (Continued)
LIST OF SPECIAL-STATUS SPECIES WITH AT LEAST A MODERATE POTENTIAL TO OCCUR IN THE PROJECT SITE

Common Name *Scientific Name*	Listing Status USFWS/ CDFW/CRPR/ Other	General Habitat / Blooming Period	Potential to Occur in the Project Site[a,b]
Birds (cont.)			
Red-shouldered hawk (*Buteo lineatus*)	--/§3503.5/--/--	Riparian and oak woodlands. Also found in eucalyptus groves and sometimes developed/ suburban areas with mosaic of buildings and woodlands. Forages along edges of marshes and grasslands; nests in mature trees in a variety of habitats.	**Moderate (Potential to Nest).** Suitable foraging and nesting habitat is present in the non-native forest, oak woodland, and riparian woodland of the Project site.
olive-sided flycatcher (*Contopus cooperi)*	BCC/CSC/--/--	Open conifer forest and woodland habitats.	**Moderate (Potential to Nest).** Suitable foraging and nesting habitat for this species is present in the non-native conifer forest, oak woodland, and riparian woodland of the Project site.
White-tailed kite (*Elanus leucurus*)	--/CFP, §3503.5/--/--	Foothills and valleys with oaks, rivers, and marshes; open woodland, desert grassland.	**Moderate (Potential to Nest).** Suitable foraging and nesting habitat is present in the oak woodland and grassland communities of the Project site.
American kestrel (*Falco sparverius*)	--/§3503.5/--/--	Open areas such as meadows, grasslands, and open woodlands. Also utilize human modified habitat such as parks and fields. Primarily a cavity nester.	**Moderate (Potential to Nest).** Suitable foraging and nesting habitat is present in the oak and riparian woodland and grasslands of the Project site.
Nuttall's woodpecker (*Picoides nuttallii*)	BCC/--/--/--	Oak and riparian woodlands.	**High (Potential to Nest).** Suitable foraging and nesting habitat is present in the oak woodlands of the Project site. This species was observed during WRA surveys of the Project site.
Allen's hummingbird (*Selasphorus sasin*)	BCC/--/--/--	Brush and woodlands.	**High (Potential to Nest).** Suitable foraging and nesting habitat is present in the non-native forest, oak woodland, and riparian woodland of the Project site.
yellow warbler (*Setophaga petechia*)	BCC/CSC/--/--	Nests in dense riparian cover and montane chaparral. Breeding distribution includes the coast ranges and western slopes of the Sierra Nevada. Rare to uncommon in lowland areas.	**Moderate (Potential to Nest).** Suitable foraging and nesting habitat is present in the riparian woodland of the Project site.
Mammals			
Pallid bat (*Antrozous pallidus*)	--/CSC/--/ WBWG – High Priority	Most common in open, dry habitats with rocky areas for roosting. Roosts in caves, old buildings, and under bark. Forages in open lowland areas, and forms large maternity colonies in the spring. Very sensitive to human disturbance. Forages primarily on the ground.	**Moderate.** While most of the buildings have been removed from the Project site, the Club Knoll building remains and could provide roosting habitat for this species.

TABLE 4.3-2 (Continued)
LIST OF SPECIAL-STATUS SPECIES WITH AT LEAST A MODERATE POTENTIAL TO OCCUR IN THE PROJECT SITE

Common Name *Scientific Name*	Listing Status USFWS/ CDFW/CRPR/ Other	General Habitat / Blooming Period	Potential to Occur in the Project Site[a,b]
Mammals (cont.)			
western mastiff bat (*Eumops perotis californicus)*	--/CSC/--/ WBWG – High Priority	Inhabits open habitats including conifer and broad-leaved woodlands, coastal scrub, chaparral, and grassland. Roosts in crevices, high buildings, trees, and tunnels.	**Moderate.** Project site offers a suitable mosaic of roosting and foraging habitat for this species in the mixed woodland, riparian woodland, and non-native forest among scrub and grassland communities.
Western red bat (*Lasiurus blossevillii*)	--/CSC/--/ WBWG – High Priority	Roosts primarily in tree or shrub foliage, 2–40 feet above ground, from sea level up through mixed conifer forests. Prefers habitat edges and mosaics with trees that are protected from above and open below with open areas for foraging.	**Moderate.** Project site offers a suitable mosaic of roosting and foraging habitat for this species in the mixed woodland, riparian woodland, and non-native forest among scrub and grassland communities.
Silver-haired bat (*Lasionycteris noctivagans*)	--/CSC/ WBWG – Medium Priority	Summer habitats include coastal and montane coniferous forests, valley foothill woodlands, pinyon-juniper woodlands, and valley foothill and montane riparian habitats. This species is primarily a forest dweller, feeding over streams, ponds, and open brushy areas. It roosts in hollow trees, snags, buildings, rock crevices, caves, and under bark.	**Moderate.** Project site offers a suitable mosaic of roosting and foraging habitat for this species in the mixed woodland, riparian woodland, and non-native forest among scrub and grassland communities. This species could also roost in the remaining Club Knoll building.
Hoary bat (*Lasiurus cinereus)*	--/*/--/ WBWG – Medium Priority	Prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for foraging. Roosts in dense foliage of medium to large trees. Feeds primarily on moths; requires water.	**Moderate.** Project site offers a suitable mosaic of roosting and foraging habitat for this species in the mixed woodland, riparian woodland, and non-native forest among scrub and grassland communities.
San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*)	--/CSC/--/--	Forests, chaparral, and riparian areas with moderate canopy cover and brushy understory. Builds "middens" from small sticks on the ground or in trees.	**Present.** Suitable habitat is present within the Project site for this species. Middens observed by WRA staff during surveys of the Project site.
Yuma myotis (*Myotis yumanensis*)	--/*/--/WBWG – Low-Medium Priority	Found in open forests and woodlands with sources of water over which to feed. Also utilizes buildings and bridges.	**Moderate.** Project site offers a suitable mosaic of roosting and foraging habitat for this species in the mixed woodland, riparian woodland, and non-native forest among scrub and grassland communities. This species could also roost in the remaining Club Knoll building.

NOTES:

[a] Potential to Occur Categories:
Moderate Potential = The project site and/or immediate vicinity provide suitable habitat.
High Potential = The project site and/or immediate vicinity provide ideal habitat conditions.
Present = The species has been observed on the Project site during focused or reconnaissance surveys of the Project site or is documented within the Project study area in CNDDB recently.

[b] Species that that were determined unlikely to occur or have no potential to occur in the Project site and vicinity are presented in Appendix C of WRA's Biological Resources Assessment (WRA 2016b) (Appendix M to this Draft SEIR).

TABLE 4.3-2 (Continued)
LIST OF SPECIAL-STATUS SPECIES WITH AT LEAST A MODERATE POTENTIAL TO OCCUR IN THE PROJECT SITE

STATUS CODES:

FEDERAL: (U.S. Fish and Wildlife Service)
FT = Listed as Threatened (likely to become Endangered within the foreseeable future) by the Federal Government.
FSC = Federal Species of Concern
FC = Candidate for federal listing
FD= Delisted
BCC = Bird of Conservation Concern

STATE: (California Department of Fish and Wildlife [CDFW])
CT = Listed as Threatened by the State of California
CE= Listed as Endangered by the State of California
CSC = California Species of Special Concern
CFP= California Department of Fish and Wildlife designated "fully protected"
WL = Watch list
§3503.5 = Protection for nesting species of Falconiformes (hawks) and Strigiformes (owls)
* Special animal-listed on CDFW's Special Animal List

OTHER:

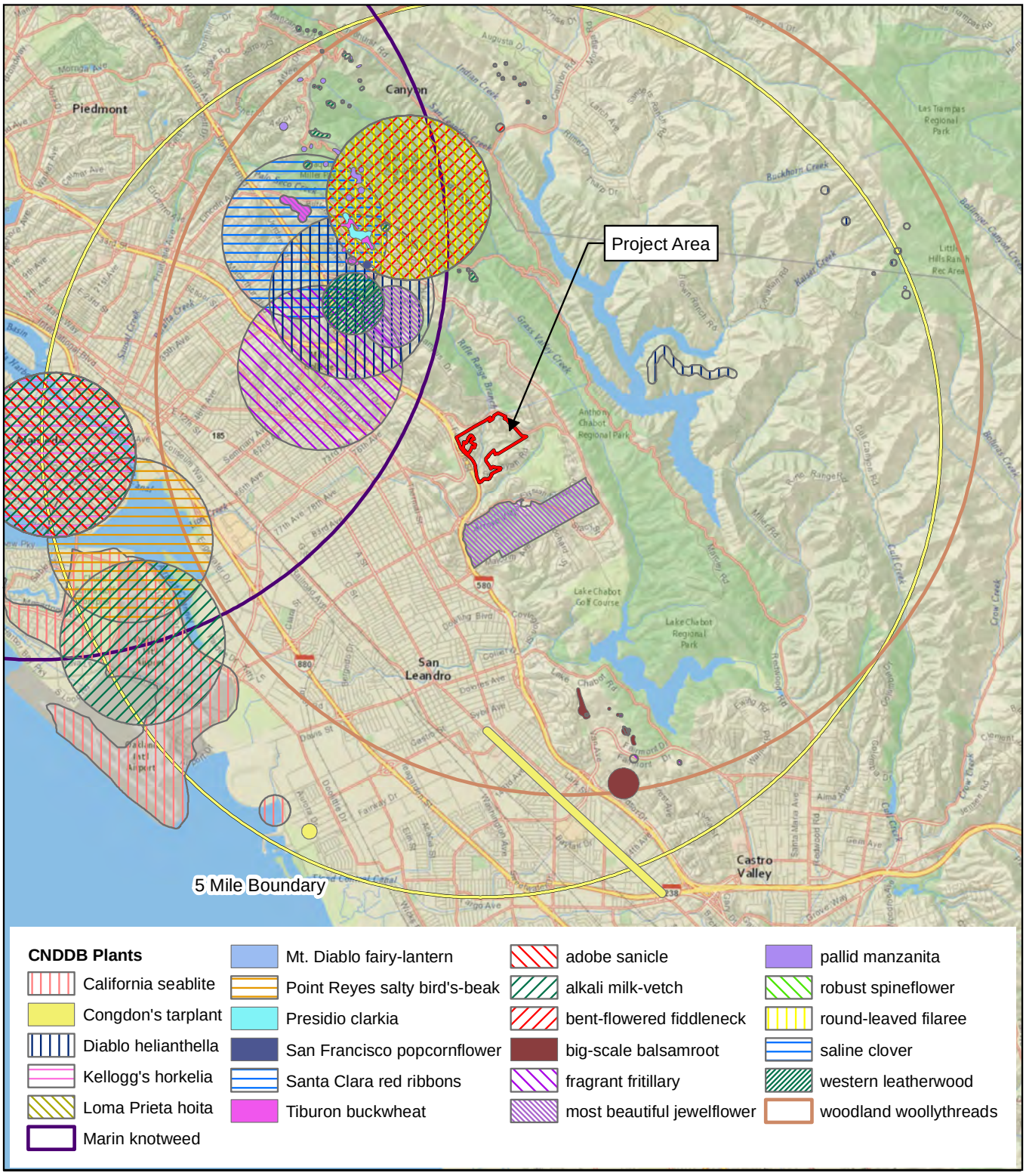
California Native Plant Society (CNPS) California Rare Plant Ranks (CRPR):
1A = Presumed extirpated in California; Rare or extinct in other parts of its range.
1B = Rare, threatened, or endangered throughout range; Most species in this rank are endemic to California.
2A = Extirpated in California, but common in other parts of its range.
2B = Rare, threatened, or endangered in California but common in other parts of its range.
3 = Need more information about species to assign it a ranking.
4 = Limited distribution and therefore warrants monitoring of status.
.1 = Seriously endangered in California
.2 = Fairly endangered in California
LS= Locally Significant Species

Other: Western Bat Working Group (WBWG)
Low = Stable population
Medium = Need more information about the species, possible threats, and protective actions to implement.
High = Imperiled or at high risk of imperilment.

SOURCES: USFWS, 2015; CDFW 2015a; CDFW 2015b; CNPS 2015a; CNPS 2015b; CCH 2015; WRA, 2015b.

Oakland star-tulip (*Calochortus umbellatus*). Oakland star-tulip is a CRPR rank 4.2 perennial herb in the lily family (Liliaceae) that blooms from March to May. Oakland star-tulip is present in scattered to dense concentrations in the southeastern portion of the Project site in the understory of Monterey pine forest, coast live oak woodland, coastal scrub, and native purple needlegrass grassland. Approximately 723 individuals of Oakland star-tulip were observed during focused surveys of the Project site in 2015 (WRA 2016a). Observed associated species in the Project site include Monterey pine, coast live oak, French broom, California sagebrush, and checker lily (*Fritillaria affinis*). The locations of observed Oakland star-tulip plants within the Project site are shown in **Figure 4.3-5**, Special-Status Plants within the Oak Knoll Project Site.

Reported occurrences of Oakland star-tulip in the Project vicinity document observations in Alameda and Contra Costa counties ranging from a single plant to populations of over a thousand, though most records describe smaller concentrations of under 100 individuals (Calflora 2016a, Calflora 2016b). Oakland star-tulip has been documented in at least nine of the East Bay Regional Parks including: (1) Sobrante Ridge, (2) Wildcat, (3) Tilden, (4) Claremont Canyon, (5) Temescal, (6) Redwood, (7) Leona Heights, (8) Anthony Chabot, and (9) Las Trampas (East Bay Regional Park District, 2015). The majority of suitable habitat for this species in the Project vicinity is currently protected as open space by the East Bay Regional Park District; however, information regarding the current status of these populations is limited. While this species occurs in Marin County and has been documented as far north as Lake County and as far south as Stanislaus County, the East Bay hills comprise the core of this species range (CNPS 2015b).

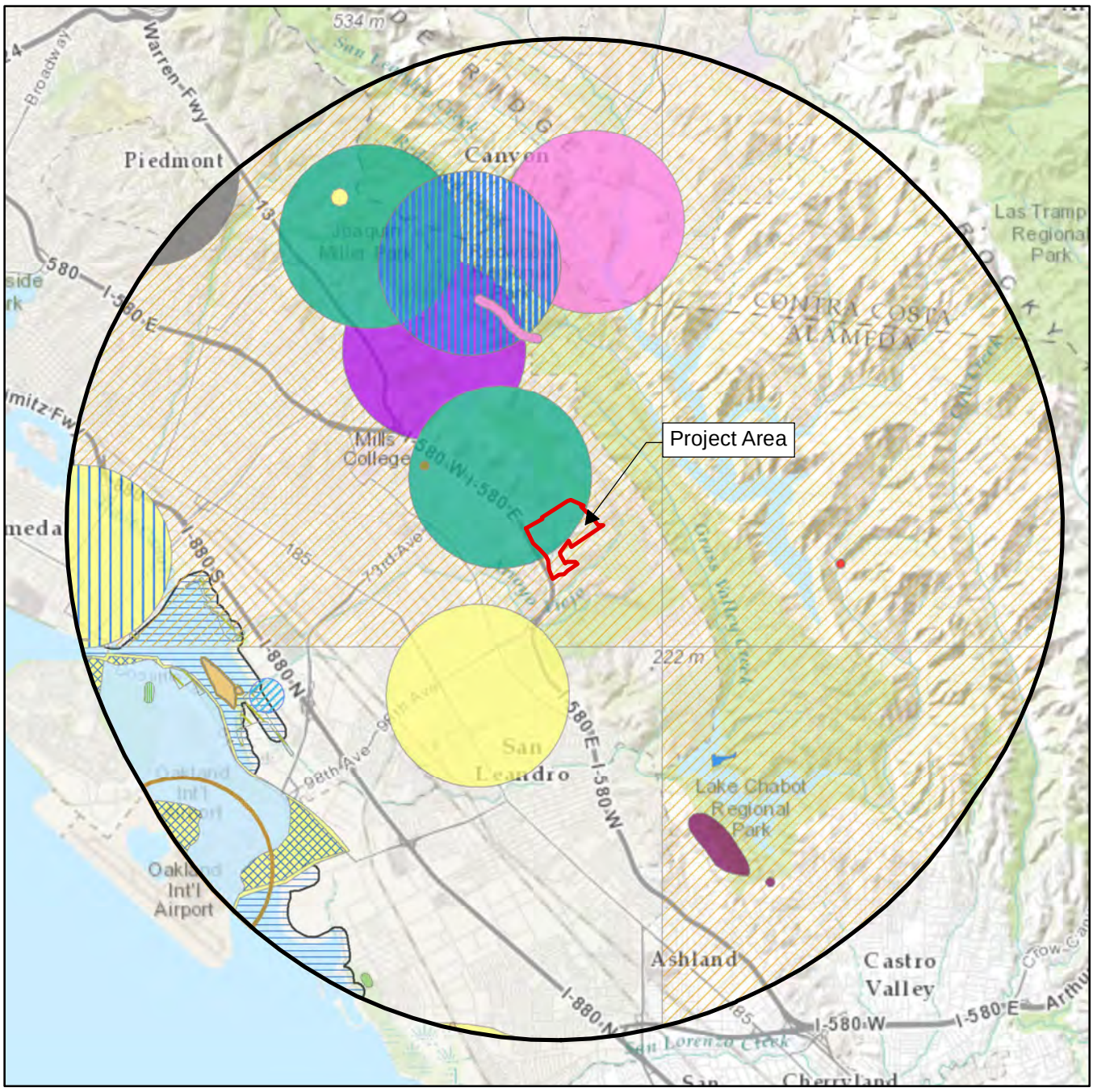


SOURCE: WRA Envronmental Consultants

Oak Knoll Project . 120645

Figure 4.3-3

Special-Status Species within the Oak Knoll Project Vicinity



SOURCE: CNDDB; ESRI

Oak Knoll Project. 120645

Figure 4.3-4

Special-Status Animal Species within the Oak Knoll Project Vicinity

Oak Knoll Project . 120645

SOURCE: WRA Envronmental Consultants

Figure 4.3-5

Special-Status Species within the Oak Knoll Project Site

Locally rare species. Four species designated as locally rare by the East Bay Chapter of the CNPS were observed in the Project site during protocol-level rare plant surveys performed by WRA biologists in 2015, including Oakland star-tulip (A2[8]), Slender-footed sedge (A1[9]), Douglas' iris (*Iris douglasiana*; A2) and Coast live oak (A2). Oakland star-tulip is discussed in detail, above. A single slender-footed sedge individual was observed during 2015 protocol-level plant surveys of the Project site in a disturbed upland area adjacent to Rifle Range Creek, and several Douglas's iris plants were observed in the native needlegrass grassland habitat near the base of the knoll (WRA 2016a). As discussed under *Vegetation Communities and Wildlife Habitats*, coast live oak is common in the Project site and occurs at high density in the coast live oak woodland and riparian woodland of the site and also occurs at low cover in most other vegetation communities of the Project site. Although it is a common species in Alameda and Contra Costa counties, coast live oak was included on the locally rare list because "many trees [are] being attacked by Sudden Oak Death" in the region (Lake 2010). While sudden oak death is not known to occur within the Project site, several occurrences of sudden oak death have been documented within the Project vicinity including Leona Canyon Regional Open Space Reserve, Redwood Regional Park, Sequoya Country Club, and within the San Leandro Reservoir watershed (Geospatial Innovation Facility and Kally Research and Outreach Lab, 2015).

Special-Status Animals

Special-status animals listed in Table 4.3.2 were determined to have at least a moderate potential to occur in the Project site due to the presence of suitable habitat or existing or previously documented populations within the Project study area. Appendix C of WRA's Biological Resources Assessment (Appendix M to this Draft SEIR) includes other special-status animals documented in the Project study area that were considered but dismissed from further discussion after being determined to have an "unlikely" or "no potential" for occurrence in the Project site (WRA 2015b).

The following special-status animals were determined to have at least a moderate potential to occur in the Project site:

- Special-Status Birds
- Resident and Migratory Birds
- Special-Status Bats
- San Francisco dusky-footed woodrat

Special-Status Birds

White-tailed kite (*Elanus leucurus*) is listed as a fully protected species by CDFW. This species, like other raptors and birds in general, falls under protection of the Fish and Game Code §3503 and §3503.5.This species is a resident of California, but shifts about locally per season in accordance with food supplies. This species forages in wetlands and open brushlands, usually near water and streams. Oak woodlands, valley oak or live oak, or trees along marsh edges are used for nesting sites. The nest made by this species is a frail platform of sticks, leaves, weed stalks, and similar materials located in tree or bush. A combination of habitats is essential,

[8] A2 plants are those occurring in three to five regions in Alameda and Contra Costa counties or are otherwise threatened in Alameda and Contra Costa counties.

[9] A1 plants are those species occurring in two of fewer regions in Alameda and Contra Costa counties.

including open grasslands, meadows or marshes for foraging and isolated dense topped trees for perching and nesting. Suitable foraging and nesting habitat for this species is present within the Project site.

Yellow warbler (*Setophaga petechia*) is considered a Bird of Conservation Concern by USFWS and a Species of Special Concern by CDFW. The yellow warbler is a neotropical migrant bird that is widespread in North America, but has declined throughout much of its California breeding range. Habitat consists of woodland and riparian areas and insects comprise the majority of the diet (Ehrlich 1988). Riparian vegetation along Rifle Branch Creek may be of sufficient density to support nesting by the species. Local records of this species area documented in Leona Canyon Regional Open Space Preserve (LCROSP) to the north (eBird 2015).

Olive-sided flycatcher (*Contopus cooperi*) is considered a Bird of Conservation Concern by USFWS and a Species of Special Concern by CDFW. A spring and summer resident of California, it breeds in a variety of forested habitats, typically coniferous forests at higher elevations, but also in mixed forest and woodlands at lower elevations. Nests are usually in conifers, and placed at variable height on the outer portions of branches. This species usually forages for insects from prominent tree snags. The Project site contains habitat mosaics between patches of wooded habitat and open ground which may support nesting and foraging by the species. Local records of this species area documented in LCROSP to the north (eBird 2015).

Oak titmouse (*Baeolophus inornatus*) is considered a Bird of Conservation Concern by USFWS. This species is a year-round resident throughout much of California including most of the coastal slope, the Central Valley and the western Sierra Nevada foothills. Its primary habitat is woodland dominated by oaks though can occur in mixed woodlands locally. Oak titmouse feed on insects and acorns and nest in tree cavities, usually natural cavities or those excavated by woodpeckers (Ehrlich 1988). Trees within the Project site are of sufficient age and complex structure to support small cavities which may be used by the species for nesting. Oak titmouse was observed foraging within the Project site during spring surveys (WRA 2015b).

Nuttall's woodpecker (*Picoides nuttallii*) is considered a Bird of Conservation Concern by USFWS. Nuttall's Woodpecker, common in much of its range, is a year-round resident throughout most of California west of the Sierra Nevada. Typical habitat is oak woodland, chaparral and riparian areas with willows and cottonwood trees where nesting occurs in tree cavities. This species forages primarily on invertebrates and occasionally acorns. (Ehrlich 1988) Trees within the Project site are of sufficient age and complex structure to support small cavities which may be used for nesting by the species. Nuttall's woodpecker was observed foraging within the Project site during spring surveys (WRA 2015b).

Allen's hummingbird (*Selasphorus sasin*) is considered a Bird of Conservation Concern by USFWS. Allen's hummingbird, common in many portions of its range, is a summer resident along the majority of California's coast including the San Francisco Bay Area. Breeding occurs in association with the coastal fog belt, and typical habitats used include coastal scrub, riparian, woodland and forest edges, and eucalyptus and cypress groves (Mitchell 2000). It feeds on nectar, as well as insects and spiders and nests on limbs of conifers and deciduous trees in a small cup

nest of lichen, bound with spider webs and lined with down (Ehrlich 1988). Trees and wooded habitat within the Project site are of sufficient density and diversity to support nesting by the species. Local records of this species area documented in LCROSP to the north (eBird 2015).

Other Resident and Migratory birds. The coast live oak woodland, riparian woodland, and non-native forest of the Project site provide nesting and foraging habitat for a variety of resident and migratory birds in mature trees, dense shrubs or foliage. Raptor species which may nest in the Project site could include red-tailed hawk (*Buteo jamaicensis*), red-shouldered hawk (*Buteo lineatus*), Cooper's hawk, sharp-shinned hawk or American kestrel. Passerine species which could nest in the area include but are not limited to Anna's hummingbird (*Calypte anna*), Bewick's wren, American robin (*Turdus migratorius*), American crow (*Corvus brachyrhynchos*), California towhee (*Melozone crissalis*) among many others listed under descriptions of the vegetation communities, above. The federal Migratory Bird Treaty Act (MBTA) and California Fish and Game Code protect birds of prey (§3503.5), most native migratory birds (§3503), and breeding birds, nests and eggs that would occur within the Project site and/or nest in the surrounding Project vicinity.

Special-Status Bats

Coast live oak woodland, riparian woodland, and non-native forest of the Project site, as well as the remaining Club Knoll building, provide roosting habitat for six special-status bat species have a moderate potential to occur at the Project site and surrounding vicinity; Pallid bat (*Antrozous pallidus*), western mastiff bat (*Eumops perotis californicus*), western red bat (*Lasiurus blossevillii*) are each considered a Species of Special Concern by CDFW and considered high-priority species by the Western Bat Working Group (WBWG); Silver-haired bat (*Lasionycteris noctivagans*) and hoary bat (*Lasiurus cinereus*) are considered Species of Special Concern by CDFW and considered medium-priority species by WBWG; and Yuma myotis (*Myotis yumanensis*) is considered a California Special Animal by CDFW and considered a medium-low-priority species by WBWG. Each of these bats is known to roost in tree cavities, under tree bark or foliage, or in human-made structures that offer similar roost opportunity as natural caves or rock outcrops. The Project site offers a mosaic of habitat types that support bat foraging nearby potential roost sites, such as areas of grassland among oak and riparian woodland. Common bats, protected under California Department of Fish and Game Code, may also roost and forage within the Project site.

San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*). The San Francisco dusky-footed woodrat is considered a Species of Special Concern (SCC) by CDFW that occurs in the Coast Ranges between San Francisco Bay and the Salinas River (Matocq 2003). Woodrats often occupy habitats with both woodland and scrub components that provide cover and food sources, such as live oak, coffeeberry (*Frangula (=Rhamnus) californica*), blackberry (*Rubus* spp.), gooseberry (*Ribes* spp.), poison oak, and honeysuckle (*Lonicera* spp.) (Linsdale, 1951). Woodrats feed on woody plants, but will also consume fungi, grasses, flowers and acorns. This species constructs robust stick houses or "middens" that are typically over 3 feet in diameter and are constructed out of piled sticks, leaves and grasses, in areas with moderate cover and a well-developed understory containing woody debris. Individuals are active year-round, generally nocturnal, and breed between December and September. Fragments of wooded habitat within the Project site provide sufficient habitat complexity and diversity to support this species. Woodrat

middens were observed within the Project site during tree surveys performed in April and May 2015 (WRA 2015b).

Other Species Considered but Dismissed. There are no special-status invertebrate, fish, amphibian, or reptile species with at least a moderate potential for occurrence within the Project site. For a discussion of other species considered but dismissed from further discussion due to the lack of habitat in the Project site or documented occurrences in the vicinity of the Project (e.g. Alameda whipsnake, California red-legged frog, and yellow-legged frog), see the Biological Resources Assessment prepared for the Project in Appendix M to this Draft SEIR (WRA 2015b).

Critical Habitat

The USFWS can designate critical habitat for species that have listed as threatened or endangered. "Critical habitat" is defined in Section 3(5)(A) of the federal Endangered Species Act as those lands (or waters) within a listed species' current range that contain the physical or biological features that are considered essential to its conservation. The Project is approximately 2 miles east of critical habitat for Alameda whipsnake (*Masticophis lateralis euryxanthus*) and approximately 10 miles southeast of critical habitat for California red-legged frog (*Rana draytonii*).

Regulatory Setting

This section briefly describes federal, State, and local regulations, permits, and policies pertaining to biological resources and wetlands and other waters as they may apply to the Project.

Federal

Federal Endangered Species Act

The federal Endangered Species Act (FESA) protects the fish and wildlife species and their habitats that the USFWS or National Marine Fisheries Service (NMFS) has identified as threatened or endangered. The term endangered refers to species, subspecies, or distinct population segments that are in danger of extinction through all or a significant portion of their range. The term threatened refers to species, subspecies, or distinct population segments that are likely to become endangered in the near future. The FESA prohibits the "take"[10] of any fish or wildlife species listed as threatened or endangered, including the destruction of habitat that could hinder species recovery.

Federal Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (MBTA; United States Code, Title 16, Section 703, Supplement I, 1989) prohibits taking, killing, possessing, or trading in migratory birds, except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, and bird nests and eggs. The FESA defines take as "…harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect any threatened or endangered species." Harm may

[10] From Section 3(18) of the Federal Endangered Species Act: "The term 'take' means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."

include significant habitat modification where it actually kills or injures a listed species through impairment of essential behavior (e.g., nesting or reproduction). Therefore, for projects that would not result in the direct mortality of birds, the MBTA is generally also interpreted in CEQA analyses as protecting active nests of all species of birds that are on the List of Migratory Birds, published in the Federal Register in 1995. With respect to nesting birds, while the MBTA itself does not provide specific take avoidance measures, the USFWS and CDFW over time have developed a set of measures sufficient to demonstrate take avoidance. Since these measures are typically required as permitting conditions by these agencies, they are often incorporated as mitigation measures for projects during the environmental review process. The exception is if the project as proposed were to incorporate and be consistent with these protections. These requirements include avoiding tree removal during nesting season, preconstruction nesting bird surveys and establishment of appropriate buffers from construction if active nests are found.

Clean Water Act

Two definitions of "wetland" are considered for this Project: the federal definition, as utilized by the Corps and the RWQCB under the Clean Water Act (described below), and the state definition, as utilized by the RWQCB and the CCC, under the Porter-Cologne Water Quality Control Act and the California Coastal Act, respectively (described under *State*).

Federal Wetland Definition

Wetlands are a subset of waters of the United States and receive protection under Section 404 of the Clean Water Act. The term "waters of the United States,"[11] as defined in the Code of Federal Regulations (33 CFR 328.3[a]; 40 CFR 230.3[s]), includes:

1. All waters which are currently used, 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; (Wetlands are defined by the federal government [33 CFR 328.3(b)] as those areas 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.)

3. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mud flats, sand flats, 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 which are or could be used by interstate or foreign travelers for recreational or other purposes; or from which fish or shellfish are or

[11] Based on the Supreme Court ruling in *Solid Waste Agency for Northern Cook County v. U.S. Army Corps of Engineers* related to federal jurisdiction over isolated waters (January 9, 2001), non-navigable, isolated, intrastate waters are no longer defined as waters of the United States based solely on their use by migratory birds. Jurisdiction over non-navigable, isolated, intrastate waters may be exercised if their use, degradation, or destruction could affect other waters of the Unites States or interstate or foreign commerce. According to this ruling, jurisdiction over such other waters must be analyzed on a case-by-case basis, as should impoundments of waters, tributaries of waters, and wetlands adjacent to waters. The Supreme Court's recent decisions (e.g., *Rapanos* and *Carabel*) have yet to be interpreted in Corps regulations or definitions.

could be taken and sold in interstate or foreign commerce; or which are used or could be used for industrial purposes by industries in interstate commerce;

4. All impoundments of waters otherwise defined as waters of the United States under the definition;

5. Tributaries of waters identified in paragraphs (1) through (4);

6. The territorial seas;

7. Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (1) through (6).

8. Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with the U.S. Environmental Protection Agency (USEPA).

Federal Regulation of Activities in Wetlands

The regulations and policies of various federal agencies, such as the Corps, USEPA, USFWS, and NMFS, mandate that filling wetlands be avoided unless it can be demonstrated that no practicable alternatives exist. The Corps has primary federal responsibility for administering regulations that concern waters and wetlands. In this regard, the Corps acts under two statutory authorities: the Rivers and Harbors Act (Sections 9 and 10), which governs specified activities in "navigable waters," and the Clean Water Act (Section 404), which governs the fill of waters of the United States, including wetlands. The Corps requires that a permit be obtained if a project proposes to place fill in navigable waters and/or to alter waters of the United States below the ordinary high-water mark in non-tidal waters. The USEPA, USFWS, NMFS, and several other agencies may comment on Corps permit applications. The USEPA provides the primary criteria for evaluating the biological impacts of Corps permit actions in wetlands.

State

California Endangered Species Act

Under the California Endangered Species Act (CESA), the CDFW has the responsibility for maintaining a list of threatened and endangered species (California Fish and Game Code, Section 2070). The CDFW also maintains a list of candidate species, which are those species formally under review for addition to either the list of endangered species or the list of threatened species. In addition, the CDFW maintains a list of "species of special concern," which serves as a watch list (discussed in detail, below).

The CESA prohibits the take of plant and animal species that the California Fish and Game Commission has designated as either threatened or endangered in California. "Take" in the context of the CESA means to hunt, pursue, kill, or capture a listed species, as well as any other actions that may result in adverse impacts when a person is attempting to take individuals of a listed species. The take prohibitions also apply to candidates for listing under the CESA. However, Section 2081 of the CESA allows the CDFW to authorize exceptions to the State's take prohibition for educational, scientific, or management purposes.

In accordance with the requirements of the CESA, an agency reviewing a project within its jurisdiction must determine if any State-listed endangered or threatened species could be present in the project site. The agency also must determine if the project could have a potentially significant impact on such species. In addition, the CDFW encourages informal consultation on any project that could affect a candidate species.

Special-Status Natural Communities

The CDFW's Natural Heritage Division identifies special-status natural communities, which are those that are naturally rare and those whose extent has been greatly diminished through changes in land use. The CNDDB tracks 135 such natural communities in the same way that it tracks occurrences of special-status species: Information is maintained on each site for the natural community's location, extent, habitat quality, level of disturbance, and current protection measures. The CDFW is mandated to seek the long-term perpetuation of the areas in which these communities occur. While there is no statewide law that requires protection of all special-status natural communities, CEQA requires consideration of the potential impacts of a project on biological resources of statewide or regional significance. Native purple needlegrass grassland and coast live oak woodland are sensitive natural communities found within the Project site.

California Fish and Game Code

Fully Protected Species

Certain species are considered *fully protected*, meaning that the code explicitly prohibits all take of individuals of these species except for take permitted for scientific research. Section 5050 lists fully protected amphibians and reptiles, Section 5515 lists fully protected fish, Section 3511 lists fully protected birds, and Section 4700 lists fully protected mammals.

It is possible for a species to be protected under the California Fish and Game Code, but not fully protected. For instance, mountain lion (*Puma concolor*) is protected under Section 4800 et seq., but is not a fully protected species. All bat species are protected under the California Fish and Game Code Section 4150, which states that all non-game mammals or parts thereof may not be taken or possessed except as otherwise provided in the code or in accordance with regulations adopted by the commission.

Species of Special Concern

Species of Special Concern are broadly defined as animals not listed under the FESA or CESA, but which are nonetheless of concern to the CDFW because they are declining at a rate that could result in listing or historically occurred in low numbers and known threats to their persistence currently exist. This designation is intended to result in special consideration for these animals by the CDFW, land managers, consulting biologists, and others, and is intended to focus attention on the species to help avert the need for costly listing under FESA and CESA and cumbersome recovery efforts that might ultimately be required. This designation also is intended to stimulate collection of additional information on the biology, distribution, and status of poorly known at-risk species, and focus research and management attention on them. Although these species generally have no special legal status, they are given special consideration under the CEQA during project review.

Protection of Birds and Their Nests

Under Section 3503 of the California Fish and Game Code, it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto. Section 3503.5 of the code prohibits take, possession, or destruction of any birds in the orders Falconiformes (hawks) or Strigiformes (owls), or of their nests and eggs. Migratory non-game birds are protected under Section 3800, while other specified birds are protected under Section 3505.

Protection of Stream and Lake Protection

CDFW has jurisdictional authority over streams and lakes and the wetland resources associated with these aquatic systems under California Fish and Game Code Sections 1600 et seq. through administration of Lake or Streambed Alteration Agreements. Such agreements are not a permit, but rather a mutual accord between CDFW and the project proponent. California Fish and Game Code Sections 1600-1616 authorize CDFW to regulate work that will "substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river lake or stream." Because CDFW includes under its jurisdiction streamside habitats that may not qualify as waters or wetlands under the federal Clean Water Act definition (see *Federal*, above), CDFW jurisdiction may be broader than Corps jurisdiction.

CDFW enters into a Streambed Alteration Agreement with the project proponent and can impose conditions in the agreement to minimize and mitigate impacts to fish and wildlife resources. A project proponent must submit a notification of streambed alteration to CDFW before construction. The notification requires an application fee for Streambed Alteration Agreements, with a specific fee schedule to be determined by CDFW. CDFW can also enter into programmatic agreements that cover recurring operation and maintenance activities and regional plans. These agreements are sometimes referred to as Master Streambed Alteration Agreements (MSAAs).

Under Fish and Game Code Section 1602 (Streambed Alteration Agreements), the CDFW takes jurisdiction over the stream zone which is defined top of bank or outside extent of riparian vegetation, whichever is the greatest. Within the stream zone, waters of the State of California are typically delineated to include the streambed to the top of the bank and adjacent areas that would meet any one of the three wetland parameters in the Corps definition (vegetation, hydrology, and/or soils). Whereas federal jurisdiction requires meeting all three parameters, in practice meeting one parameter, or even the presence (rather than dominance) of wetland plants in an area associated with a jurisdictional streambed would qualify an area as waters of the State of California. CDFW jurisdiction is not limited to navigable waters or tributaries to navigable waters; however, isolated wetlands and wetlands not associated with a lake shoreline or streambed are not typically subject to CDFW jurisdiction.

Regional Water Quality Control Board

The SWRCB and the Regional Water Quality Control Boards (RWQCBs) (together "Boards") are the principal state agencies with primary responsibility for the coordination and control of water

quality. In the Porter-Cologne Water Quality Control Act (Porter-Cologne), the California Legislature declared that the "state must be prepared to exercise its full power and jurisdiction to protect the quality of the waters in the state from degradation..." (California Water Code §13000). Porter-Cologne grants the Boards the authority to implement and enforce the water quality laws, regulations, policies, and plans to protect the groundwater and surface waters of the state. Impacts to waters of the state determined to be jurisdictional would require a project proponent to obtain waste discharge permitting (for non-federally-jurisdictional waters) and/or a Clean Water Act Section 401 certification (for federally jurisdictional waters, as in the case of the required Corps permit). The enforcement of the state's water quality requirements is not solely the purview of the Boards and their staff. Other agencies (e.g., the CDFW) have the ability to enforce certain water quality provisions in state law.

California Wetland Definition

As legal protection of and scientific attention to wetlands have increased, so have the number of wetland definitions contained in State and federal law. Most of these definitions vary slightly but share common terms and concepts. In general, California agencies have adopted the Cowardin et al. (1979) classification system to define wetlands. The Cowardin classification broadly describes wetlands as lands where saturation with water is the dominant factor determining the nature of soil development and the types of plant and animal communities living in the soil and on its surface. According to this classification system, wetlands must have one or more of the following three attributes: (1) at least periodically, the land predominantly supports hydrophytes;[12] (2) the substrate is predominantly undrained hydric soil; or (3) the substrate is nonsoil and is saturated with water or covered by shallow water at some time during the growing season of each year (Cowardin et al., 1979).

Under normal circumstances, the federal definition of wetlands requires all three wetland identification parameters to be met, whereas the Cowardin definition requires the presence of at least one of these parameters.

The CDFW, in their review of Lake and Streambed Alteration Agreements under Section 1600 of the California Fish and Game Code, generally relies upon the Cowardin system and the presence of at least one parameter in considering an area a wetland and therefore subject to Fish and Game Code regulation.

As of preparation of this Draft SEIR, the SWRCB is considering adoption the June 17, 2016 Final Draft Procedures for Discharges of Dredged or Fill Material to Waters of the State(SWRCB, 2016), which includes (among other elements) a statewide wetland area definition and wetland delineation procedures. The final draft provides the following definition for wetlands:

> An area is wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper

[12] The USFWS has developed the following definition for hydrophytic vegetation: "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 al., 1979).

substrate; and (3) the area either lacks vegetation or the vegetation is dominated by hydrophytes or the area lacks vegetation.

California Regulation of Activities in Wetlands

The State's authority to regulate activities in wetlands and waters within the Project site resides primarily with the RWQCB, which regulates fill in and discharges to Waters of the U.S. under Section 401 of the Clean Water Act and to Waters of the State of California, including activities in wetlands, under the Porter-Cologne Water Quality Control Act. The CDFW provides comment on Corps permit actions under the Fish and Wildlife Coordination Act. Moreover, under Sections 1600–1616 of the California Fish and Game Code, the CDFW regulates activities that would substantially divert, obstruct the natural flow of, or change, rivers, streams, and lakes. The jurisdictional limits of the CDFW are defined in Section 1602 of the California Fish and Game Code as the bed, channel, or bank of any river, stream, or lake. CDFW jurisdiction generally extends beyond the bed or bank of these features to include adjacent riparian habitat, including adjacent wetlands. The CDFW regulates activities that would substantially alter or result in the deposit or disposal of debris, waste, or other materials into any river, stream, or lake, and requires preparation of a streambed alteration agreement for activities that are proposed within or near a river, stream, or lake.

California Rare Plant Rank

CDFW works in collaboration with the California Native Plant Society (CNPS) and botanical experts to maintain an Inventory of Rare and Endangered Plants, and the similar Special Vascular Plants, Bryophytes, and Lichens List. The plant species on these lists may meet the CEQA definition of rare or endangered. As the trustee agency for the plants and wildlife of California, ecological communities, and the habitat upon which they depend, CDFW advises public agencies during the CEQA process to help ensure that the actions they approve do not significantly impact such resources. CDFW often advises that plant species with an appropriate California Rare Plant Rank in the Inventory be properly analyzed by the lead agency during project review to ensure compliance with CEQA. The following identifies the definitions of the California Rare Plant Rankings (CRPR):

Rank 1A: Plants presumed extirpated in California and either rare or extinct elsewhere.

Rank 1B: Plants Rare, Threatened, or Endangered in California and elsewhere.

Rank 2A: Plants presumed extirpated in California, but more common elsewhere.

Rank 2B: Plants Rare, Threatened, or Endangered in California, but more common elsewhere.

Rank 3: Plants about which more information is needed - A Review List.

Rank 4: Plants of limited distribution - A Watch List.

Local

City of Oakland General Plan Policies

The Open Space, Conservation, and Recreation (OSCAR) Element of the City of Oakland General Plan was adopted in 1996. OSCAR policies pertaining to natural resources with potential relevance to adoption and development under the Specific Plan include the following:

Open Space

- ***Policy OS-1.2: Open Space Protection Priorities for Private Land.*** Conserve privately-owned areas with important natural resource values through a combination of land acquisition and development controls. Use the following criteria when developing priorities for acquisition or protection:

  a) steep hillside parcels over 10 acres in size;

  b) parcels with significant biological resources, including endangered species habitat and native plant communities;

  c) parcels which can potentially link together or expand existing open space areas;

  d) visually prominent properties, including ridgelines and other areas with high scenic value; and

  e) properties where the use of eminent domain is not required.

- ***Policy OS-1.3: Development of Hillside Sites.*** On large sites with subdivision potential, generally conserve ridges, knolls, and other visually prominent features as open space. Maintain development regulations which consider environmental and open space factors such as land stability, plant and animal resources, earthquake and fire hazards, and visual impacts, in the determination of allowable density. Where hillside development does occur, encourage creative architecture and site planning which minimizes grading and protects the natural character of the hills.

- ***Policy OS-8.2: Creek Daylighting.*** Support programs to restore or "daylight" sections of creek that have been culverted or buried in the storm drain system, provided that the following conditions exist: (1) broad-based community support for the project; (2) availability of financial resources for the project; and (3) no significant health, safety, flooding, or erosion hazards would result from the project. Place priority for daylighting on properties where additional opportunities for recreational access would be created.

- ***Policy OS-9.1: Protection of Natural Landforms.*** Design new development to preserve natural topography and terrain. Enhance prominent topographic features where appropriate by parks, plazas, or architectural expressions.

- ***Policy OS-9.2: Use of Natural Features to Define Communities.*** Use open space and natural features to define city and neighborhood edges and give communities within Oakland a stronger sense of identity. Maintain and enhance city edges, including the greenbelt on the eastern edge of the city, the shoreline, and San Leandro Creek. Use creeks, parks and topographical features to help define neighborhood edges and create neighborhood focal points.

- ***Policy OS-12.1: Street Tree Selection.*** Incorporate a broad and varied range of tree species which is reflected on a city-maintained list of approved trees. Street tree selection should respond to the general environmental conditions at the planting site, including climate and micro-climate, soil types, topography, existing tree planting, maintenance of adequate distance between street trees and other features, the character of existing development., and the size and context of the tree planting area.

- ***Policy OS-12.2: Street Tree Maintenance.*** Maintain street trees to promote their natural forms, eliminate hazardous conditions, provide adequate vertical clearance over streets and sidewalks, and abate pest and disease problems.

- ***Policy OS-12.3: Street Tree Removal.*** Remove street trees only if they are hazardous, severely and incurably infested with insects or blight, or are severely and irreversibly damaged and deformed. Provide replacement trees in all cases where the site is suitable for street trees.

Conservation

- ***Policy C0-1.1: Soil Loss in New Development.*** Regulate development in a manner which protects soil from degradation and misuse or other activities which significantly reduce its ability to support plant and animal life. Design all construction to ensure that soil is well secured so that unnecessary erosion, siltation of streams, and sedimentation of water bodies does not occur.

- ***Policy C0-4.2: Drought-Tolerant Landscaping.*** Require use of drought-tolerant plants to the greatest extent possible and encourage the use of irrigation systems which minimize water consumption.

- ***Policy C0-6.1: Creek Management.*** Protect Oakland's remaining natural creek segments by retaining creek vegetation, maintaining creek setbacks, and controlling bank erosion. Design future flood control projects to preserve the natural character of creeks and incorporate provisions for public access, including trails, where feasible. Strongly discourage projects which bury creeks or divert them into concrete channels.

- ***Policy C0-6.2: Creek Maintenance and Safety.*** Strictly enforce local, state, and federal laws and ordinances on the maintenance of creeks and watercourses. Abate health and safety hazards along and within creeks through a variety of measures, including creek clean-up programs, stronger enforcement of litter and anti-dumping laws, and vegetation maintenance requirements for properties abutting creeks.

- ***Policy C0-7.1: Protection of Native Plant Communities.*** Protect native plant communities, especially oak woodlands, redwood forests, native perennial grasslands, and riparian woodlands, from the potential adverse impacts of development. Manage development in a way which prevents or mitigates adverse impacts to these communities.

- ***Policy C0-7.2: Native Plant Restoration.*** Encourage efforts to restore native plant communities in areas where they have been compromised by development or invasive species, provided that such efforts do not increase an area's susceptibility to wildfire.

- ***Policy C0-7.3: Forested Character.*** Make every effort to maintain the wooded or forested character of tree-covered lots when development occurs on such lots.

- ***Policy C0-7.4: Tree Removal.*** Discourage the removal of large trees on already developed sites unless removal is required for biological, public safety, or public works reasons.
- ***Policy C0-7.5: Non-Native Plant Removal.*** Do not remove non-native plants within park and open space areas solely because they are non-natives. Plant removal should be related to other valid management policies, including fire prevention.
- ***Policy CO-7.6: Rehabilitation of Damaged or Dead Vegetation.*** Encourage programs which rehabilitate, enhance, or replace damaged or dead vegetation as appropriate.
- ***Policy C0-9.1: Habitat Protection.*** Protect rare, endangered, and threatened species by conserving and enhancing their habitat and requiring mitigation of potential adverse impacts when development occurs within habitat areas.
- ***Policy C0-11.2: Migratory Corridors.*** Protect and enhance migratory corridors for wildlife. Where such corridors are privately owned, require new development to retain native habitat or take other measures which help sustain local wildlife population and migratory patterns.

City of Oakland Tree Ordinance

City of Oakland Tree Preservation and Removal Ordinance (Oakland Municipal Code [OMC] Chapter 12.36) permits removal of protected trees under certain circumstances. To grant a tree removal permit, the City must determine that removal is necessary in order to accomplish one of the following objectives:

- to ensure public health and safety,
- to avoid an unconstitutional taking of property,
- to take reasonable advantage of views,
- to pursue acceptable professional practice of forestry or landscape design, or
- to implement the vegetation management prescriptions in the S-11 site development review zone.

Protected trees include the following:

- *Quercus agrifolia* (California or coast live oak) measuring four inches diameter at breast height (dbh) or larger, and any other tree measuring nine inches dbh or larger except *Eucalyptus* spp. and *Pinus radiata* (Monterey pine); provided, however, Monterey pine trees on City property and in development-related situations where more than five Monterey pine trees per acre are proposed to be removed are considered to be Protected trees.

City of Oakland Creek Ordinance

Title 13, Chapter 13.16, City of Oakland Creek Protection, Storm Water Management, and Discharge Control Ordinance, provides a high level of protection for creeks within Oakland's city limits. The ordinance defines a creek as "…a watercourse that is a naturally occurring swale or depression, or engineered channel that carries fresh or estuarine water either seasonally or year

around." In addition, under the ordinance definition, a creek channel must be hydrologically connected to a waterway above or below a project site, and the channel must exhibit a defined bed and bank. A creek protection permit is required whenever work is to be undertaken on a creekside property. The ordinance prohibits, among other things, the discharge of concentrated stormwater or other modification of the natural flow of water in a watercourse, development within a watercourse or within 20 feet from the top of the bank, and the deposition or removal of any material within a watercourse without a permit. Depending on the type of activity being permitted, conditions of approval may include the submittal of a creek protection plan and/or a hydrology report, revegetation with native plant species, the use of soil bioengineering techniques for bank stabilization and erosion control, and implementation of stormwater quality protection measures. The following activities, among others, are typically not permitted:

- Removal of riparian vegetation;
- Culverting or undergrounding of a creek;
- Moving the location of a creek;
- Structures spanning a creek; and/or
- Riprap, rock gabions, or concrete within the bed or on the creek banks.

City of Oakland Standard Conditions of Approval and Uniformly Applied Development Standards Imposed as Standard Conditions of Approval

The Standard Conditions Approval (SCAs) relevant to the biological resources that could be significantly impacted by adoption and development under the Project are listed below. If the Project is approved by the City, all applicable SCAs would be adopted as conditions of approval and required, as applicable, of adoption and development under the Specific Plan to help ensure less-than-significant impacts to biological resources. The SCAs are incorporated and required as part of the Project approval, so they are not listed as mitigation measures.

- **SCA BIO-1: Tree Removal During Bird Breeding Season.** *Prior to removal of trees*. To the extent feasible, removal of any tree and/or other vegetation suitable for nesting of birds shall not occur during the bird breeding season of February 1 to August 15 (or during December 15 to August 15 for trees located in or near marsh, wetland, or aquatic habitats). If tree removal must occur during the bird breeding season, all trees to be removed shall be surveyed by a qualified biologist to verify the presence or absence of nesting raptors or other birds. Pre-removal surveys shall be conducted within 15 days prior to the start of work and shall be submitted to the City for review and approval. If the survey indicates the potential presence of nesting raptors or other birds, the biologist shall determine an appropriately sized buffer around the nest in which no work will be allowed until the young have successfully fledged. The size of the nest buffer will be determined by the biologist in consultation with the California Department of Fish and Wildlife, and will be based to a large extent on the nesting species and its sensitivity to disturbance. In general, buffer sizes of 200 feet for raptors and 50 feet for other birds should suffice to prevent disturbance to birds nesting in the urban environment, but these buffers may be increased or decreased, as appropriate, depending on the bird species and the level of disturbance anticipated near the nest.

  When Required: Prior to removal of trees

  Initial Approval: Bureau of Building

Monitoring/Inspection: Bureau of Building

- **SCA BIO-2: Bird Collision Reduction Measures.** *Prior to approval of a construction-related permit.* The following measures apply to all construction projects which include glass as part of the building's exterior AND at least one of the following: a) The project is located immediately adjacent to a substantial water body larger than 1 acre (i.e. Oakland Estuary, San Francisco Bay, Lake Merritt or other lake, reservoir or wetland). OR b) The project is located immediately adjacent to a substantial recreation area or park (i.e. a region-serving park, resource conservation area, neighborhood park, linear park, or special use park and generally over 1 acre in size) which contains substantial vegetation. OR c) The project includes substantial vegetated or green roof or green wall (roof or wall with growing medium and plants taking the place of conventional roofing such as asphalt, tile, gravel or shingles) but excluding container gardens OR d) The project includes an existing or proposed substantial vegetated area (generally contiguous one acre in size or larger) located directly adjacent to project buildings. e) The structure contains an atrium which will contain vegetation

  The project applicant shall submit a Bird Collision Reduction Plan for City review and approval to reduce potential bird collisions to the maximum feasible extent. The Plan shall include all of the following mandatory measures, as well as applicable and specific project Best Management Practice (BMP) strategies to reduce bird strike impacts to the maximum feasible extent. The project applicant shall implement the approved Plan. Mandatory measures include all of the following:

  i. For large buildings subject to federal aviation safety regulations, install minimum intensity white strobe lighting with three second flash instead of solid red or rotating lights.

  ii. Minimize the number of and co-locate rooftop-antennas and other rooftop structures.

  iii. Monopole structures or antennas shall not include guy wires.

  iv. Avoid the use of mirrors in landscape design.

  v. Avoid placement of bird-friendly attractants (i.e., landscaped areas, vegetated roofs, water features) near glass unless shielded by architectural features taller than the attractant that incorporate bird friendly treatments no more than two inches horizontally, four inches vertically, or both (the "two-by-four" rule), as explained below.

  vi. Apply bird-friendly glazing treatments to no less than 90 percent of all windows and glass between the ground and 60 feet above ground or to the height of existing adjacent landscape or the height of the proposed landscape. Examples of bird-friendly glazing treatments include the following:

    - Use opaque glass in window panes instead of reflective glass.
    - Uniformly cover the interior or exterior of clear glass surface with patterns (e.g., dots, stripes, decals, images, abstract patterns). Patterns can be etched, fritted, or on films and shall have a density of no more than two inches horizontally, four inches vertically, or both (the "two-by-four" rule).
    - Install paned glass with fenestration patterns with vertical and horizontal mullions no more than two inches horizontally, four inches vertically, or both (the "two-by-four" rule).

- Install external screens over non-reflective glass (as close to the glass as possible) for birds to perceive windows as solid objects.
- Install UV-pattern reflective glass, laminated glass with a patterned UV-reflective coating, or UV-absorbing and UV-reflecting film on the glass since most birds can see ultraviolet light, which is invisible to humans.
- Install decorative grilles, screens, netting, or louvers, with openings no more than two inches horizontally, four inches vertically, or both (the "two-by-four" rule).
- Install awnings, overhangs, sunshades, or light shelves directly adjacent to clear glass which is recessed on all sides.
- Install opaque window film or window film with a pattern/design which also adheres to the "two-by-four" rule for coverage.

vii. Reduce light pollution. Examples include the following:

- Extinguish night-time architectural illumination treatments during bird migration season (February 15 to May 15 and August 15 to November 30).
- Install time switch control devices or occupancy sensors on non-emergency interior lights that can be programmed to turn off during non-work hours and between 11:00 p.m. and sunrise.
- Reduce perimeter lighting whenever possible.
- Install full cut-off, shielded, or directional lighting to minimize light spillage, glare, or light trespass.
- Do not use beams of lights during the spring (February 15 to May 15) or fall (August 15 to November 30) migration.

viii. Develop and implement a building operation and management manual that promotes bird safety. Example measures in the manual include the following:

- Donation of discovered dead bird specimens to an authorized bird conservation organization or museums (e.g., UC Berkeley Museum of Vertebrate Zoology) to aid in species identification and to benefit scientific study, as per all federal, state and local laws.
- Distribution of educational materials on bird-safe practices for the building occupants. Contact Golden Gate Audubon Society or American Bird Conservancy for materials.
- Asking employees to turn off task lighting at their work stations and draw office blinds, shades, curtains, or other window coverings at end of work day.
- Install interior blinds, shades, or other window coverings in windows above the ground floor visible from the exterior as part of the construction contract, lease agreement, or CC&Rs.
- Schedule nightly maintenance during the day or to conclude before 11 p.m., if possible.

When Required: Prior to approval of construction-related permit

Initial Approval: Bureau of Planning

Monitoring/Inspection: Bureau of Building

- **SCA BIO-3: Creek Protection Plan.**

  a. ***Creek Protection Plan Required.*** *Prior to approval of construction-related permit.* The project applicant shall submit a Creek Protection Plan for review and approval by the City. The Plan shall be included with the set of project drawings submitted to the City for site improvements and shall incorporate the contents required under section 13.16.150 of the Oakland Municipal Code including Best Management Practices ("BMPs") during construction and after construction to protect the creek. Required BMPs are identified below in sections (b), (c), and (d).

  When Required: Prior to approval of construction-related permit

  Initial Approval: Bureau of Planning

  Monitoring/Inspection: N/A

  b. ***Construction BMPs.*** *Prior to approval of construction-related permit.* The Creek Protection Plan shall incorporate all applicable erosion, sedimentation, debris, and pollution control BMPs to protect the creek during construction. The measures shall include, but are not limited to, the following:

  i. On sloped properties, the downhill end of the construction area must be protected with silt fencing (such as sandbags, filter fabric, silt curtains, etc.) and hay bales oriented parallel to the contours of the slope (at a constant elevation) to prevent erosion into the creek.

  ii. The project applicant shall implement mechanical and vegetative measures to reduce erosion and sedimentation, including appropriate seasonal maintenance. One hundred (100) percent degradable erosion control fabric shall be installed on all graded slopes to protect and stabilize the slopes during construction and before permanent vegetation gets established. All graded areas shall be temporarily protected from erosion by seeding with fast growing annual species. All bare slopes must be covered with staked tarps when rain is occurring or is expected.

  iii. Minimize the removal of natural vegetation or ground cover from the site in order to minimize the potential for erosion and sedimentation problems. Maximize the replanting of the area with native vegetation as soon as possible.

  iv. All work in or near creek channels must be performed with hand tools and by a minimum number of people. Immediately upon completion of this work, soil must be repacked and native vegetation planted.

  v. Install filter materials (such as sandbags, filter fabric, etc.) acceptable to the City at the storm drain inlets nearest to the project site prior to the start of the wet weather season (October 15); site dewatering activities; street washing activities; saw cutting asphalt or concrete; and in order to retain any debris flowing into the City storm drain system. Filter materials shall be maintained

and/or replaced as necessary to ensure effectiveness and prevent street flooding.

vi. Ensure that concrete/granite supply trucks or concrete/plaster finishing operations do not discharge wash water into the creek, street gutters, or storm drains.

vii. Direct and locate tool and equipment cleaning so that wash water does not discharge into the creek.

viii. Create a contained and covered area on the site for storage of bags of cement, paints, flammables, oils, fertilizers, pesticides, or any other materials used on the project site that have the potential for being discharged to the creek or storm drain system by the wind or in the event of a material spill. No hazardous waste material shall be stored on site.

ix. Gather all construction debris on a regular basis and place it in a dumpster or other container which is emptied or removed at least on a weekly basis. When appropriate, use tarps on the ground to collect fallen debris or splatters that could contribute to stormwater pollution.

x. Remove all dirt, gravel, refuse, and green waste from the sidewalk, street pavement, and storm drain system adjoining the project site. During wet weather, avoid driving vehicles off paved areas and other outdoor work.

xi. Broom sweep the street pavement adjoining the project site on a daily basis. Caked-on mud or dirt shall be scraped from these areas before sweeping. At the end of each workday, the entire site must be cleaned and secured against potential erosion, dumping, or discharge to the creek, street, gutter, or storm drains.

xii. All erosion and sedimentation control measures implemented during construction activities, as well as construction site and materials management shall be in strict accordance with the control standards listed in the latest edition of the Erosion and Sediment Control Field Manual published by the Regional Water Quality Control Board (RWQCB).

xiii. Temporary fencing is required for sites without existing fencing between the creek and the construction site and shall be placed along the side adjacent to construction (or both sides of the creek if applicable) at the maximum practical distance from the creek centerline. This area shall not be disturbed during construction without prior approval of the City.

When Required: Prior to approval of construction-related permit

Initial Approval: Bureau of Planning

Monitoring/Inspection: N/A

c. ***Post-Construction BMPs.*** *Prior to approval of construction-related permit.* The project shall not result in a substantial increase in stormwater runoff volume or velocity to the creek or storm drains. The Creek Protection Plan shall include site design measures to reduce the amount of impervious surface to maximum extent practicable. New drain outfalls shall include energy dissipation to slow the velocity of the water at the point of outflow to maximize infiltration and minimize erosion.

When Required: Prior to approval of construction-related permit

Initial Approval: Bureau of Planning

Monitoring/Inspection: N/A

d. ***Creek Landscaping.*** *Prior to approval of construction-related permit.* The project applicant shall include final landscaping details for the site on the Creek Protection Plan, or on a Landscape Plan, for review and approval by the City. Landscaping information shall include a planting schedule, detailing plant types and locations, and a system to ensure adequate irrigation of plantings for at least one growing season.

Plant and maintain only drought-tolerant plants on the site where appropriate as well as native and riparian plants in and adjacent to riparian corridors. Along the riparian corridor, native plants shall not be disturbed to the maximum extent feasible. Any areas disturbed along the riparian corridor shall be replanted with mature native riparian vegetation and be maintained to ensure survival.

When Required: Prior to approval of construction-related permit

Initial Approval: Bureau of Planning

Monitoring/Inspection: N/A

e. ***Creek Protection Plan Implementation.*** *During construction; ongoing.* The project applicant shall implement the approved Creek Protection Plan during and after construction. During construction, all erosion, sedimentation, debris, and pollution control measures shall be monitored regularly by the project applicant. The City may require that a qualified consultant (paid for by the project applicant) inspect the control measures and submit a written report of the adequacy of the control measures to the City. If measures are deemed inadequate, the project applicant shall develop and implement additional and more effective measures immediately.

When Required: During construction; ongoing

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

- **SCA BIO-4: Creek Dewatering/Diversion.** *Prior to approval of construction-related permit.* The project applicant shall submit a Dewatering and Diversion Plan for review and approval by the City, and shall implement the approved Plan. The Plan shall comply, at a minimum, with the following:

  a. All dewatering and diversion activities shall comply with the requirements of all necessary regulatory permits and authorizations from other agencies (e.g., Regional Water Quality Control Board, California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, and Army Corps of Engineers).

  b. All native aquatic life (e.g., fish, amphibians, and turtles) within the work site shall be relocated by a qualified biologist prior to dewatering, in accordance with applicable regional, state, and federal requirements. Captured native aquatic life shall be moved to the nearest appropriate site on the stream channel downstream. The biologist shall check daily for stranded aquatic life as the water level in the dewatering area drops. All reasonable efforts shall be made to capture and move all

stranded aquatic life observed in the dewatered areas. Capture methods may include fish landing nets, dip nets, buckets, and by hand. Captured aquatic life shall be released immediately in the nearest appropriate downstream site. This condition does not allow the take or disturbance of any state or federally listed species, nor state-listed species of special concern, unless the applicant obtains a project specific authorization from the California Department of Fish and Wildlife and/or the U.S. Fish and Wildlife Service, as applicable.

c. If any dam or other artificial obstruction is constructed, maintained, or placed in operation within the stream channel, ensure that sufficient water is allowed to pass down channel at all times to maintain native aquatic life below the dam or other artificial obstruction.

d. Construction and operation of dewatering/diversion devices shall meet the standards contained in the latest edition of the Erosion and Sediment Control Field Manual published by the Regional Water Quality Control Board.

e. Coffer dams and/or water diversion system shall be constructed of a non-erodable material which will cause little or no siltation. Coffer dams and the water diversion system shall be maintained in place and functional throughout the construction period. If the coffer dams or water diversion systems fail, they shall be repaired immediately based on the recommendations of a qualified environmental consultant. The devices shall be removed after construction is complete and the site is stabilized.

f. Pumped water shall be passed through a sediment settling device before returning to the stream channel. Velocity dissipation measures are required at the outfall to prevent erosion.

When Required: Prior to approval of construction-related permit

Initial Approval: Bureau of Planning; Bureau of Building

Monitoring/Inspection: Bureau of Building

- **SCA BIO-5: Tree Permit.** *Prior to approval of a construction-related permit*.

  a. ***Tree Permit Required.*** Pursuant to the City's Tree Protection Ordinance (OMC chapter 12.36), the project applicant shall obtain a tree permit and abide by the conditions of that permit.

  When Required: Prior to approval of construction-related permit

  Initial Approval: Permit approval by Public Works Department, Tree Division; evidence of approval submitted to Bureau of Building

  Monitoring/Inspection: Bureau of Building

  b. ***Tree Protection During Construction.*** Adequate protection shall be provided during the construction period for any trees which are to remain standing, including the following, plus any recommendations of an arborist:

  i. Before the start of any clearing, excavation, construction, or other work on the site, every protected tree deemed to be potentially endangered by said site work shall be securely fenced off at a distance from the base of the tree to be determined by the project's consulting arborist. Such fences shall remain in

place for duration of all such work. All trees to be removed shall be clearly marked. A scheme shall be established for the removal and disposal of logs, brush, earth and other debris which will avoid injury to any protected tree.

ii. Where proposed development or other site work is to encroach upon the protected perimeter of any protected tree, special measures shall be incorporated to allow the roots to breathe and obtain water and nutrients. Any excavation, cutting, filing, or compaction of the existing ground surface within the protected perimeter shall be minimized. No change in existing ground level shall occur within a distance to be determined by the project's consulting arborist from the base of any protected tree at any time. No burning or use of equipment with an open flame shall occur near or within the protected perimeter of any protected tree.

iii. No storage or dumping of oil, gas, chemicals, or other substances that may be harmful to trees shall occur within the distance to be determined by the project's consulting arborist from the base of any protected trees, or any other location on the site from which such substances might enter the protected perimeter. No heavy construction equipment or construction materials shall be operated or stored within a distance from the base of any protected trees to be determined by the project's consulting arborist. Wires, ropes, or other devices shall not be attached to any protected tree, except as needed for support of the tree. No sign, other than a tag showing the botanical classification, shall be attached to any protected tree.

iv. Periodically during construction, the leaves of protected trees shall be thoroughly sprayed with water to prevent buildup of dust and other pollution that would inhibit leaf transpiration.

v. If any damage to a protected tree should occur during or as a result of work on the site, the project applicant shall immediately notify the Public Works Department and the project's consulting arborist shall make a recommendation to the City Tree Reviewer as to whether the damaged tree can be preserved. If, in the professional opinion of the Tree Reviewer, such tree cannot be preserved in a healthy state, the Tree Reviewer shall require replacement of any tree removed with another tree or trees on the same site deemed adequate by the Tree Reviewer to compensate for the loss of the tree that is removed.

vi. All debris created as a result of any tree removal work shall be removed by the project applicant from the property within two weeks of debris creation, and such debris shall be properly disposed of by the project applicant in accordance with all applicable laws, ordinances, and regulations.

When Required: During construction

Initial Approval: Public Works Department, Tree Division

Monitoring/Inspection: Bureau of Building

c. Tree Replacement Plantings. Replacement plantings shall be required for tree removals for the purposes of erosion control, groundwater replenishment, visual screening, wildlife habitat, and preventing excessive loss of shade, in accordance with the following criteria:

i. No tree replacement shall be required for the removal of nonnative species, for the removal of trees which is required for the benefit of remaining trees, or where insufficient planting area exists for a mature tree of the species being considered.

ii. Replacement tree species shall consist of Sequoia sempervirens (Coast Redwood), Quercus agrifolia (Coast Live Oak), Arbutus menziesii (Madrone), Aesculus californica (California Buckeye), Umbellularia californica (California Bay Laurel), or other tree species acceptable to the Tree Division.

iii. Replacement trees shall be at least twenty-four (24) inch box size, unless a smaller size is recommended by the arborist, except that three fifteen (15) gallon size trees may be substituted for each twenty-four (24) inch box size tree where appropriate.

iv. Minimum planting areas must be available on site as follows:

- For Sequoia sempervirens, three hundred fifteen (315) square feet per tree;
- For other species listed, seven hundred (700) square feet per tree.

v. In the event that replacement trees are required but cannot be planted due to site constraints, an in lieu fee in accordance with the City's Master Fee Schedule may be substituted for required replacement plantings, with all such revenues applied toward tree planting in city parks, streets and medians.

vi. The project applicant shall install the plantings and maintain the plantings until established. The Tree Reviewer of the Tree Division of the Public Works Department may require a landscape plan showing the replacement plantings and the method of irrigation. Any replacement plantings which fail to become established within one year of planting shall be replanted at the project applicant's expense.

When Required: Prior to building permit final

Initial Approval: Public Works Department, Tree Division

Monitoring/Inspection: Bureau of Building

The following applicable Standard Condition of Approval that the maintenance of vegetation on Creekside properties is are stated in full in Section 4.8, *Hydrology and Water Quality*:

- **SCA HYD-1: Erosion and Sedimentation Control Plan for Construction.**
- **SCA HYD-2: State Construction General Permit.**
- **SCA HYD-8: Vegetation Management on Creekside Properties.**

4.3.3 Discussion of Impacts

Significance Criteria

The proposed Project would cause significant adverse impacts to biological resources if it would:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service;

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service;

c) Have a substantial adverse effect on federally protected wetlands (as defined by section 404 of the Clean Water Act) or state protected wetlands, through direct removal, filling, hydrological interruption, or other means;

d) Substantially interfere with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;

e) Fundamentally conflict with any applicable habitat conservation plan or natural community conservation plan;

f) Fundamentally conflict with the City of Oakland Tree Protection Ordinance (Oakland Municipal Code (OMC) Chapter 12.36) by removal of protected trees under certain circumstances [**CITY OF OAKLAND NOTE**: Factors to be considered in determining significance include the number, type, size, location and condition of (a) the protected trees to be removed and/or impacted by construction and (b) protected trees to remain, with special consideration given to native trees.[13] Protected trees include Quercus agrifolia (California or coast live oak) measuring four inches diameter at breast height (dbh) or larger, and any other tree measuring nine inches dbh or larger except eucalyptus and Pinus radiata (Monterey pine); provided, however, that Monterey pine trees on City property and in development-related situations where more than five Monterey pine trees per acre are proposed to be removed are considered to be protected trees.]; or

g) Fundamentally conflict with the City of Oakland Creek Protection Ordinance (OMC Chapter 13.16) intended to protect biological resources. [**CITY OF OAKLAND NOTE**: Although there are no specific, numeric/quantitative criteria to assess impacts, factors to be considered in determining significance include whether there is substantial degradation of riparian and/or aquatic habitat through (a) discharging a substantial amount of pollutants into a creek, (b) significantly modifying the natural flow of the water, (c) depositing substantial amounts of new material into a creek or causing substantial bank erosion or instability, or (d) adversely impacting the riparian corridor by significantly altering vegetation or wildlife habitat.]

[13] Oakland Planning Code section 17.158.280(E)(2) states that "Development related" tree removal permits are exempt from CEQA if no single tree to be removed has a dbh of 36 inches or greater **and** the cumulative trunk area of all trees to be removed does not exceed 0.1 percent of the total lot area.

Approach to Analysis

Impacts on biological resources are identified and evaluated based on relevant CEQA and federal, state, and local standards, policies, and guidelines; on the likelihood that special-status species, sensitive habitats and natural communities, wetlands and waters of the U.S., and wildlife corridors are present within the Project site (as described in Section 4.3.2, *Setting*); and on the likely effects that Project construction, operation, and maintenance might have on these resources. Special-status species or other sensitive resources determined to be absent or have low potential to occur in the Project study area (as presented in Appendix C of the WRA Biological Resources Assessment (WRA 2015b) and as determined in the subsequent Rare Plant Survey Report (WRA 2016a) (Appendix M and P, respectively, to this Draft SEIR) are not considered in the impact analysis.

This section analyzes potential Project impacts to biological resources from the construction phase (short-term) and the operations and maintenance phase (long-term). This analysis addresses potential direct, indirect, and cumulative impacts of the Project to special-status species, sensitive natural communities, wetlands and waters of the U.S., and other biological resources. Direct impacts are those resulting from the Project and that occur at the same time and place. Indirect impacts are caused by the Project, but can occur later in time or farther removed in distance while still reasonably foreseeable and related to the Project. Impact analyses typically characterize effects to biological resources as temporary or permanent, with a permanent impact referring to areas that are developed or otherwise precluded from restoration to a pre-project state.

For the purposes of this EIR, the word "substantial" as used in the significance criteria above is defined by the following three principal components:

i. Magnitude and duration of the impact (e.g., substantial/not substantial)
ii. Uniqueness of the affected resource (rarity)
iii. Susceptibility of the affected resource to disturbance

The approach to analysis of impacts related to construction and operation of the Project are described below under the headings Construction Impacts and Operational Impacts.

Impacts Not Further Evaluated

Habitation Conservation Plan / Natural Community Conservation Plan (Criterion e)

Review and comparison of the setting circumstances and Project characteristics with the significance criteria clearly show that no impacts would be associated with criterion "e", as no adopted habitat conservation plan or natural community conservation plan covers the Project site and therefore the Project could not conflict with these plans. The closest Habitat Conservation Plan is the East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP), located more than 13 miles east of the Project site (East Contra Costa County Habitat Conservancy, 2014).

Impacts and Mitigation Measures

Impact BIO-1: The Project could have a substantial adverse effect, either directly or through habitat modifications, on any plant or animal species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service. (Criterion a) (*Potentially Significant*)

Plants

1998 EIS/EIR.

Special-Status[14] Plant Species

No federal or state threatened or endangered plant species with potential habitat on the Project site was identified in the analysis conducted for the 1998 EIS/EIR. The Oakland star-tulip (*Calochortus umbellatus*) was identified as a special-status plant (California Native Plant Society List 4 species) with potential habitat on the Project site, but since the plant did not have legal protection at that time, the 1998 EIS/EIR did not analyze whether development of the Maximum Capacity Alternative would result in an impact to the Oakland star-tulip. The 1998 EIS/EIR also did not analyze whether development of the Maximum Capacity Alternative would have a significant impact on the two locally significant plant species observed in the Project area: Douglas iris and slender-footed sledge.

Proposed Project.

Special-Status Plant Species

No federal- or state-listed threatened or endangered plant species are known to occur or were determined to have at least a moderate potential to occur within the Oak Knoll Project site. Oakland star tulip, a CRPR rank 4.2 species and locally rare species (A2), is present in the southeast portion of the Project site in an area of Monterey pine and coast live woodland overstory with native purple needlegrass grassland and California sagebrush scrub understory. Other species of local significance documented within the Project site include slender-footed sedge (A1) in a disturbed upland area near Rifle Range Creek, Douglas iris (A2) in the purple needlegrass grassland near the base of the knoll, and coast live oak (A2), abundantly present throughout the Project site.

Oakland star tulip

The Project has the potential to permanently impact an estimated 723 individuals of Oakland star-tulip due to planned grading and conversion of suitable habitat to developed areas. A California

[14] The 1998 EIS/EIR refers to species, that are federal or State listed as endangered, threatened, or candidate species, as "sensitive species" and considers "other sensitive species" to include federal species of concern and California species of special concern, and refers to all other species as "nonsensitive species". The 1998 EIS/EIR did not use the term special-status, which is used in this EIR. Special-status is broader than "sensitive" and "other sensitive" species; in addition to the species covered under those terms in the 1998 EIS/EIR, "special-status" also includes species designated as "Rare" or "Sensitive" on the basis of policies adopted by expert state resource agencies, expert organizations, and local agencies to meet regional and local conservation objectives. The list of species included in the term "special status" is described in under the *Special-Status Species* section of the *Project Setting*, above.

Rare Plant Rank of 4.2 indicates this species has a fairly limited distribution or is infrequent throughout a broader area in California and is fairly threatened throughout the state. They are not considered "rare" statewide, but uncommon enough that their status should be monitored regularly. A local listing of A2 indicates that this species is currently known from 3-5 regions in Alameda and Contra Costa counties or it meets other important criteria, such as small populations, stressed or declining populations, small geographical range, limited or threatened habitat, etc. (EBCNPS, 2016). According to the CNPS guidelines, which provide recommendations for consideration of potential impacts to ranked species under CEQA, few, if any, Rank 4 species are eligible for state listing under CESA; however, impacts may be considered significant under CEQA in special cases due to local sensitivity (CNPS 2015b). As discussed below, loss of Oakland star-tulip on the Oak Knoll is not considered significant given regional prevalence of the species.

As described in the *Setting*, Oakland star-tulip is known to the East Bay Hills of the Project vicinity and reported populations range in size from a single individual to over a thousand plants, with most of the records documenting relatively small populations of under 100 plants. While documented in at least nine of the East Bay Regional Parks, where suitable habitat for this species is currently protected as open space by the East Bay Regional Park District, information on the status, size, or abundance of these populations is limited. Loss of the Project site population is not regionally significant to the species or result in a significant CEQA impact, even though this plant is listed in the OSCAR (p. 3-43) as a rare threatened and endangered. With Recommendation BIO-1, to which the Project sponsor has agreed, localized impacts to Oakland star tulip could be substantially reduced through salvage and relocation of a portion of the population for reintroduction elsewhere on the Project site or into established populations in the Project vicinity.

Recommendation BIO-1: The following measures should be implemented prior to construction to avoid or minimize impacts to Oakland star-tulip within the Project site.

a) A qualified botanist shall flag the location of Oakland star tulip plants during the flowering period prior to site grading. Under the direction of the qualified botanist, bulbs shall be harvested from at least 50 percent the Oakland star tulip plants within the Project site following flowering and withering of leaves.

b) Harvested bulbs shall be 1) stored for reintroduction into suitable habitat within upland woodland portions the creek restoration area of the Project site; or 2) made available to a reputable organization for reintroduction into suitable locations near the Project vicinity, such the East Bay Regional Park District, East Bay Chapter of the California Native Plant Society, UC Berkeley Botanical Garden, or Merritt College Horticultural Department.

c) If plants are reintroduced within the Project site, the Project sponsor shall prepare a Monitoring Plan for relocated / transplanted Oakland star-tulip plants within the Project site. The plan shall detail methods and location for relocating or reintroducing Oakland star-tulip population, monitoring methods and maintenance for successful establishment, and reporting protocols. The recommended success criteria for relocated plants is 0.5:1 ratio [number of plants established : number of plants impacted] after two years.

d) Contingency measures should be included in the plan if it appears the success criterion will not be met after two years.

e) The plan shall be developed in consultation with the appropriate agencies prior to the start of local construction activities.

f) Monitoring reports shall include photo-documentation, planting specifications, a site layout map, descriptions of materials used, and justification for any deviations from the monitoring plan.

Douglas iris

CEQA states that "special emphasis should be placed on environmental resources that are rare or unique to that region." However, impacts to Douglas' iris would be minimal. The on-site population is relatively small (less than 100 individuals) and this species has been documented in at least ten locations in the East Bay including nearby parks such as Joaquin Miller, Redwood, and Anthony Chabot (Lake, 2010). The majority of suitable and occupied habitat in the East Bay is already protected by the East Bay Regional Park District and the East Bay Municipal Utilities District. As such, the Project would not substantially adversely affect this species persistence in the East Bay and the Project impacts on Douglas iris would be less than significant.

Slender-footed sedge

CEQA states that "special emphasis should be placed on environmental resources that are rare or unique to that region." However, impacts to slender-footed sedge would be minimal. This species is widespread in California and has been documented in 32 counties. It is widespread in the North Coast region and in the Sierra Nevada range. Although there are only two documented occurrences in Alameda County, Carex is an understudied genus and other populations have likely been overlooked or gone unreported due to its lack of a statewide rarity status. Additionally, the two known occurrences are both in protected open space areas (i.e. Joaquin Miller and Redwood Regional Park). Only a single individual was identified in the Project site during 2015 rare plant surveys; however, it is possible that additional plants are present, because the identity and status of this species was not confirmed until after the rare plant survey was completed. In any case, the loss of an on-site population would not substantially adversely affect this species persistence in the East Bay and the Project impacts on slender-footed sedge would be less than significant.

Wildlife

1998 EIS/EIR.

Special-Status Animal Species

Alameda whipsnake

The 1998 EIS/EIR recognized the potential for suitable habitat for the Alameda whipsnake (listed as a federal proposed endangered and state threatened at that time) to exist on or near the project site. The 1998 EIS/EIR indicated that the Project site was within the geographical range of

Alameda whipsnake (*Masticophis lateralis euryxanthus*). The Project study area contained a small amount of isolated habitat for this species. Surveys were conducted for Alameda whipsnake for the 1998 EIS/EIR. None were observed or captured. The analysis concluded the Alameda whipsnake was not likely to occur at the site and the Project site. Subsequent to preparation of the 1998 EIS/EIR, the Alameda whipsnake was listed as threated under federal and state law and critical habitat was designated for the species. As discussed below, the conclusion that the Project would not have a significant impact on this species has not changed.

California red-legged frog

The 1998 EIS/EIR indicated that potential habitat for the California red-legged frog (listed as a federal proposed endangered and state threatened species at that time) was not present on or near the Project site. California red-legged frog is now listed as a federal threatened species and considered a California species of special concern by CDFW. Consistent with the 1998 EIS/EIR, this EIR concludes this species is unlikely to occur within the Oak Knoll Project site.

No other animal species that is now listed as endangered or threatened was found by the 1998 EIS/EIR to have potential habitat on the Project site.

Special-Status and Migratory Birds

The 1998 EIS/EIR indicated that the Cooper's hawk was detected during 1995 surveys and identified habitat for several sensitive bird species (12 additional California species of special concern [CSC]). As also indicated in the 1998 EIS/EIR, migratory birds pass through the Project site during the spring and fall, and some songbirds nest at the site. The 1998 EIS/EIR did not find mitigation was necessary to address potentially significant impacts to nesting and migrating birds.

The 1998 EIS/EIR also identified seven other special-status species (federal species of concern or California species of special concern at that time) for which potential habitat existed on the Project site. However, the analysis concluded that development of the Maximum Capacity Alternative would not result in the loss of substantial numbers of individuals of such species. The 1998 EIS/EIR analysis stated that several of the areas on the NMCO property were densely developed or paved and did not support significant biological resources. These areas included landscaped areas dominated by non-native plants and that do not provide significant habitat, high value food, cover, or nesting values associated with habitats important for special-status animal species. Thus, the 1998 EIS/EIR concluded that removal of habitat for the Maximum Capacity Alternative would not substantially degrade the use of the site by special-status animal species beyond the ranges of normal variability of use associated with those species. Overall, the 1998 EIS/EIR concluded that development of the Maximum Capacity Alternative would have no impact to special-status animal species that it analyzed. The 1998 EIS/EIR did not analyze the potential to significantly impact special-status bats though habitat for greater western mastiff bat (*Eumops perotis californicus*) and Pacific western big-eared bat (*Plecotus townsendii townsendii*, now *Corynorhinus townsendii* or Townsend's big-eared bat) was identified on the NMCO property. The 1998 EIS/EIR also did not analyze the potential to significantly impact San Francisco dusky-footed woodrat, a state species of concern, though habitat for this species was also identified on the NMCO property.

Nonsensitive Animal Species

The 1998 EIS/EIR did not identify significant impacts to nonsensitive animal species.

Proposed Project.

Special-Status Animal Species

No federal- or state-listed threatened or endangered animal species are known to occur, or determined to have at least a moderate potential to occur within the Oak Knoll Project site.

Alameda whipsnake

In 2006, Swaim Biological conducted Alameda whipsnake surveys since a small amount of isolated habitat for this species was previously documented within the Project site. Although surveys were conducted in 1998 for the 1998 EIS/EIR, the additional 2006 surveys were done because the previous surveys were conducted under protocols for this species that have been changed by the U.S. Fish and Wildlife Service. The results of the 2006 surveys were negative (none observed on the Project site). Protocol-level surveys for Alameda whipsnake within the Project site were conducted in support of the Oak Knoll Project in the spring and fall of 2015. The results of the 2015 surveys also were negative (The Wildlife Project, 2015). To date, no surveys of the Project site have documented presence of Alameda whipsnake. This is consistent with the findings in the 1998 EIS/EIR and, given these findings, the Project is not anticipated to have significant impacts on Alameda whipsnake during or following construction.

California red-legged frog

California red-legged frog is unlikely to occur within the Oak Knoll Project site primarily because of the lack of connectivity to populations outside of the Project site, the absence of suitable upland and dispersal habitat within the Project site, and extensive historical development within the Oak Knoll Project site (WRA 2015b). The nearest occurrence of California red-legged frog is from 2008, approximately three miles from the Project site, east of San Leandro Reservoir (WRA 2015b). This is consistent with the findings in the 1998 EIS/EIR. Given these findings, no significant impacts to this species are anticipated during or following construction.

Special-Status and Migratory Birds

Several special-status bird species were determined likely to nest or forage within oak woodland, riparian woodland, non-native forest, and grassland vegetation communities of the Project site such as yellow warbler, olive-sided flycatcher (both considered a Bird of Conservation Concern by USFWS and a Species of Special Concern by CDFW), Oak titmouse, Nuttall's woodpecker, Allan's hummingbird (each considered a Bird of Conservation Concern by USFWS). Other resident and migratory birds protected under the Migratory Bird Treaty Act and CDFG Code (§3503 and §3503.5) determined to have at least a moderate potential to nest within the Project site include but are not limited to Cooper's hawk, sharp-shinned hawk, red-tailed hawk, American kestrel, Anna's hummingbird, Bewick's wren, California towhee, among many others.

Construction Impacts

As discussed in detail under criterion "b" (Riparian Habitat and Sensitive Natural Communities) and criterion "f" (Oakland Tree Protection Ordinance) below, the Project would remove approximately 4,000 trees throughout the Project site from the riparian corridor, non-native forest, and oak woodland communities as well as scrub and ground vegetation through mass grading of the Project site, that provides cover and foraging opportunities for ground nesting birds. This impact to avian habitat is considered temporary however, as the Project proposes an extensive replanting and landscape plan, described in detail under criterion "f" (Oakland Tree Ordinance and Tree Removal) under Impact BIO-5. Restoring portions of the site as open space and parks, installing street trees, and restoring Rifle Range Creek, its tributaries, and the associated riparian corridors, would reduce the overall long-term effects on avian habitat attributable to the Project.

Project construction activities such a vegetation removal, tree removal, and ground disturbing activities (grading) could result in direct impacts to nesting birds. Removal of foraging and nesting habitat at the Project site would be considered a direct impact if sensitive birds species were taken or deterred from traditional nesting locations. Noise, visual disturbance, and a general increase in human activity associated with construction could indirectly affect nesting efforts at the Project site and surrounding vicinity. The loss of an active nest occupied by a protected bird species attributable to Project activities would be considered a significant impact under CEQA. Potential nest abandonment, mortality to eggs and chicks, as well as stress from loss of foraging areas would also be considered potentially significant impacts. Moreover, disruption of nesting migratory or native birds is not permitted under the federal MBTA or the California Fish and Game Code, as it could constitute unauthorized take. Thus, the loss of any active nest by, for example, removing a tree or shrub containing an active nest or causing visual or noise disturbance which leads to nest abandonment, must be avoided under federal and California law.

As noted above, all of these impacts to nesting birds during construction were not specifically identified in the 1998 EIS/EIR; however, that document did identify a significant and mitigable impact regarding the potential effects of removing native trees within the riparian corridor along Rifle Range Creek (see criterion "b" [Riparian Habitat] below). Compliance with the City's SCA BIO-1 (Tree Removal during Breeding Bird Season) would limit tree and vegetation (suitable for nesting birds) removal during the breeding season (February 1 – August 15) to the extent feasible, and should tree removal during breeding bird season be necessary, require preconstruction surveys of trees to be removed within the Project site to verify the presence or absence of nesting birds within 15 days of the start of tree removal. Should active nests be identified during surveys, protective nest buffers shall be established around the active nest(s) until the young have successfully fledged, as determined by a qualified biologist.

Birds nesting on the ground and within or on remaining buildings or structures of the Project site (e.g. Club Knoll) could also be adversely affected by vegetation removal, site grading, and building or structure relocation or demolition, if active nests were present in these locations.

Compliance with SCA BIO-1 (Tree Removal during Breeding Bird Season)

The following required SCA Implementation Measure BIO-1.1 further implements SCA BIO-1 which is required to reduce a significant CEQA impact. SCA Implementation Measure BIO-1.1 helps to reduce potential Project-related impacts associated with tree and vegetation removal, ground disturbance, and building and structure demolition on migratory and special-status birds to less than significant by extending preconstruction survey requirements to cover additional construction activities (e.g., grading, building demolition o and/or relocation).

> **SCA Implementation Measure BIO-1.1:** To further implement SCA BIO-1 during construction, to the extent feasible, grading and building or structure relocation or demolition (i.e., Club Knoll Garage) shall not occur during the bird breeding season of February 1 to August 15. If such activities must occur during the bird breeding season, areas where ground disturbance or building relocation or demolition will occur shall be surveyed by a qualified biologist to verify the presence or absence of nesting raptors or other birds.
>
> Surveys shall be conducted within 15 days prior to the start of work and shall be submitted to the City for review and approval. If the survey indicates the potential presence of nesting raptors or other birds protected under federal or state regulations, the biologist, in consultation with the City, shall determine an appropriately sized buffer around the nest in which no work will be allowed to ensure no significant impacts and will maintain that buffer until the young have successfully fledged. The size of the nest buffer will be based on the nesting species and its sensitivity to disturbance. In general, buffer sizes of 200 feet for raptors and 50 feet for other birds should suffice to prevent disturbance to birds nesting in the urban environment.

These actions in the SCA Implementation Measure BIO-1.1 would reduce potential Project-related impacts associated with tree removal on migratory and special-status birds to less than significant.

Operational Impacts

The San Francisco Bay Area is located along the Pacific Flyway avian migration corridor. The waters of the Bay provide valuable stopover habitat for migratory birds that forage and replenish energy stores locally during spring and fall migrations. Open space, even in highly urbanized areas, attract avifauna, and open space such as the (to be restored) Rifle Range Creek corridor and restored or preserved oak woodland habitat in proximity to the proposed new buildings may increase the risk of bird collisions over that posed by existing (undeveloped) site conditions, particularly from large amounts of reflective or artificially lighted surfaces.

It is estimated that between 365 and 988 million birds are killed annually by collisions with buildings and that residential and low-rise buildings (1 to 3 stories tall and 4 to 11 stories tall, respectively) kill more birds on an annual basis than high rise buildings (12 stories or higher). Sheer quantity, density, and the presence of bird feeders that attract birds are cited as reasons residential and low-rise buildings have a higher annual mortality rate than high-rises. (Loss et al., 2014).

Many bird collisions are induced by artificial night lighting. The tendency of birds to move toward lights at night when migrating, and their reluctance to leave the sphere of light influences

for hours or days once encountered, has been well documented (Gauthreaux et al. 2006). It has been suggested that structures located at key points along migratory routes may present a greater hazard than those at other locations (Ogden, 2002). Other research suggests that fatal bird collisions increase as light emissions increase, that weather often plays an important part in increasing the risk of collisions (Verheijen, 1981), and that nights with heavy cloud cover and/or precipitation present the conditions most likely to result in high numbers of collisions (Ogden 2002). Light attraction in birds is positively related to light intensity, and studies have shown that reduction in lighting intensity and changing fixed lighting to a flashing or intermittent light system can dramatically reduce avian mortality at lighted structures (Jones 2003). At least one controlled experiment has shown avian mortality can be dramatically reduced through shielding upward radiance of lighting fixtures. In an experiment with fledgling seabirds in Hawaii, shielding the upward radiation of lights resulted in a 40 percent reduction in attraction to lights as the fledglings made their way from their nesting colonies to the sea (Reed et al. 1985). Furthermore, during the study the sides of large buildings and the grounds remained fully lit by the shielded lights, suggesting that birds are not attracted to lighted areas per se but, rather to point-sources of light, which may be related to the use of stars and the moon as navigational aids (Reed et al. 1985).

Direct effects on migratory as well as resident birds moving through the Project site could include death or injury as the birds collide with lighted structures, birds that are attracted to the light and become exhausted, as well as bird collisions with glass during the daytime. Indirect effects to migratory birds could include delayed arrival at breeding or wintering grounds, and reduced energy stores necessary for migration, winter survival, or subsequent reproduction (Gauthreaux et al., 2006). Development of the proposed Project could increase the amount of light and glare at the Project site and vicinity, including from building facades, internal night lighting, sources visible through windows of building exteriors, new streetlights, and pedestrian lights within and adjacent to the site, nighttime lighting of building exteriors and headlights from Project-generated traffic. Buildings and structures of the Project site may possess a heightened risk of avian collisions due to a number of factors, including location along a known migratory route, proximity to migratory stopover locations, proximity to open space (natural habitat and those created under the proposed Project), and areas where low cloud ceilings are frequent (Brown et al. 2007).

Due to the presence of urban development surrounding the Project site, the proposed Oak Knoll Project is not expected to appreciably increase the overall amount of lighting in the surrounding vicinity; however, avian collisions with glass or reflective surfaces on buildings of the proposed Project have the potential to result in mortality, which could be a significant impact under CEQA and violate the federal MBTA and the California Fish and Game Code (as it could constitute unauthorized take).

Compliance with the City's SCA BIO-2 (Bird Collision Reduction Measures), would reduce this potentially significant impact through incorporating specific design elements into the development and adapting landscaping schemes to avoid or minimize avian collisions with buildings or other Project features. SCA BIO-2 specifies mandatory measures the Project sponsor must implement and requires the development of a Bird Collision Reduction Plan which would tailor bird strike reduction strategies to various Project parameters. Specifically, many of the

measures in SCA BIO-2 lend themselves to commercial buildings rather than hillside residential neighborhood development that is envisioned for the Project, however, the project sponsor will tailor the project-specific Bird Collision Reduction Plan to incorporate those strategies that reasonably apply to the Project or its commercial tenants or homeowners/tenants. Project compliance with SCA BIO-2, as administered by the City and to the extent that the measures apply to the open hillside context and proposed development type that would occur with the proposed Project), will avoid or minimize adverse effects of avian collisions resulting from the proposed Project to a less-than-significant level.

Special-Status Bats

Several special-status bat species were determined to have at least a moderate potential to occur onsite as suitable foraging and roosting habitat is present within the Oak Knoll Project site. Pallid bat (California Species of Special Concern and Western Bat Working Group [WBWG] High-priority species), Western mastiff bat (California Species of Special Concern and WBWG high-priority species), western red bat (California Species of Special Concern and WBWG high-priority species), silver-haired bat (California Species of Special Concern and WBWG medium-Priority species), hoary bat (California special animal and WBWG medium-priority species), and yuma myotis (California special animal and WBWG medium to low-priority species) could roost in tree hollows, tops of tree, and within leaves, bark and/or foliage of the extensive amount of trees onsite. Pallid bat and yuma myotis also roost in structures and could be present in the Club Knoll building to be relocated under the Project.

Bats and other non-game mammals are protected in California under the State Fish and Game Code (described above under *Regulatory Setting*). Maternity roosts are those that are occupied by pregnant females or females with non-flying young. Non-breeding roosts are day roosts without pregnant females or non-flying young. Destruction of an occupied, non-breeding bat roost, resulting in the death of bats; disturbance that causes the loss of a maternity colony of bats (resulting in the death of young); or destruction of hibernacula[15] are prohibited under the Fish and Game Code and would be considered a significant impact (although hibernacula are generally not formed by bat species in the Bay Area due to sufficiently high temperatures year round). This may occur due to direct or indirect disturbances. Clearing vegetation, removing trees, demolishing the Club Knoll Garage, and relocating Club Knoll in support of Project construction could result in direct mortality of special-status bats roosting in tree cavities, under bark, and in Club Knoll or its garage within the Project site. Direct mortality of special-status bats would be a significant impact. Indirect disturbance to bat species could result in behavioral alterations due to construction-associated noise or vibration, or increased human activity in area. Additionally, common bats such as Mexican free-tailed bat may establish maternity roosts, which are protected under CEQA in these same locations. This analysis was not performed in the 1998 EIS/EIR. The Project shall implement new Mitigation Measure BIO-1.1 below, to avoid and minimize disturbance to roosting bats, specifically given the substantial vegetation and tree cover and open grasslands on and around the Project site. Other aspects of the Oak Knoll Project site that substantiate the need for mitigation measures include the long period of time that the remaining

[15] Hibernaculum refers to the winter quarters of a hibernating animal.

buildings on the site have been vacant and not maintained, including deterioration that has exposed interior spaces to the outdoors; the existence of water on the site (with Rifle Range Creek and its tributaries); and the lack of barriers throughout and around the Project site that could limit the movement of animals.

New Mitigation Measure BIO-1.1: A preconstruction habitat assessment for special-status bats shall be conducted by a qualified biologist in advance of tree removal and building demolition within the Project site to characterize potential bat habitat and identify potentially active roost sites. Should the preconstruction survey find no bat habitat or potential bat roosting sites then no further action is required. Should potential roosting habitat or active bat roosts be found in trees to be removed or buildings to be relocated or demolished (i.e. Club Knoll Garage) under the project, the Project sponsor shall implement avoidance and minimization measures. Bats utilize trees and buildings differently depending on the species and the time of year. Tree and building specific measures are outlined below. These measures include the following, subject to modification and augmentation by the terms of applicable permits issued by the CDFW:

a) To avoid impacts to tree roosting bats, trees and snags should be removed between October 1 and March 31, which is outside of the maternity roosting season, when female bats aggregate to give birth and raise their young.

b) If tree removal must occur between April 1 and September 30, and the bat roost habitat assessment identified suitable or potentially occupied roosts within the Project Area, a preconstruction bat survey should be performed by a qualified bat biologist no more than 14 days prior to tree removal to determine if potential roost structures are occupied. Surveys may include acoustic monitoring to identify species within suspected roost sites. If special-status bat species or maternity roosts are detected during these surveys, appropriate species and roost specific avoidance and protection measures will be developed in consultation with CDFW. Such measures may include postponing the removal of trees or snags until the end of the maternity roosting season, implementing exclusionary work buffers, or other compensatory mitigation.

c) Removal of trees or snags with potential bat roosting habitat or active bat roost sites shall occur only when no rain is forecast for three days, when daytime temperatures are at least 50°F, and shall follow a two-step removal process:

    i. On the first day of tree removal and under supervision of the qualified biologist, branches and limbs not containing cavities or fissures in which bats could roost, shall be cut only using chainsaws.

    ii. On the following day and under the supervision of the qualified biologist, the remainder of the tree may be removed, either using chainsaws or other equipment (e.g. excavator or backhoe).

    iii. All felled trees should remain on the ground for at least 24 hours prior to chipping, off-site removal, or other processing to allow any bats to escape.

d) Irrespective of the time of year, all buildings or structures should be surveyed for active bat roosts or signs of roosting (guano, urine staining, dead bats) by a qualified bat biologist no more than 14 days prior to removal to determine if the building or structure is used for roosting. If evidence of roosting is present, the qualified bat biologist will determine, if possible, the type of roost and species. If special-status bat species or maternity or hibernation roosts are detected during these surveys, appropriate species

and roost specific avoidance and protection measures will be developed in consultation with CDFW. Such measures may include postponing the removal of buildings or structures, exclusionary work buffers, or other compensatory mitigation.

e) If surveys identify active bat roosts are found on or in the immediate vicinity of the Project site where tree removal and building demolition is planned, a no disturbance buffer shall be established around these roost sites until they are determined to be no longer active by the qualified bat biologist. The size of the no disturbance buffer would be determined by the qualified bat biologist in conjunction with CDFW and would depend on existing screening around the roost site (such as dense vegetation or a building), the roost type, species present, as well as the type of construction activity which would occur around the roost site.

f) The qualified biologist shall be present during tree removal and building relocation or demolition if potential bat roosting habitat is present or if such work is to occur in the vicinity of any identified active bat roosts.

g) Relocation or demolition of buildings containing or suspected to contain potential bat roosting habitat or active bat roosts shall be dismantled under the supervision of the qualified bat biologist. If relocation or demolition of buildings containing active non-maternity roosting bats is necessary, a permitted bat biologist will perform a roost exclusion by installation of one-way exits and modification of the roost to render it unsuitable. Under no circumstances will active maternity roosts be disturbed until the roost disbands at the completion of the maternity roosting season.

San Francisco dusky-footed woodrat

San Francisco dusky-footed woodrat (a California Species of Special Concern) has the potential to occur in woodland habitat within and in the vicinity of the Project site. Proposed construction activities, such as tree removal, vegetation removal, creek restoration, ground disturbance (grading), or staging of materials and equipment, could have a substantial adverse effect on this species should active middens (nests) be present in areas where Project activities are planned. Direct impacts could include killing or injuring individuals or disturbing active middens during construction activities. Indirect impacts could include causing significant disturbance of a sufficient level to cause abandonment of a midden with young. This is a new impact not previously identified for the Maximum Capacity Alternative in the 1998 EIS/EIR. The Project shall implement new Mitigation Measure BIO-1.2 below, to avoid and minimize potential Project-related impacts to San Francisco dusky-footed woodrat.

Similar to Mitigation Measure BIO 1.1 for roosting bats, Mitigation Measure BIO-1.2 for the San Francisco dusky-footed woodrat is warranted for Oak Knoll specifically given the expansive vegetation and tree cover and open grasslands on the Project site, the extensive acreages of grading and tree removal, and specifically due to the proposed creek restoration associated with the Oak Knoll Project. Further, the long-vacant and deteriorating buildings, proximity of watercourses on the site Rifle Range Creek and its tributaries; and the lack of barriers throughout and around the Project site that could restrict species' movement.

New Mitigation Measure BIO-1.2: A pre-construction survey for San Francisco dusky-footed woodrat middens shall be conducted by a qualified wildlife biologist prior to the start of construction in suitable habitat within the Project site. Middens identified during

surveys shall be flagged as a sensitive resource and avoided during construction, if feasible.

Should avoidance of woodrat middens within the Project site not be feasible, the Project sponsor, shall consult with CDFW regarding a qualified biologist dismantling of the middens by hand for relocation outside of the Project site. If approved by CDFW, a qualified wildlife biologist shall dismantle only middens within the Project site that would be disturbed by construction activities. If young are encountered during dismantling of the midden, any removed material shall be replaced and a 50-foot no-disturbance buffer shall be established around the active midden. The buffer shall remain until young are weaned and are able to disperse on their own accord (typically for a period of 14 days). All removed midden substrate shall be collected and relocated to suitable woodland habitat outside of the Project footprint. Appropriate personal protective equipment (e.g., respirator, gloves, and Tyvek suit) shall be used while dismantling and relocating woodrat nest material to protect against disease carried by rodents (e.g. hantavirus).

In addition, to further the effectiveness of the new mitigation measures and SCAs addressing special-status plants and wildlife, SCA Implementation Measure BIO-1.2 would have all Project construction personnel trained on sensitive environmental resources in the Project vicinity (e.g. special-status plants and wildlife with potential to occur onsite and adjacent sensitive habitat areas or vegetation communities) and the protection and avoidance measures to be implemented onsite throughout the duration of the Project.

SCA Implementation Measure BIO-1.2: To further implement SCA BIO-1, a Project-specific Worker Environmental Awareness Program (WEAP) training shall be developed and implemented by a qualified biologist and attended by all Project construction personnel prior to beginning work onsite. The training could consist of a recorded presentation that could be reused for new personnel throughout the duration of construction. The WEAP training shall generally include but not be limited to the following:

a) Applicable State and federal laws, environmental regulations, Project permit conditions, and penalties for non-compliance;

b) Special-status plant and animal species with potential to occur on or in the vicinity of the Project site, avoidance and protection measures, and a protocol for encountering such species including a communication chain;

c) Known sensitive resource areas in the Project site which are to be avoided and/or protected (e.g. tree to be retained under the Project) as well as approved Project work areas;

d) Preconstruction surveys and biological monitoring requirements associated with each phase of work and restrictions for working nearby sensitive resources within the Project site; and

e) Best Management Practices (BMPs) and their location on the Project site for erosion control, pursuant to SCA HYD-1 (Erosion and Sedimentation Control Plan for Construction).

In summary, the Oak Knoll Project may have the potential to result in significant but mitigable impacts to special-status bird and bat species and San Francisco dusky-footed woodrat, specifically associated with vegetation removal, tree removal, relocation or demolition of the

Club Knoll Garage, and general construction activities. These are new impacts not previously identified for the Maximum Capacity Alternative in the 1998 EIS/EIR. Compliance with the City's SCA BIO-1 (Tree Removal during Bird Breeding Season) and SCA BIO-2 (Bird Collision Reduction Measures), which would be incorporated into the Project, in addition to implementation of New Mitigation Measures BIO-1.1 and BIO-1.2, would ensure and reduce the potential impacts to less than significant. This is achieved through implementation of pre-construction surveys and avoidance and protection measures for resident and migratory birds, bats, and San Francisco dusky-footed woodrat.

SCA Implementation Measure BIO-1.1 is identified to further the implementation of SCA BIO-1 to reduce the potential effects to migratory and special-status birds. In addition, SCA Implementation Measure BIO-1.2 further aligns with the mitigation measures and SCAs addressing special-status bird and bat species by ensuring worker awareness training.

In addition, Project-specific Recommendation BIO-1 is identified to address localized impacts to Oakland star tulip. The Project sponsor has agreed to implement this Recommendation.

Nonsensitive Animal Species

Other than the temporary potential effects of tree removal or building demolition to special-status animal species identified above, the proposed Project would not have a significant effect on other common (i.e., "nonsensitive") species wildlife that may occur on the Project site. Suitable natural and urbanized habitat areas typical to common species exist in adjacent areas for use during construction and following Project completion, areas restored, preserved, enhanced, or landscaped under the Project would offer similar or improved habitat for common wildlife than existing conditions.

> **Impact Conclusion:** Less than Significant after Mitigation.
>
> **Comparison to 1998 EIS/EIR Findings:** No New Significant Impact, but New Mitigation Measures Identified.

Impact BIO-2: The Project could have a substantial adverse effect on riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service. (Criterion b) (*Potentially Significant)*

1998 EIS/EIR.

As described in the 1998 EIS/EIR, the Maximum Capacity Alternative proposed to establish a greenbelt buffer along the Rifle Range Creek and its tributaries and to introduce pedestrian trails along the creek to connect to the Leona Regional Open Space to the north of the Project site, and Arroyo Viejo Creek to the south of the site. No further improvements or alterations to the creek were specified in the description of the alternative, however, the impact statement refers to potential "restoration activities" although none are detailed further in that document.

Based on the scope of the proposed creek improvements described in the 1998 EIS/EIR, the analysis identified that if the proposed greenbelt was not maintained for the entire length of the creek, a significant and mitigable impact could occur. Specifically, the removal of native vegetation surrounding the creek and its tributaries would adversely impact sensitive riparian habitat corridor. Further the analysis indicated that indirect impacts could result from increased erosion and sedimentation that would occur if native vegetation was removed and if construction activities (grading, demolition, cutting, filling, and other earthmoving) would occur near or within the creek corridor. The following Mitigation 1 was identified to reduce the impact to less than significant.

> **1998 EIS/EIR Mitigation 1:** *(to be modified for proposed project)* Avoid the removal of native vegetation within the riparian corridor during demolition, earth moving, construction habitat restoration, and trail-building activities. Establish a permanent, minimum 50-foot wide restricted access buffer zone to protect the Rifle Range Creek corridor. Locate all staging areas in already disturbed sites. A qualified biologist shall develop a detailed habitat restoration plan for restoration activities in Rifle Range Creek, its tributaries, and the surrounding riparian corridor that includes ongoing maintenance of this buffer zone. This plan, to be prepared by the project applicant prior to construction, should specify all activities necessary to restore the drainage with minimal erosion, and should be supervised by restoration specialists. If some vegetation removal is required, project developers should confer with the City of Oakland and the California Department of Fish and Game regarding the type of vegetation to be removed, the extent of removal, and corresponding revegetation mitigation requirements.

Proposed Project.

The Project now proposes extensive restoration and enhancement of Rifle Range Creek and one of its tributaries, Hospital Creek, while realigning and stabilizing 201 linear feet of a highly incised reach of Powerhouse Creek and a 188-foot segment of Rifle Range Creek. The Project also would create and/or restore riparian habitat along the realigned segments of Rifle Range and Powerhouse Creeks.This change and its potential to create new environmental impacts are discussed below. As explained below, this change would not create new or substantially increased significant impacts to riparian habitat and other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.

Impacts to Riparian Habitat

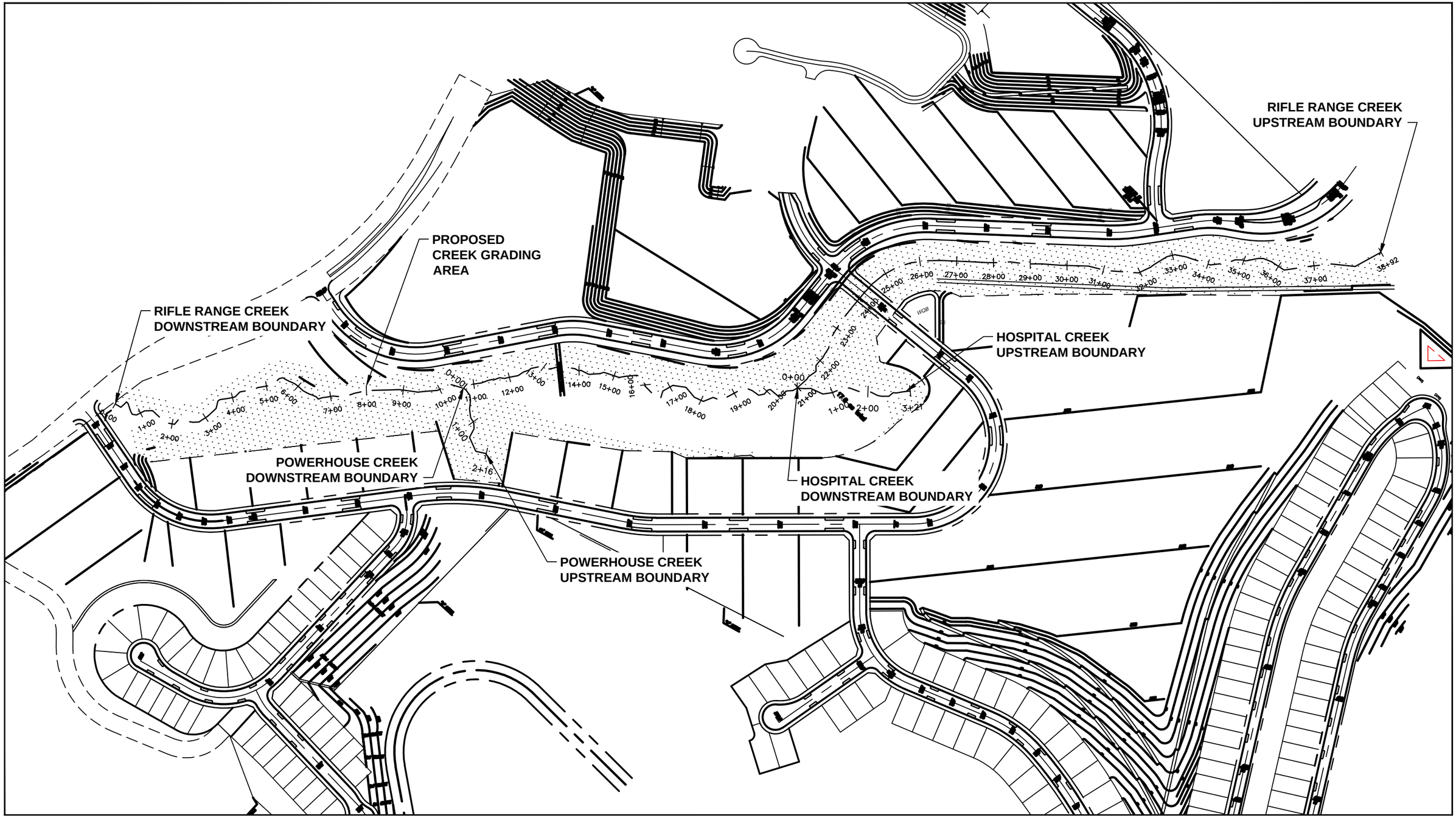
The Oak Knoll Project includes extensive restoration and enhancement of Rifle Range Creek and one of its tributaries, Hospital Creek, concurrently with infrastructure construction for the larger redevelopment Project. Restoration activities would result in temporary impacts to the riparian habitat of the creek corridor and jurisdictional wetlands and other waters of the U.S during construction and an overall net increase in riparian habitat and jurisdictional other waters following Project completion. The restored creek corridor will be defined by an open space parcel that is at least 100 feet wide (average width 198 feet wide), with at least 50 feet between the creek flow line and the boundary of the parcel on each side. In the central part of the site, the creek corridor is up to 250 feet wide and includes an existing oak woodland habitat that will be preserved adjacent to the creek. Buildings and paved areas are set back a minimum of 15 feet

from the parcel boundary throughout the site. On the north side of the creek, Creekside Parkway parallels the open space parcel and provides a continuous buffer between the creek corridor and developed areas to the northwest. The Restoration Area is depicted in **Figure 4.3-6, Creek Restoration Plan Area**, below.

Restoration of Rifle Range Creek and Hospital Creek would be implemented under the proposed Creek Design, included in the Hydrology Report (ESA, 2016b) and according to the Creek Restoration Plan and Creek Protection Plan (ESA 2016a) (both in Appendix N to this Draft SEIR). In addition, 188 linear feet of Rifle Range Creek would be realigned and a 201 linear feet of a highly incised reach of Powerhouse Creek would be realigned and stabilized. Habitate would be created along the realigned segments. The restoration design for Rifle Range Creek maintains the existing channel alignment to the extent possible while stabilizing the channel slope to support current and expected future hydrologic conditions. Banks will also be stabilized and enhanced, including removal of invasive/exotic species, demolition and removal of existing stormdrain outfalls, crossings and concrete debris, and revegetation with native species. Where geotechnical conditions necessitate corrective grading and construction of engineered keyways adjacent to the creek corridor, the creek bank stabilization design is integrated with the corrective grading design to create stable bank slopes that will support revegetation with native riparian and upland species. Log structures and boulder piles are included throughout the design as habitat elements to increase channel roughness and complexity. Log structures will be constructed from trees that are removed during construction. A total of 999 linear feet of creek will be daylighted with the removal of existing road crossings and culverts and 745 linear feet of gabions (large cages filled with rocks along the creek banks previously used as erosion control) will be removed. Two segments of the creek will be realigned to accommodate traffic safety requirements for site access from Keller Avenue and a new, free span road crossing.

The Rifle Range Creek restoration area comprises six reaches of Rile Range Creek and the Hospital Creek tributary. The six reaches have been numbered 1-3 and 4a-4c, starting with the downstream end. For Reaches 1, 2, and 3, the design approach is to preserve the bankful channel within the existing creek corridor. In the downstream-most segment (Reaches 1 and 2), the channel is still actively incising and widening and numerous headcuts are apparent in the channel profile. In order to stabilize these headcuts and support a stable channel gradient, the restoration design includes three different types of grade control structures (log sills, boulder grade control structures and roughened channel segments) to support the existing channel slope and prevent the upstream migration of headcuts. Two existing culverted road crossing will be removed (daylighted) in this segment of the creek. In order to create a stable cross section and support revegetation with native plants, existing and daylighted banks will be graded to a stable slope. Reach 2 includes the confluence of Rifle Range Creek with Powerhouse Creek where the incised Powerhouse Creek channel will be realigned and stabilized.

The central section of the creek channel (Reaches 3 and 4a) is relatively stable due bedrock outcroppings that control the channel gradient. The east bank is well vegetated with oak woodland species and will be preserved. On the west bank, corrective grading and bank stabilization will be applied as described above. At the upstream end of this section (Reach 4a), an



SOURCE:Development Plan (BKF, 9/2015), Creek Alignment and Grading Boundary (ESA, 11, 2015)

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Figure 4.3-6

Creek Restoration Plan Area

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existing culverted road crossing will be daylighted. A short segment of open channel between the existing road crossing and another longer culvert described below will be realigned to accommodate a new intersection and road crossing, while preserving the existing channel length. The new road crossing will consist of a bridge structure that spans the channel. The Hospital Creek confluence with Rifle Range Creek is included in Reach 3.

Reach 4b consists of approximately 636 linear feet of creek currently contained in a culvert beneath the main hospital parking lot. This reach of the creek will be daylighted and culverts and fill associated with the existing parking lot will be removed and replaced with a reconstructed open channel with a stable slope and step-pool morphology. Boulder grade control structures will be used to support a stable channel gradient and the channel and banks will be planted with native species.

In the upstream segment of the creek (Reach 4c) the design approach is to remove 745 feet of gabion channel lining that extends under the channel bed and up both sides of the lower banks, and daylight a culverted roadcrossing to create a continuous naturalized channel with plane bed morphology. The gabions are failing in numerous locations, exposing and releasing rock from the gabion baskets and undermining the channel stability. Remaining gabions and associated riprap will be removed from the channel and the channel and banks will be stabilized and enhanced. The channel alignment will be modified (relative to the existing gabion channel) to accommodate design requirements for the entry road from Keller Avenue; however, the realigned channel will have the same length and slope as the existing channel.

Earthwork and grading activities are proposed to reduce bank slopes, reduce the channel gradient, and stabilize the creek banks. A total of 436 cubic yards of fill covering 0.22 acres would be placed within the OHWM of the creek to re-align and stabilize the channel and to reduce the channel gradient. Fill material would consist of clean cobbles and gravels as well as logs and boulders for grade control. Additional fill would be required above the OHWM to create the floodplain terraces and stabilize creek banks.

Extensive erosion and sediment control measures would be installed along the banks and at the downstream end of each channel reach prior to the initiation of any work on that reach as specified in the Creek Protection Plan (ESA 2016b) (in Appendix N to this Draft SEIR). These protective measures would be maintained beyond the completion of creek and bank grading work until banks are vegetated or otherwise permanently protected from erosive forces. The restored habitat would have three planting zones depending on elevation from the creek, and the plant species used in each zone would vary by location along the creek. The three zones are riparian floodplain, riparian upper bank, and riparian edge/buffer. Plant species used in habitat restoration would be native riparian species currently found in the Project area. Revegetation of the creek banks would likely take place in September and October prior to the start of the rainy season. Planting in a given reach of the riparian corridor would begin after grading activities within that reach have been completed. To reduce the temporal impact associated with riparian vegetation removal, the completion of plant and irrigation installation would occur within six months of ground disturbance in a given reach of the restoration area.

The proposed restoration of the Rifle Range Creek corridor is subject to approvals by a number of federal, state, and local regulatory and permitting agencies (including the City of Oakland), as presented in Table 3-3 of Chapter 3, *Project Description*. Implementation of specific restoration activities could likely result in more severe initial and temporary effects to riparian habitat than those identified for the Maximum Capacity Alternative in the 1998 EIS/EIR.

The Restoration Area contains 8.04 acres of riparian woodland and adjacent oak woodland, consisting primarily of coast live oak, willow, horsetail, California blackberry, poison oak, and sedge, with occasional non-native trees such as blackwood acacia. The Project would permanently impact approximately 0.2 acre of riparian woodland due to a new proposed bridge crossing and would remove and replant approximately 4.7 acres of riparian habitat along Rifle Range Creek and its tributaries; an additional 2.17 acres of existing riparian habitat would be preserved and enhanced. Following restoration activities, the total acreage of riparian habitat and associated native upland vegetation will increase by 8.83 acres to 16.71 acres. (WRA, 2016b and 2016c)

A total of approximately 317 trees within the riparian woodland would be disturbed within the Restoration Area during creek restoration. The highest quality trees within the Restoration Area were identified early in the restoration planning process and were avoided to the maximum extent practicable while still achieving goals of the Project. Approximately 317 trees qualifying for protection under the Oakland Tree Ordinance would be removed in support of creek restoration activities. Impacts to protected trees are discussed under criterion "f", Oakland Tree Ordinance, below (WRA, 2016c). **Table 4.3-3** depicts anticipated impacts to riparian habitat, oak woodland habitat, and protected trees within the Restoration Area as well as existing and post construction conditions.

TABLE 4.3-3
IMPACTS TO RIPARIAN HABITAT AND TREES WITHIN THE CREEK RESTORATION AREA

	Existing Conditions	Area Impacted Resulting from Re-Grading Creek Banks	Area Impacted Resulting from New Creek Crossing	Post Creek Restoration Totals
Riparian and Adjacent Oak Woodland Habitat[a]	8.04 acres	4.7 acres	0.2 acre	**16.71 acres**
Approximate Number of Trees[b]	583 trees	297 trees	20 trees	**~4,500 trees**

[a] Riparian habitat will be restored and new trees planted in excess of that impacted.
[b] Riparian and adjacent oak woodland habitats are contiguous; the Project would have impacts or plantings in the oak woodland area.

SOURCE: WRA, 2015b

Riparian habitat is subject to regulation by California Department of Fish and Wildlife under the California Department of Fish and Game Code (§1600-1616). While existing riparian habitat within the Project site is generally degraded, it still provides valuable foraging and cover benefits for resident wildlife including special-status and common bird, bat, and mammal species discussed above, in addition to common reptiles, amphibians, fish, and invertebrates of the creek corridors. Riparian habitat of the Project site also serves other biological functions, including

filtration of surface runoff and stabilization of creek banks against erosion. The vegetative canopy over the creek helps keep the water at a lower temperature, which is generally beneficial for native aquatic wildlife with the potential to occur onsite.

The impact and replacement of approximately 4.7 acres of riparian habitat during restoration of Rifle Range Creek and Hospital Creek and the realignment of Powerhouse Creek and a segment of Rifle Range Creek, the loss of approximately 297 trees, and reduced habitat value of restored and created riparian habitat during the establishment period is a potentially significant impact.

Implementation of New Mitigation Measure BIO-2 would reduce these potential impacts to less than significant. Additionally, New Mitigation Measure BIO-2 would compensate for the impacts to oak woodland throughout the larger Project site, discussed in detail below.

> **New Mitigation Measure BIO-2:** The Project sponsor shall mitigate for temporary disturbance of riparian habitat and oak woodland in support of the Project through restoration or preservation / enhancement of riparian habitat or oak woodland at a ratio of 2:1 (restored/preserved area : impacted area) through one of the following options:
>
> 1. Planting replacement trees.
>
> 2. Establishing a restrictive covenant or similar instrument to protect existing riparian woodland habitat.
>
>   The Project sponsor shall prepare a Habitat Mitigation and Monitoring Plan (HMMP) for riparian and oak woodland habitat restored under the Project. The HMMP would be subject to approval by the entity with jurisdiction over the restored areas (City of Oakland). The HMMP shall include a detailed description of restoration/enhancement/ preservation actions proposed such as a planting plan, a weed control plan to prevent the spread of invasive and non-native species within restored areas, and erosion control measures to be installed around the restored area following mitigation planting in order to avoid or minimize sediment runoff into the adjacent creeks; restoration performance criteria for each restored area that establish success thresholds over a specific amount of time, as determined by regulatory agencies with jurisdiction of the affected areas; and proposed monitoring/maintenance program to evaluate the restoration performance criteria, under which progress of restored areas are tracked to ensure survival of the mitigation plantings. The program shall document overall health and vigor of mitigation plantings throughout the monitoring period and provide recommendations for adaptive management as needed to ensure the site is successful, according to the established performance criteria. An annual report documenting the results and providing recommendations for improvements throughout the year shall be provided to the City.
>
> 3. Paying an in-lieu fee to a natural resource agency or a non-profit organization that would use the fees to protect or enhance oak woodland habitat of the region.
>
>   If an in-lieu fee is used for mitigation, there must be a direct nexus between the amount of fees paid and mitigation required in terms of oak tree replacement and oak woodland preservation. The amount of the in-lieu fee shall be determined either by calculating the value of the land with oak woodland habitat proposed for removal, or by some other calculation developed by a qualified biologist in collaboration with the City of Oakland. This alternate calculation shall reflect differences in the quality of

habitat proposed for removal, and may consider the cost of comparable habitat (fee title or easement) in nearby areas.

The proposed creek improvements would effectively address previous large-scale impacts to the creek that have resulted from land use changes offsite, previous alterations conducted by the United States Navy ("Navy") prior to closure of the NMCO, and the invasion of non-native plant species. The Project sponsor developed the proposed comprehensive restoration plan to respond to and align with the City's goals regarding creeks and riparian habitat restoration, water quality, flood management, and fire management that are expressed by policies in the General Plan (Open Space, Conservation, Recreation and Land Use Element [OSCAR]; Safety Element; and Land Use and Transportation Element [LUTE]). Without implementation of the Creek Restoration Plan, the City's aforementioned goals and policies may not be realized and the range of environmental and public resource improvements (i.e., improved water quality, restored and improved riparian habitat, improved flood control) would not occur on the Oak Knoll site as part of the Project.

Restoring and enhancing Rifle Range Creek and Hospital Creek and realigning and stabilizing Powerhouse Creek to connect with a realigned segment of Rifle Range Creek within the Project site would involve significant initial disturbance to the creek and the riparian area, primarily as a result of grading and tree removal necessary to stabilize the creek (e.g., modify creek bed, re-grade and stabilize creek banks, etc.), but will provide longer-term benefits (sustainable channel, lower maintenance, improved habitat / removal of invasive plant species) and reduce prolonged impacts to existing resources (erosion and siltation, areas of invasive, low-value vegetation, disconnected riparian corridor). As described above and explained in detail in the Hydrology Report and Basis for Design (ESA 2016b) and the Creek Restoration Plan and Creek Protection Plan (ESA 2016a), the proposed Project includes a substantially more expansive and comprehensive scope of work regarding Rifle Range Creek than was envisioned or analyzed for the Maximum Capacity Alternative in the 1998 EIS/EIR. (As previously indicated, the 1998 EIS/EIR did not include a detailed description of proposed creek restoration activities that would occur with the Alternative, but the prescribed mitigation suggests that the work primarily consisted of removal of vegetation and development [trails] near the creek. More substantial restoration of the creek corridor and riparian habitat were apparently not contemplated with the Maximum Capacity Alternative.)

Like the Maximum Capacity Alternative, the proposed Project with implementation of the Creek Restoration Plan, as required in part pursuant to City SCA BIO-3 (Creek Protection Plan) would involve construction and earthwork activities within 15 feet of the top of the creek bank.[16] In its assessment of the Creek Restoration Plan and Creek Protection Plan, the City has identified the following required **SCA Implementation Measure BIO-3.1**, which further implements SCA BIO-3 (Creek Protection Plan) which is required to reduce a significant CEQA impact:

[16] The "top of bank" is defined by the Creek Protection Ordinance as the "point at which a line projected from the toe of the bank at a slope of 2 (horizontal) to 1 (vertical) intersects surrounding level ground." (Chapter 13.16 of the Oakland Municipal Code)

> **SCA Implementation Measure BIO-3.1:** To further implement SCA BIO-3, buildings adjacent to Powerhouse Creek must be constructed at least 15 feet from the parcel line that is adjacent to the creek, or at least 20 feet from the established top of creek bank. Alternatively, the Project shall set aside a "Building-free Powerhouse Creek Corridor" that is least 80 feet wide for the total length of Powerhouse Creek. The final total length of the altered Powerhouse Creek channel must be equal to or greater than the existing length of creek channel.

Pursuant to the Oakland Creek Protection Ordinance, a Category 4 Creek Protection Permit is required for projects involving work within 20 feet of the top of the creek bank (Chapter 13.16 of the Oakland Municipal Code). The Ordinance requires that in advance of conducting construction activities near the creek, the Project sponsor prepare and submit a creek protection plan as part of the creek permit application (as well as a hydrology report, discussed below under criterion "g" [Creek Protection Ordinance] and under Section 4.8, *Hydrology and Water Quality*, in this Draft SEIR.

The Project sponsor has prepared and submitted to the City the Hydrology Report and Basis for Creek Design (ESA 2016b) and a Creek Restoration Plan and, per City SCA BIO-3, a Creek Protection Plan (ESA 2016a) that are intended to comply with the requirements of the creek restoration plan required by the Creek Protection Ordinance. They are included in AppendixN to this Draft SEIR.

Since preparation of the 1998 EIS/EIR, the City has adopted a requirement that projects seeking a Creek Protection Permit must comply with a series of standard conditions of approval that would meet or exceed the requirements specified in Mitigation Measure 1 of the 1998 EIS/EIR to protect the creek and reduce impacts to the creek and riparian corridor to less than significant. Specific requirements and conditions of the creek permit are discussed below under criterion "g" (Creek Protection Ordinance).

In summary, the proposed Project and implementation of the proposed Creek Restoration Plan, would result in a temporary significant but mitigable impact to riparian habitat, similar to the impact identified for the Maximum Capacity Alternative in the 1998 EIS/EIR. Construction activities and temporary disturbance or removal of existing riparian habitat would occur, as would in-creek alterations to stabilize the creek. The Hydrology Report, Creek Restoration Plan, and Preliminary Creek Protection Plan prepared for the Project contain protection measures to address the expanded scope of proposed creek restoration activities and to adequately reflect local creek protection and permitting requirements and regulations, including the City's SCA BIO-3 (Creek Protection Plan), that have been adopted since the 1998 EIS/EIR, in addition to the SCA Implementation Measure BIO-3.1. These requirements, SCAs, and implementation of New Mitigation Measure BIO-2 will ensure that the proposed impacts to riparian habitat associated with the restoration of the Rifle Range Creek corridor within the Project site are reduced to less than significant.

Oak Woodland Impacts

In total, 28.89 acres of oak woodland occur within the Project site and 16.6 acres would be temporarily or permanently disturbed under the Project (this includes the 0.76 acres to be

disturbed within the Creek Restoration Area). Oak woodland is considered a sensitive natural community within the Project site for its local rarity and impact to this community as a result of the Project is potentially significant. Approximately 12 acres of oak woodland are proposed for preservation within the Hardenstine Parcel, located in the northeast and southeast portions of the Project site, which would remain parks and open space under the Project. Implementation of New Mitigation Measure BIO-2 would require areas of oak woodland disturbed under the Project be mitigated at a ratio of 2:1 through replanting, establishing a restrictive covenant for oak woodland preservation in the region, or payment of an in-lieu fee.

The Project proposes approximately 45 acres of oak woodland within the Project site through enhancement of existing habitat and creation, which would be an increase in oak woodland within the Project site by approximately 56 percent (WRA 2015d). Replacement quantities per protected tree removed under the Project is discussed under criterion "f" (Oakland Tree Ordinance), below. Mitigation for impacts to unprotected oaks that would be disturbed by creek restoration activities are discussed under criterion "f", below.

Implementation of New Mitigation Measure BIO-2, the enhancement and creation of oak woodland, and the preservation of oak woodland within the Hardenstine Parcel would result in a combined total of approximately 58 acres of oak woodland within the Project site upon Project completion. Together, these actions would reduce the Project impact on existing oak woodland to less than significant.

Native Perennial Grasslands Impacts

The Project site contains 10.48 acres of native purple needlegrass grassland. The Project would result in the displacement of 3.86 acres of native purple needlegrass grassland in the northeast portion of the site (see Figure 4.3-1, Oak Knoll Vegetation Communities). Native purple needlegrass grassland receives consideration under CEQA because it is considered a sensitive plant community by the CDFW and is locally uncommon. However, purple needlegrass grassland is relatively common in the Project vicinity with an estimated several hundred acres occurring in parks and open space areas within a 5-mile radius of the Project site (e.g. at Knowland Park, Anthony Chabot/Fairmont Ridge, Skyline Serpentine Prairie Preserve, and Upper San Leandro Reservoir/Las Trampas Ridge). At least 250 acres of needlegrass grassland have been mapped at three sites in the Project vicinity (Fairmont Ridge, Knowland Park, and Skyline Serpentine Prairie). No detailed mapping has been conducted at other sites, but it is likely that there are many more acres of purple needlegrass grassland in the vicinity. The occurrences in nearby parks and open spaces are also generally of much higher quality than the habitat found in the Project site, which is relatively fragmented and generally co-dominated by non-native annual grasses and forbs, with few native forbs. Additionally, the majority (6.62 of the 10.48 acres) of the purple needlegrass in the Project site, located on the steeper slopes of the northeast portion of the site, will not be impacted by development and will be preserved. As such, the Project impact to 3.86 acres of native purple needlegrass grassland would be less than significant.

Overall, the proposed Project would result in a significant but mitigable impact regarding riparian habitats or sensitive communities (oak woodland), as identified for the Maximum Capacity

Alternative in the 1998 EIS/EIR, and a less than significant impact on the sensitive natural community of native purple needlegrass grassland. More severe effects to riparian habitat may occur initially under the Project than under the Alternative with grading and in-creek construction activities that would remove or substantially disturb existing habitat. However, as previously indicated, implementation of the creek restoration activities will provide longer-term benefits (sustainable channel, lower maintenance, improved habitat/removal of invasive plant species) and reduce prolonged impacts to existing resources (erosion and siltation, areas of invasive, low-value vegetation, disconnected riparian corridor).

Project compliance with the City's SCA BIO-3 (Creek Protection Plan), implementation of the Creek Restoration Plan, and implementation of New Mitigation Measure BIO-2 would reduce Project impacts on riparian habitat and sensitive natural communities to less than significant. In addition, all other SCAs identified herein to address creek permit requirements, water quality, and best management practices during construction and earth-moving activities, SCA HYD-1 (Erosion and Sedimentation Control Plan for Construction) and SCA HYD-2 (State Construction General Permit) (see Section 4.5,*Geology, Soils, and Seismicity*, and Section 4.8, *Hydrology and Water Quality*), would reduce the impact to riparian habitat and sensitive natural communities (oak woodland) to less than significant. No new significant impact or substantially more severe impact is identified from that identified in the 1998 EIS/EIR.

Impact Conclusion: Less than Significant after Mitigation.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact, Previous Mitigation Measures Replaced.

Impact BIO-3: The Project would not have a substantial adverse effect on federally protected wetlands or other waters (as defined by section 404 of the Clean Water Act) or state protected wetlands or waters, through direct removal, filling, hydrological interruption, or other means. (Criterion c) (*Less than Significant with SCAs*)

1998 EIS/EIR.

According to the 1998 EIS/EIR, the National Wetlands Inventory Map for the area depicts Rifle Range Creek as a seasonally flooded scrub-shrub wetland[17] and determined that the Maximum Capacity Alternative would result in a "nonsignificant" (i.e., less than significant) impact to this water resource because the project would comply with the laws, regulations, and standards applicable at that time to control the volume and timing of nonpoint source pollutants. These laws, regulations, and standards included preparation and implementation of a storm water pollution prevention plan (SWPPP), consistent with the National Pollution Discharge Elimination System permit program (under section 402[p] of the Clean Water Act) and RWQCB requirements.

[17] An updated National Wetlands Inventory Map depicts Rifle Range Creek and its tributaries as "intermittent riverine streambed" (NWI, 2015).

The 1998 EIS/EIR indicated that the National Wetlands Inventory Map did not show any other wetlands on the project site, other than Rifle Range Creek, that would be under the jurisdiction of section 404 of the Clean Water Act (33 USC Sections 1251-1387). Since the 1998 EIS/EIR was prepared, two delineations have been performed. The results of these surveys as well as the project-specific impacts on jurisdictional waters are discussed below.

The Maximum Capacity Alternative was also expected to result in a net decrease in impervious surface area, and the 1998 EIS/EIR concluded that the contribution to downstream flood flows from the project watershed, including the Rifle Range Creek wetlands, would be relatively small and thus the impact would be "nonsignificant."

Proposed Project.

The 2006 wetland delineation of the 183-acre Oak Knoll Naval Hospital Site identified approximately 5,200 linear feet (0.72 acre) of jurisdictional waters of the U.S. which include both other waters of the U.S. and culverted waters of the U.S., within the delineation study area, consisting of Rifle Range Creek and its two tributaries, Powerhouse Creek and Hospital Creek (see Figure 4.3-2, Jurisdictional Features within the Oak Knoll Project Site), verified by the Corps in 2007 (WRA 2015a) and 2013 (Corps 2013). Small in-stream wetlands totaling 0.02 acre and 0.01 acre occur in Rifle Range Creek and Hospital Creek, respectively. Stream channels were observed to primarily convey water rather than to pond it. Banks above the ordinary high water mark were generally steep and not vegetated by wetland plant species (WRA, 2007b). The 2015 wetland delineation of the 14.8-acre Hardenstine parcel conducted as an addendum to the 2006 assessment identified 376 linear feet (0.03 acre) of jurisdictional "other waters" within the delineation study area (WRA 2015a). The 2015 delineation addendum has not yet been verified by the Corps. Other waters within the Hardenstine parcel would not be directly disturbed by the Project.

Temporary Effects to and Permanent Fill of Jurisdictional Features through Creek Restoration

The analysis of Riparian Habitat / Sensitive Natural Communities (criterion "b", above) identifies that the proposed Project would result in a potentially significant but temporary impact to riparian and sensitive habitats (oak woodland) associated with restoration of Rifle Range Creek and Hospital Creek and the realignment of Powerhouse Creek and a segment of Rifle Range Creek, which are each jurisdictional other waters of the U.S. and of the State within the Project site. The following discussion pertains to potential impacts to other waters of the U.S. resulting from hydrological alterations that could occur from restoration of Rifle Range Creek and Hospital Creek, and realignment of Powerhouse Creek and a segment of Rifle Range Creek under the proposed Project.

The restoration of Rifle Range Creek and Hospital Creek as a component of the proposed Oak Knoll Project is intended to improve the value and quality of the creeks and surrounding riparian corridor within the Project site as a whole. Project implementation would require temporary disturbance to the creek bed and banks, dewatering and water diversion around the work area during construction, and permanent placement of grade control structures to improve stream bed

and bank stability throughout the main corridor and tributaries for the purpose of achieving the restoration objectives for the Project. (ESA 2016). In addition, 188 linear feet of Rifle Range would be realigned to accommodate a new bridge crossing and 201 linear feet of a highly incised reach of Powerhouse Creek would be realigned to maintain flow function and stability. Another 34 linear feet of Rifle Range Creek would remain permanently impacted by the rebuilding of a culvert inlet and the placement of rock for erosion control at the locations of stormwater outfalls.

Within the Project site, wetlands and other waters of the U.S. are regulated under Section 404 of the Clean Water Act. Wetlands and other waters of the state are regulated by the RWQCB under Section 401 of the Clean Water Act and the Porter-Cologne Water Pollution Control Act. The City of Oakland has a separate jurisdictional authority over the creeks. Project activities resulting in the discharge of fill or other disturbance to jurisdictional wetlands and other waters require permit approval from the Corps, a water quality certification and/or waste discharge requirements from the RWQCB, and permits from the City. Finally, as previously discussed, the CDFW has jurisdiction over riparian habitat, including lake and stream bed and banks, pursuant to Sections 1600-1616 of the Fish and Game Code. Any Project activity resulting in an alteration to lake or channel bed or banks, extending to the outer dripline of trees forming the riparian corridor, is subject to CDFW jurisdiction. The proposed restoration of Rifle Range Creek would alter the creek's banks and therefore the Project would require a Streambed Alteration Agreement from CDFW (SAA).

Collectively, these regulatory agencies and the permits and authorizations they issue for the Project will require that fill of wetlands and waters shall be avoided or minimized to the maximum extent practicable while still accomplishing the Project's purpose, and will specify an array of measures and performance standards as conditions of Project approval. Restoration of Rifle Range Creek and Hospital Creek and the realignment and stabilization of Powerhouse Creek and a segment of Rifle Range Creek has been designed to minimize placement of fill to achieve the Project objectives of improving quality, function, and value of the creek corridors and riparian habitat.

Table 4.3-4 summarizes the expected temporary effects and placement of fill within jurisdictional wetlands and other waters of the Project site. **Table 4.3-5** summarizes the change to jurisdictional features under the proposed Project.

While creek restoration would require temporary disturbance and permanent placement of fill within jurisdictional features, there would be a net increase in jurisdictional other waters of the U.S. within the Restoration Area upon completion, as presented in Table 4.3-5, below. Restoration of the creek and riparian corridors are intended to improve conditions and functions within the Project site and would result in no loss of wetland area or linear feet of jurisdictional other waters. Daylighting culverted sections of Rifle Range Creek would improve function and value of the contiguous creek reaches within the Project site. This overall benefit to jurisdictional features of the Project site occurs concurrent with potential adverse effects of temporary disturbance to the restoration area and placement of minimal fill to achieve these objectives. The overall impact is considered less than significant given the permanent beneficial effect compared to short-term disturbance.

TABLE 4.3-4
EFFECTS OF THE PROJECT ON WATERS OF THE U.S.

Jurisdictional Area	Existing Conditions		Temporary Effects[a]		Permanent Fill [b]		
	Length (linear feet)	Area (acres)	Length (linear feet)	Area (acres)	Length (linear feet)	Area (acres)	Volume (cubic yards)
Rifle Range Creek (includes 0.02 acre of in-stream wetlands)	2,779	0.43	2,566	0.37	213	0.03	54
Powerhouse Creek	201	0.03	0	0	201	0.03	45
Hospital Creek (includes 0.01 acre of in-stream wetland)	299	0.04	290	0.04	9	<0.01	2
Culverted Waters	1,921	0.21	1,041	0.11	n/a	n/a	n/a
Total Jurisdictional Waters	***5,200***	***0.72***	***3,897***	***0.52***	***423***	***0.06***	***101***

NOTES:

[a] Temporary impacts include the following activities: 1) temporary dewatering/water diversion during construction; 2) installation of restoration-related grade control structures where the channel will be returned to its existing elevation and alignment; and 3) restoration-related channel realignment that would increase sinuosity in an artificially straightened reach.

[b] Permanent fill would occur through the following activities: 1) fill for development-related channel realignment; and 2) placement of rock for erosion control at stormwater outfalls.

SOURCE: WRA 2015b

TABLE 4.3-5
EXISTING AND PROPOSED HABITAT IN THE RESTORATION AREA

Habitat	Existing Conditions		Post Restoration (Proposed Project)		Difference Post Restoration	
	Length (linear feet)	Area (acres)	Length (linear feet)	Area (acres)	Length (linear feet)	Area (acres)
Other Waters of the U.S. (unculverted)	3,279	0.51	4,473	1.30	**+1,194**	**+0.79**
Other Waters of the U.S. (culverted)	1,921	0.21	922	.0.10	**-999**	**-0.11**
Total Other Waters of the U.S.	**5,200**	**0.72**	**5,395**	**1.40**	**+193**	**+0.68**

SOURCE: WRA 2015b

Water Quality Impacts during Construction

Project activities such as creek restoration, grading, and excavation could generate loose, erodible soils which could result in erosion or siltation into Rifle Range Creek, Powerhouse Creek, or Hospital Creek. Applicable laws, regulations and standards that address the potential for a significant and indirect effect to water quality are detailed and incorporated in this Draft SEIR under Section 4.8, *Hydrology and Water Quality*. That section discusses the Project's regulatory compliance with the numerous requirements would ensure a less than significant impact on water quality during construction and operation. Among those are the City's SCAs pertaining to protection of water quality throughout construction and following Project completion: as previously introduced in Impact BIO-2, SCA BIO-3 (Creek Protection Plan), SCA Implementation Measure

BIO-3.1 to further implement SCA BIO-3, in addition to SCA HYD-1 (Erosion and Sedimentation Control Plan for Construction) and SCA HYD-2 (State Construction General Permit) (listed in Section 4.8, *Hydrology and Water Quality*, of this chapter of the Draft SEIR.

Overall, no substantial changes in circumstances and no new information of substantial importance exist that would result in a new or substantially more severe significant impact to wetlands or other waters that was not previously identified in the 1998 EIS/EIR

Impact Conclusion: Less than Significant with SCAs.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact, No New Mitigation Measures Identified.

Impact BIO-4: The Project would not substantially interfere with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. (Criterion d) (*Less than Significant with SCAs*)

1998 EIS/EIR.

The 1998 EIS/EIR did not assess the Maximum Capacity Alternative's impact to wildlife movement.

Proposed Project.

The proposed Project could interfere with the movement of resident fish and amphibians through Rifle Range Creek and its tributaries (Powerhouse Creek and Hospital Creek) while streamflow is diverted or dewatered during restoration and/or realignment of the creek corridor. Common species of fish and amphibians which may occur in, or along Rifle Range Creek and may be affected by the Project include Sacramento sucker (*Catostomus occidentalis*) and prickly sculpin (*Cottus asper*), as well as, Sierran treefrog (*Pseudacris sierra*) and perhaps California toad (*Anaxyrus boreas halophilus*) (Pisces 2015, CalHerps 2015). No other wildlife corridors were identified on the Project site. The City's SCA BIO-4 (Dewatering/Diversion) requires the Project applicant to submit a Dewatering and Diversion Plan for approval by the City. Compliance with regional, state, and federal regulatory agencies with jurisdiction over resident wildlife within the dewatering area is a stipulation of the SCA which described minimum protection methods for species capture and relocation in accordance with and approval by the regulatory agencies. No special-status fish or amphibians are expected onsite that could be adversely affected by dewatering or diversion activities. Impacts to common species of this taxa are not considered significant under CEQA and therefore potential Project impacts on wildlife movement through the creek corridors during dewatering or through streamflow diversion areas is less than significant.

Impact Conclusion: Less than Significant with SCAs.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact, No New Mitigation Measures Identified.

Impact BIO-5: The Project would not fundamentally conflict with the City of Oakland Tree Protection Ordinance (Oakland Municipal Code (OMC) Chapter 12.36) by removal of protected trees under certain circumstances. (Criterion f) (*Less than Significant with SCAs*)

1998 EIS/EIR.

The 1998 EIS/EIR did not evaluate at a project-specific level whether the Maximum Capacity Alternative would conform to local ordinances regarding biological resources, namely the Oakland Tree Ordinance. Instead, the analysis was at a programmatic level. The analysis indicated that development of the Maximum Capacity Alternative would require the removal of trees "protected" under the City of Oakland Tree Ordinance (Oakland Municipal Code, Title 12, Chapter 12.36), and noted that specific project-level site grading and development plans were not available to review and that a detailed assessment would be performed to confirm that the Alternative would be in compliance with the Ordinance. The 1998 EIS/EIR identified the following Mitigation 2 as a measure that would reduce the potentially significant impact that could occur to tree species protected by the City's ordinance under the Maximum Capacity Alternative to less than significant.

> **1998 EIS/EIR Mitigation 2** : When a more specific site plan for development (i.e. grading) of the area is presented to the city, a tree removal permit would have to be obtained for any protected trees that are to be removed. The project sponsor would have to conduct a site-specific survey of which trees would be removed and comply with all other requirements of the ordinance.

In compliance with this mitigation measure, the Project sponsor has prepared detailed site grading and development plans, conducted a site-specific survey of trees to be removed and proposed a mitigation plan based on the requirements of the City's Tree Protection Ordinance. As discussed below, the Project would comply with the City's ordinance and would not have a new, significant impact caused by conflicting with the Tree Protection Ordinance.

Proposed Project.

Like the Maximum Capacity Alternative, the proposed Project will require the removal of trees within the Oak Knoll Project site. Direct impacts could occur to existing trees primarily through tree removal, grading of the site, and creek restoration and indirect impacts could occur by altering soil structure and drainage of the site.

WRA conducted a tree survey of the 188-acre Project site to identify trees protected under the City of Oakland Tree Ordinance (WRA 2015c). The tree survey included an inventory and basic assessment of all trees within the Project site and surrounding areas potentially impacted by the Project (generally within 50 feet of the Project footprint). All trees greater than 9 inches in diameter at breast height (DBH) were surveyed and all coast live oak (*Quercus agrifolia*) trees greater than 4 inches in DBH were surveyed, in accordance with the City of Oakland Tree Ordinance. Although eucalyptus (*Eucalyptus* spp.) and individual Monterey pine (*Pinus radiata*) are not protected by the City Ordinance, these species were also surveyed for a more complete

analysis[18]. Health, structure, and overall condition of surveyed trees were assessed to inform a preservation suitability rating, assigned to each tree. The preservation suitability rating was assessed based on species size, condition, growth characteristics, and invasiveness.

WRA also prepared a Tree Removal Impact Mitigation Plan (WRA, 2015d) (Appendix R to this Draft SEIR) which reports a total of 7,170 trees, representing 85 species were inventoried within the Project site. Throughout this section, the 7,170 trees are referred to as "surveyed" trees as they do not reflect the total trees on the Project site; trees that do not meet the dimensional requirements of the Oakland Tree Ordinance or that are not located within or near site areas proposed for grading are not included in the 7,170 surveyed trees.

Coast live oak is the most abundant species surveyed, representing approximately 60 percent (approximately 4,400 trees) of the surveyed trees. Other native species comprise approximately 6 percent of trees surveyed onsite and include, in order of abundance, California bay (*Umbellularia californica*; 227 trees), red willow (*Salix laevigata*; 56 trees), arroyo willow (*Salix lasiolepis*; 42 trees), white alder (*Alnus rhombifolia*; 26 trees), coast redwood (*Sequoia sempervirens*; 22 trees), California buckeye (*Aesculus californica*; 22 trees), blue elderberry (*Sambucus nigra* ssp. *Caerulea*; 21 trees), hollyleaf cherry (*Prunus ilicifolia*; 10 trees), madrone (*Arbutus menziessi*; 5 trees), western sycamore (*Platanus racemosa*; 4 trees), mountain mahogany (*Cercocarpus betuloides*; 2 trees), canyon live oak (*Quercus chrysolepis*; 2 trees) and toyon (*Heteromeles arbutifolia*; 1 tree). Of the 4,840 native trees surveyed, 22 percent (1,069) trees) were determined to be in good to excellent condition, 54 percent (2,613 trees) in moderate condition, and 24 percent (1,158 trees) in poor condition.

Non-native species comprise approximately 33 percent of the trees surveyed (2,420 trees). The three most abundant non-native species surveyed include blue gum (*Eucalyptus globulus*; 696 trees), blackwood acacia (*Acacia melanoxylon*; 380 trees), and Monterey pine (*Pinus radiata*; 259 trees). Of the non-native trees surveyed, only 15 percent (360 trees) were determined to be in good to excellent condition, 40 percent (975 trees) in moderate condition, and 45 percent (1,085 trees) in poor condition.

The detailed site grading and development plans prepared by the Project sponsor for most of the site allowed for a detailed assessment of potential tree removal across the Project site. Based on those plans, the Tree Removal Impact Mitigation Plan evaluated the potential effects of grading on tree preservation and removal, and identified guidelines for tree preservation during the design, construction, and maintenance phases of development of the Project, in compliance with the City's ordinance, SCA BIO-5 (Tree Permit), and SCA HYD-8 (Vegetation Management on Creekside Properties).

[18] The Oakland Tree Ordinance states that Monterey pine trees on City property and in development-related situations where more than five Monterey pine trees per acre are proposed to be removed are considered to be Protected trees.

Tree Removal, Protection, and Proposed Mitigation Plan[19]

Of the 7,170 trees surveyed, 4,191 trees occur within the Project limits of disturbance. The Oakland Tree Ordinance protects 3,511 of these 4,191 trees, of which 2,539 are native species which would require replacement if removed under the Project. (WRA 2015c, WRA 2015d). Within areas to be preserved under the Project, 2,500 trees would be retained which are predominantly comprised of native coast live oak (2,012 trees; 89 percent of preserved trees). **Table 4.3-6** presents a summary of trees within the limits of disturbance and trees to be removed or retained within the Project site.

TABLE 4.3-6
SUMMARY OF SURVEYED TREES TO BE REMOVED OR RETAINED UNDER THE PROJECT

	No. of Trees
Total Surveyed Trees within the Project Limits	**7,170**
Total Protected Trees with the Project Limits	**6,011**
Trees Protected under the Oakland Tree Ordinance to be Removed	3,511
Native	2,539
Non-native	972
To Be Retained (Preserved Area)	2,500
Native	2,269
Non-native	231

SOURCE: WRA 2015c, WRA 2015d (Appendices Q and R, respectively, to this Draft SEIR)

Compliance with the City's SCA BIO-5, b) Tree Protection during Construction, would ensure trees to be retained are protected during construction by fencing a tree protection zone around trees to be retained as determined by a consulting arborist, root protection and minimal ground disturbance for work in the vicinity of protected trees, and restriction of materials staging and equipment within these In addition to trees preserved under the Project, the Project sponsor proposes an extensive replanting and landscape plan introduced along Project streets, residential areas, hillsides, pedestrian ways, the creek corridor, and site entrances along with a system of several parks, gardens, courtyards, pedestrian trails, and open spaces onsite, which would incorporate replacement trees pursuant to the City's Tree Ordinance and SCA BIO-5 (Tree Permit). The Oakland Tree Ordinance (Oakland Municipal Code, Title 12, Chapter 12.36) requires approval of a tree permit prior to

[19] The numbers referenced in the following section represent conditions at the time of the tree survey in 2015. Since then, some trees within the Project limits of disturbance have died or been removed after being deemed hazardous, therefore altering the quantity of living trees that could be affected by the Project and require mitigation. The representation of trees impacted by the proposed Project and subsequent mitigation plantings as described in this section could be subject to change depending on conditions at time of construction.

removal or working in close proximity to a "protected tree", as defined by the Ordinance.[20] The City's SCA BIO-5 that requires the Project sponsor obtain a tree permit and abide by the conditions of that permit pursuant to the City's Tree Protection ordinance; implementation of tree protection measures for trees not removed under the Project during construction; and tree replacement plantings as compensation for native trees removed under the Project.

Table 4.3-7 presents a summary of trees to be removed, by Project phase.

TABLE 4.3-7
SUMMARY OF TREE REMOVAL BY PHASE

	Native Trees	Non-native Trees	Total No. of Trees
Total Number of Protected Trees in the Project Area	**4,808**	**1,203**	**6,011**
Phase 1[a]	1,390	365	1,755
Phase 2	692	290	982
Phase 3	195	262	457
Creek Corridor Area	262	55	317
Total Trees to be Removed	**2,539**	**972**	**3,511**

[a] Includes proposed borrow area within Phase 2 development footprint.

SOURCE: WRA 2015c, WRA 2015d (Appendices Q and P, respectively, to this Draft SEIR)

The Tree Ordinance requires the Project to plant mitigation trees of equal value in mitigation credit for the 2,494 native trees removed from the site as compensation.

- Larger more mature trees planted on site receive more mitigation credit (higher mitigation ratio for trees planted to mitigation credit) than smaller trees.
- Native replacement trees[21] of 24" box size (spaced 23'-26' per 700 square feet) receive a 1:1 mitigation ratio (trees planted : mitigation credit);
- Native replacement trees of 15-gallon size receive a 3:1 mitigation ratio (planted in groups of 3, spaced 13'-14' per 700 square feet).

Applying these ratios, one way for the Project to comply with the Oakland Tree Ordinance and SCA BIO-5 would be to plant 2,494 native trees of 24" box size in the Project area. Another way

[20] Title 12, Chapter 12.36 of the Oakland Municipal Code (OMC) requires a permit before removing a Protected Tree, or if work might damage or destroy a Protected Tree. Protected Trees in the Study Area include coast live oak (*Quercus agrifolia*) four inches or larger in diameter at breast height, or any other native species nine inches in diameter or larger, except eucalyptus (*Eucalyptus globulus*) and Monterey pine (*Pinus radiata*). Monterey pines shall be protected only on city property and in development-related situations where more than five Monterey pines per acre are proposed to be removed. Although Monterey pines are not protected in non-development-related situations, nor in development-related situations involving five or fewer trees per acre, public posting of such trees and written notice of proposed tree removal to the Office of Parks and Recreation is required per Section 12.36.07A and Section 12.36.080A (City of Oakland, 2006).

[21] Replacement trees shall be one of the following native species: coast redwood, coast live oak, madrone, California buckeye, California bay, or other native species acceptable to the City's Tree Division.

would be for the Project to require the planting of 7,782 native trees of 15-gallon size to be planted within the Project site.

The Project sponsor proposes planting enough trees to satisfy the City's mitigation requirement (equivalent to 2,494 15-gallon trees). Specifically, the Project sponsor proposes to supplement some of 24" box size trees and 15 gallon size trees with

- 36" box size trees (which receive a 1:1.5 mitigation ratio (tree planted : mitigation credit)),
- 48" box size tree (which receive a 1:2 mitigation ratio (tree planted : mitigation credit)), and
- 60" box size trees (which receive a 1:3 mitigation ratio (tree planted : mitigation credit)) where appropriate spacing within the development can accommodate such sizes.

Some 1 gallon and 5 gallon trees are proposed within the open space woodland areas and would be planted at a 10:1 or 5:1 mitigation ratio (trees planted : mitigation credit) depending on the size of the tree (10:1 for 1 gallon and 5:1 for 5 gallon). Proposed spacing for replacement trees will range from grouped plantings 10 to 14 feet on center per 700 square feet for small 5 to 15 gallon pot sizes, to 23 to 26 feet on center for larger box trees. The final spacing of replacement trees will be determined in consultation with the City Arborist who will ensure that the available space, slope, and soil conditions are adequate to support the replacement tree.

Table 4.3-8 presents the proposed conceptual mitigation plan for the Project. **Figure 4.3-7**, **Oak Knoll Tree Mitigation Map**, also depicts the conceptual plan for mitigation plantings throughout the site. The final number, sizes, and spacing of trees are subject to change and will be determined in consultation with the City Arborist, but will meet the minimum requirements of the City of Oakland Tree Ordinance.

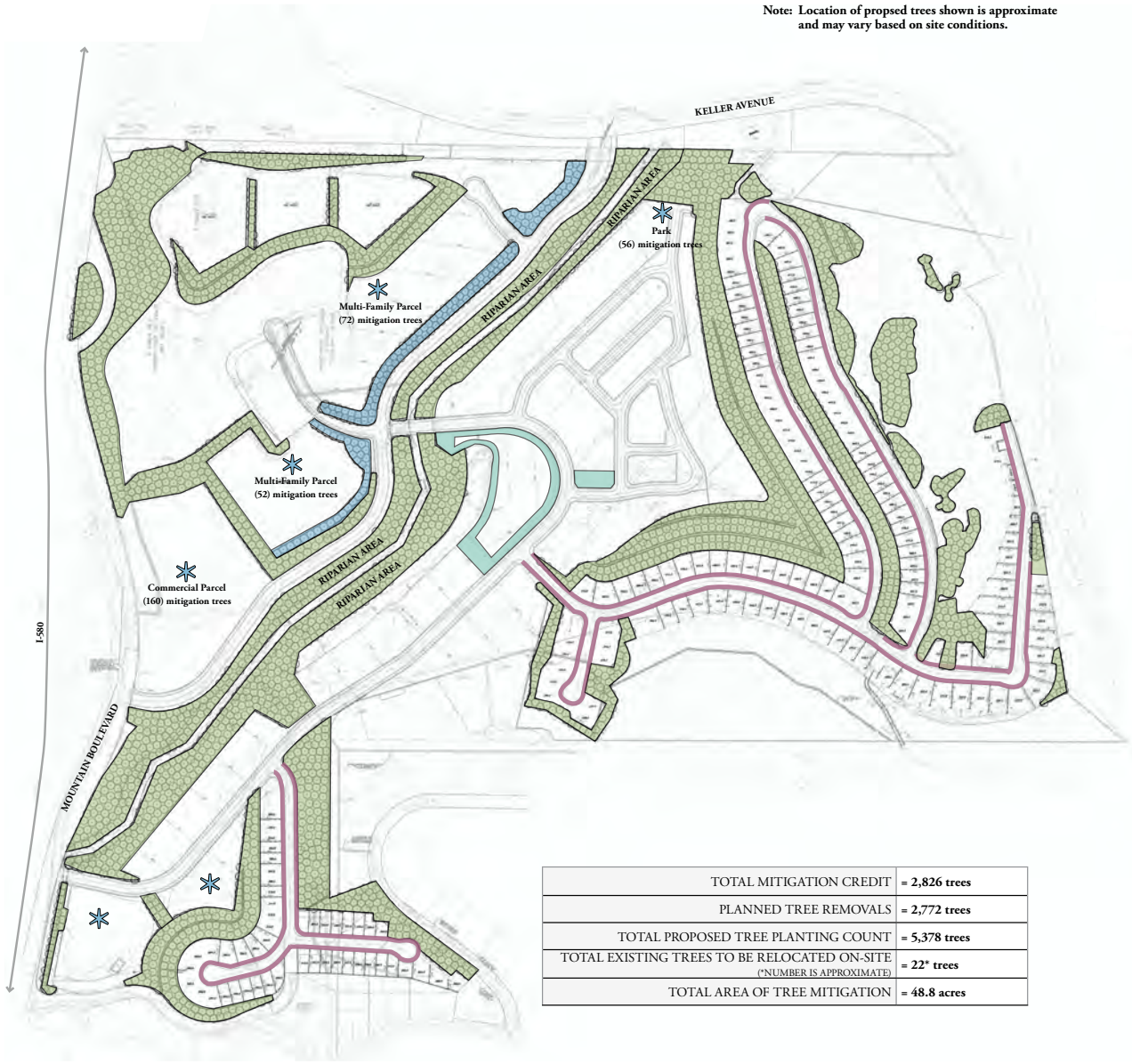
TABLE 4.3-8
TREE IMPACT AND MITIGATION SUMMARY

	Trees Planted[a]	Mitigation Credit
Open space / Woodland Slope Areas	4,795	1,792 trees
Street Trees	350	525 trees
Community Center Trees	53	159 trees
In-Tract Areas (not public common areas)	180	350 trees
Total Proposed Tree Planting Count	**5,378**	**2,826 trees**

[a] Tree species, size, and proposed mitigation ratio are presented in Figure 4.3-7, Tree Mitigation Map.
[b] The final number, sizes, and spacing of trees are subject to change and will be determined in consultation with the City Arborist, but will meet the minimum requirements of the City of Oakland Tree Ordinance.

SOURCE: WRA 2015d

As discussed above, the 1998 EIS/EIR Mitigation 2 was identified to address the Maximum Capacity Alternative's significant impact to trees regulated by the City. The 1998 EIS/EIR Mitigation 2 required preparation of a site-specific survey of which trees would be removed from the project site and required that a tree removal permit be obtained and complied with, pursuant to the City's Tree Ordinance.



Note: Location of propsed trees shown is approximate and may vary based on site conditions.

TOTAL MITIGATION CREDIT	**= 2,826 trees**
PLANNED TREE REMOVALS	**= 2,772 trees**
TOTAL PROPOSED TREE PLANTING COUNT	**= 5,378 trees**
TOTAL EXISTING TREES TO BE RELOCATED ON-SITE (*NUMBER IS APPROXIMATE)	**= 22* trees**
TOTAL AREA OF TREE MITIGATION	**= 48.8 acres**

OAK KNOLL MITIGATION PLANT LIST

Area	Tree Size	Tree Species	Tree Count	Mitigation Credit
Open Space/ Woodland Slope Areas/ Parks	24" box	Quercus agrifolia / Coast Live Oak	(600)	1:1
	15 gal.	Quercus agrifolia / Coast Live Oak	(1500)	3:1
	5 gal.	Quercus agrifolia / Coast Live Oak	(600)	5:1
	15 gal.	Quercus wislizenii / Interior Live Oak	(50)	3:1
	15 gal.	Quercus chrysolepis / Canyon Live Oak	(150)	3:1
	15 gal.	Heteromeles arbutifolia / Toyon	(300)	3:1
	15 gal.	Aesculus californica / Buckeye	(350)	3:1
	15 gal.	Garrya / Silktassel	(300)	3:1
	5 gal. (or 15 gal.)	Arbutus menziesii / Madrone	(50)	5:1 (3:1)
	5 gal.	Heteromeles arbutifolia / Toyon	(300)	5:1
	5 gal.	Aesculus californica / Buckeye	(300)	5:1
	5 gal.	Garrya / Silktassel	(295)	5:1
			MITIGATION CREDIT	**1,792trees**

Notes: Spacing of trees to be determined with City Arborist. 24" box trees to be spaced 23'-26' o.c., 15 gallon trees to be planted in groups of (3) with varied spacing of 13'-14' o.c. with (3) trees per 700 sq.ft and 5 gallon trees to be planted in groups of (5) with varied spacing of 10'-11' o.c. with (5) trees per 700 sq.ft
*Riparian Area tree species per WRA - proposed palette for Riparian Upper Bank & Buffer areas include Coast Live Oak, California Buckeye, and Toyon.

Area	Tree Size	Tree Species	Tree Count	Mitigation Credit
Typical Secondary Street Tree Planting: Level Street Planter	36" box	Quercus argifolia / Coast Live Oak	350	1:1.5
			MITIGATION CREDIT	**525 trees**

Notes: Spacing (1) per lot, approximately 40'-60' apart.

Area	Tree Size	Tree Species	Tree Count	Mitigation Credit
Community Center	60" box	Quercus lobata / Valley Oak	(12)	1:3
	60" box	Quercus agrifolia / Coast Live Oak	(23)	1:3
	60" box	Sequoia sempervirens / Coast Redwood (near lawn area)	(18)	1:3
			MITIGATION CREDIT	**159 trees**

Notes: Spacing per plan, minimum 40' apart

Area	Tree Size	Tree Species	Tree Count	Mitigation Credit
In-Tract Areas	48" box	Quercus agrifolia / Coast Live Oak	(95)	1:2
	48" box	Quercus lobata / Valley Oak	(25)	1:2
	24" box	Aesculus californica / Buckeye	(10)	1:1
	48" box	Quercus chrysolepis / Canyon Live Oak	(30)	1:2
	48" box	Acer macrophyllum / Big Leaf Maple	(20)	1:2
			MITIGATION CREDIT	**350 trees**

0 600
Feet

SOURCE: WRA Envronmental Consultants

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Figure 4.3-7
Oak Knoll Tree Mitigation Plan

As described in detail throughout this section, the Project sponsor has prepared a site-specific tree survey (WRA 2015c) and will obtain a Tree Removal and Protection Permit to remove and mitigate for the removal of City protected trees. As these submittals satisfy the 1998 EIS/EIR Mitigation 2, as well as adheres to City of Oakland SCA BIO-5 (Tree Permit), this measure is largely fulfilled and surpassed by Project components, regulatory permit compliance, and comprehensive SCA requirements.

In summary, consistent with Mitigation 2, the Project sponsor has initiated Project elements and permitting that would satisfy the Oakland Tree Ordinance upon implementation. Implementation of the proposed tree mitigation plan within the Project site would ensure the impact caused by noncompliance with the Tree Protection Ordinance is less than significant.

The proposed tree mitigation plan shown in Figure 4.3-7 identifies up to 22 existing trees to be relocated within the Project site. Species under consideration include native coast live oak and non-native holly oak (*Quercus ilex*), and Deodar cedar (*Cedrus deodara*). Transplanting mature, healthy coast live oak trees, indigenous to the Project Area, instead of removing and replacing with nursery stock is intended to reduce the number of trees impacted by removal through preserving healthy, locally adapted specimens, that in many cases are larger than any commercially available replacement tress. Non-native species would not be relocated within the Project site but transplanted off-site where feasible (e.g. donated to the City for use on public lands).

As previously stated, verified occurrences of sudden oak death (SUD) occur in the Project vicinity (Geospatial Innovation Facility and Kally Research and Outreach Lab, 2015). Coast live oak is one of the primary true oak (*Quercus*) species killed by SOD. Within oak woodland, California bay foliage is known to be the primary vector of the pathogen, *Phytophthora ramorum*, that causes SOD, which is prolific throughout the Rifle Range Creek corridor of the Project site (Swiecki and Bernhardt 2013). Implementation of preventative measures to avoid or minimize the potential spread of *P. ramorum* during relocation of select trees and restoration planting within the Project site should be taken. The following recommendation, to which the Project sponsor has agreed, would avoid or minimize the potential to introduce or spread sudden oak death within the Project site.

> **Recommendation BIO-2:** The following measures should be implemented during relocation of existing trees within the Project site or introduction of new trees to the Project site through mitigation plantings to prevent the spread of *Phytophthora ramorum*, the pathogen that causes SOD.
>
> Before working:
>
> - Provide crews with sanitations kits. (Sanitation kits should contain the following: Chlorine bleach [10/90 mixture bleach to water], or Clorox Clean-up®, scrub-brush, metal scraper, boot brush and plastic gloves).
> - Ensure that work crews have properly cleaned and sanitized pruning gear, trucks and chippers prior to entering the Project Area.
> - Clean and sanitize shoes, pruning gear and other equipment before working in an area with susceptible species (i.e. coast live oak, canyon live oak, and California bay).

While working:

- When possible, conduct all tree work on *P. ramorum*-infected and susceptible species during the dry season (June - October). The pathogen is most likely to spread during periods of high rainfall especially in Spring (April and May). Working during wet conditions should be avoided.
- If working in wet conditions cannot be avoided, keep equipment on paved or dry surfaces and avoid mud.
- Work in disease-free areas before proceeding to suspected-infestation areas.
- All debris from California bay trees, the primary vector of the pathogen, shall be mulched and spread in place, moved to a sunny dry area free of coast live oak, or disposed of offsite in a permitted disposal facility in accordance with state and federal regulations.
- When removing California bay trees, all mulch and debris shall be segregated from other species when chipping, and all pruning gear and equipment, including chippers and trucks shall be cleaned and sanitized before working on coast live oaks.

After working:

- Use all reasonable methods to clean and sanitize personal gear and crew equipment before leaving a P. ramorum-infested site. Scrape, brush and/or hose off accumulated soil and mud from clothing, gloves, boots and shoes. Remove mud and plant debris, especially California bay, by blowing it out or power washing chipper trucks, chippers, buckets trucks, fertilization and soil aeration equipment, cranes, and other vehicles.
- Restrict the movement of soil and leaf litter under California bay trees as spores are most abundant on California bay leaves. Contaminated soil, particularly mud, and plant debris on vehicle tires, workers boots, shovels, chippers, stump grinders, trenchers, etc., may result in pathogen spread if moved to a new, uninfested site. Thoroughly clean all equipment and remove or wash off soil, mud, and plant debris from these items before use at another site. If complete on-site sanitation is not possible, complete the work at a local power wash facility.
- Tools used in tree removal/pruning may become contaminated and should be cleaned thoroughly with a scrub brush and disinfected with Lysol® spray, a 70% or greater solution of alcohol, or a Clorox® solution (1 part Chlorox® to 9 parts water or Clorox Clean-up®).

When planting:

- Replanting should occur in the early fall when the pathogen is less active, and in order to take advantage of seasonal rains. Replanting activities should avoid late winter and spring.
- Planting sites for susceptible species including coast live oak and canyon live oak should be selected in areas that are at least 20 yards away from California bay trees, brush and/or plant material.
- California bay shall not be used as mulch for new plantings.

- Small, non-protected (less than 9 inches diameter) California bay trees and brush should be cleared within a 20-yard or greater buffer where feasible to protect susceptible oak trees that are selected for preservation.

The proposed Project would not result in a new significant or substantially more severe impact than would potentially have occurred for the Maximum Capacity Alternative in the 1998 EIS/EIR.

Impact Conclusion: Less than Significant with SCAs.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact, No New Mitigation Measures Identified.

Impact BIO-6: The Project would not fundamentally conflict with the City of Oakland Creek Protection Ordinance (OMC Chapter 13.16) intended to protect biological resources. (Criterion g) (*Less than Significant with SCAs*)

1998 EIS/EIR.

The 1998 EIS/EIR did not specifically describe the improvements proposed to Rifle Range Creek as part of the Maximum Capacity Alternative; however, the discussion refers to potential "restoration activities" and activities that could result in the removal of native vegetation and sensitive habitat surrounding the creek and its tributaries. The 1998 EIS/EIR identified a mitigation measure (Mitigation 1, presented above under the discussion of criterion "b"), which includes requirements that mirror the City's current Creek Protection Ordinance. This analysis considers that the 1998 EIS/EIR identified a significant but mitigable impact regarding consistency with the requirements that align with the current Creek Protection Ordinance.

Proposed Project.

As previously discussed throughout this section and further in *Hydrology and Water Quality*, the proposed Project, is required to apply for and obtain a Category 4 Creek Protection Permit pursuant to the City's Creek Protection Ordinance (Oakland Municipal Code Chapter 13.16) because the restoration activities would involve work within 20 feet of the existing and proposed top of the bank of Rifle Range Creek.[22]

Consistent with the Ordinance, the Project sponsor has prepared and submitted a Category 4 Creek Protection Permit application for review and approval by City staff. The Category 4 permit application requires submittal of a creek protection plan and hydrology report. The Project sponsor has submitted to the City for review and approval the Hydrology Report and Basis for Design (ESA 2016b), Creek Restoration Plan and Creek Protection Plan (ESA 2016a), thus satisfying the submittal of the creek protection plan required by the Ordinance. The aforementioned plans, taken together, describe the overall restoration approach, design elements

[22] The "top of bank" is defined by the Creek Protection Ordinance as the "point at which a line projected from the toe of the bank at a slope of 2 (horizontal) to 1 (vertical)…intersects surrounding level ground." (Chapter 13.16 of the Oakland Municipal Code)

that would be introduced along the creek to stabilize the creek channel, as well as detailed hydrological and hydraulic modeling and analysis of the creek (prepared by a licensed engineer with creek hydrology expertise) for flood management purposes.

Given the substantial work that would occur within the creek with implementation of the Creek Restoration Plan, the proposed Project would result in the same significant but mitigable impact regarding compliance with Oakland Creek Protection Ordinance as identified in the 1998 EIS/EIR. In addition to satisfying the requisite submittal requirements, compliance with the City's Creek Protection Ordinance primarily requires implementation of the City of Oakland's uniformly-applied standard conditions of approval related to creek and watershed protection during activities conducted in or near creeks. Accordingly, compliance with the City's SCAs pertaining to creek protection and water quality, including SCA BIO-3 (Creek Protection Plan) as discussed within Riparian Habitat / Sensitive Natural Communities and Jurisdictional Wetlands and Other Waters under criterion "b" (Impact BIO-2) and "c" (Impact BIO-3), respectively; SCAs HYD-1 (Erosion and Sedimentation Control Plan for Construction) and HYD-2 (State Construction General Permit) addressed within Section 4.8, *Hydrology and Water Quality*); as well as with the Creek Restoration Plan and Creek Protection Plan required by the City's ordinance would prevent non-compliance with the City's Creek Protection Ordinance.

Pursuant to OMC section 13.16.140 regarding Creek Protection Permit submittal requirements, a creek protection plan must be submitted for review and approval by the City that describes the best management practices that will be employed to assure construction activity will not adversely impact creek bank, riparian corridor, or water quality. Given the type of grading and reconstruction work proposed within the creek, all work in or near creek channels will not be able to be performed with hand tools and by a minimum number of people, as suggested in the BMPs listed under SCA BIO-3 (Creek Protection Plan). Therefore, the Project's proposed Creek Restoration Plan and Creek Protection Plan (ESA 2016a) includes alternative BMPs intended to be as protective of the creek and associated habitat as is practical. If approved by the City, these alternative best management practices shall be required on the conditions to that permit and shall be employed as shown on those approved plans.

No new information of substantial importance or substantial change in circumstance, including adoption of the City's Creek Protection Ordinance, would result in a new or substantially more severe impact than identified for the Maximum Capacity Alternative in the 1998 EIS/EIR.

Impact Conclusion: Less than Significant with SCAs.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact, No New Mitigation Measures Identified.

Cumulative

Impact BIO-7: The Project, in combination with other past, present, existing, approved, pending, and reasonably foreseeable future projects within and around the Project area, would not have a considerable contribution to any cumulative impacts related to biological resources. *(Potentially Significant)*

Geographic Context

The geographic scope of potential cumulative impacts on biological resources encompasses the species occurrences, habitats, and sensitive natural communities, biologically linked to the Project vicinity. The cumulative impact analysis assumes that construction and operations of other projects in the geographical area would have to comply with the same regulatory requirements as the Project, which would serve to avoid and reduce many impacts to less-than-significant levels on a project-by-project basis. The analysis then considers whether or not there would be a significant, adverse cumulative impact associated with Project implementation in combination with past, present, and probable future projects in the geographical area, and if so, whether or not the Project's incremental contribution to the cumulative impact would be considerable. Both conditions must apply in order for a project's cumulative effects to rise to the level of significance.

Impact Discussion

1998 EIS/EIR.

The 1998 EIS/EIR analysis did not discuss or describe potential cumulative impacts related to biological resources. As stated above, however, the 1998 EIS/EIR analysis concluded that the Maximum Capacity Alternative would result in a significant but mitigable impact to special-status plants, no impacts to special-status animals, a significant but mitigable impact on riparian habitat and sensitive natural communities, a less than significant impact to jurisdictional waters, a significant but mitigable impact regarding consistency with the requirements that align with the current Oakland Tree Ordinance, and a significant but mitigable impact regarding consistency with the requirements that align with the Oakland Creek Ordinance.

Proposed Project.

The proposed Project does not involve substantial changes to the previously analyzed Maximum Capacity Alternative that result in a new significant or substantial increase in severity of an environmental impact compared to those identified in the 1998 EIS/EIR.

As previously stated, the 188-acre site has been significantly altered from its natural state by infrastructure development associated with the former naval base and medical center, and is surrounded by existing development on nearly all sides. While a variety of vegetation communities supporting resident wildlife are present onsite, value and quality of the habitat is marginal given the degraded nature of the Project site's remaining natural features.

The Project, like other cumulative development in proximity to the Project site that could affect the same habitat, species, and wildlife corridor (Rifle Range Creek) would result in temporary (short-term) effects to special-status plants, special-status and migratory birds, special-status bats, San Francisco dusky-footed woodrat, riparian habitat, oak woodland, native perennial grasslands, jurisdictional features, and trees protected under the Oakland Tree Ordinance during the construction phase. Potential long-term effects of the Project and other cumulative development during the operation phase include resident and migratory bird collisions with Project buildings and structures. Compliance with the City's SCAs and SCA implementation measures, and, as applicable, implementation of mitigation measures identified to avoid, minimize, or compensate for individual Project impacts on biological resources, will be imposed by the City on all other proposed development projects that have similar impacts to biological resources. New Mitigation Measures BIO-1.1 (regarding roosting bats) and New Mitigation Measure BIO-1.2 (regarding the San Francisco dusky-footed woodrat) are specifically tailored to the Oak Knoll Project given the specific conditions of the Oak Knoll Project site, which are rare among potential future cumulative projects in the vicinity of the Project site and within Oakland. Given the City's requirement for all projects to comply with SCAs, the proposed Project would not adversely contribute to the cumulative effect when considered with other past, present, and reasonably foreseeable future development; its effect would not be cumulatively considerable.

Project implementation would restore, enhance, or preserve the natural features of the site with the highest value through restoration of Rifle Range Creek and Hospital Creek and the realignment and stabilization of Powerhouse Creek, restoration of the riparian corridor, preservation and enhancement of oak woodland within the Hardenstine parcel, preservation and enhancement of the knoll, and extensive planting of native trees integrated within Project infrastructure. These components of the Project improve upon existing conditions of natural communities of the site. While vegetation communities and wildlife habitat will be setback locally during construction and while restored or enhanced areas mature, over the long-term the restored, preserved, enhanced restored creek corridor, oak woodland, and knoll would offer improved habitat conditions over those currently existing within the Project site. Open space areas in the Project vicinity offer more expansive areas for use by local wildlife while restored areas of the site mature.

None of the potential adverse effects identified for the Project would make a cumulatively considerable contribution to the cumulative impact when combined with other approved or anticipated projects considered in this analysis.

Impact Conclusion: Less than Significant with SCAs and Mitigation Measures.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact, New Mitigation Measures Identified, Previous Mitigation Measures Replaced.

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4.4 Cultural and Paleontological Resources

4.4.1 Introduction

This section assesses the potential for the Project to result in significant adverse impacts on cultural and paleontological resources. To determine whether the proposed Project would result in any new impacts on cultural and paleontological resources, or increases in the severity of impacts previously disclosed in the 1998 EIS/EIR, this analysis considers the impacts that would result from construction and operation activities that would take place within the Project site, and compares these impacts to those identified in the previous EIS/EIR and mitigation measures in that document.

The Oak Knoll Project described in in Chapter 3, *Project Description*, of this Draft SEIR proposes to relocate and rehabilitate Club Knoll, a locally-designated historic resource. The Project will demolish the garage associated with Club Knoll constructed by the Navy.

Resources used to prepare this section include the historic resources inventory survey and related correspondence and forms prepared by Page & Turnbull, Historic Resource Consultants; information provided by the State Historic Preservation Office (SHPO) and the U.S. Navy during the base reuse process; and the Landmarks Preservation Advisory Board (LPAB) evaluation process. Current resources prepared for this analysis of the Project include an updated survey by Page & Turnbull dated October 2006, as well as prior historical studies prepared by Page & Turnbull in 1994. Carey & Co. completed an evaluation of Club Knoll for potential listing in the California Register of Historical Resources (CRHR), as well as an evaluation of the impacts of the proposed relocation of the building and the historic status of the Club Knoll Garage (Carey & Co., 2016a and 2016b, included as **Appendix T** to this Draft SEIR). Each of these background resources is summarized in the *Setting* below.

ESA prepared a Historic Resources Evaluation update to include new information into this analysis, and also conducted a review of the previous studies. ESA also completed an archaeological resources study for this analysis.

4.4.2 Setting

Regulatory Framework

City of Oakland – Local Plans, Policies and Regulations

In the City of Oakland, for purposes of evaluating environmental impacts under the California Environmental Quality Act (CEQA), a historical resource is a resource that meets any of the following criteria:

1) A resource listed in, or determined to be eligible for listing in, the California Register of Historical Resources (California Register);

2) A resource included in Oakland's Local Register of historical resources (defined below), unless the preponderance of evidence demonstrates that it is not historically or culturally significant;

3) A resource identified as significant (e.g., rated 1–5) in a historical resource survey recorded on Department of Parks and Recreation Form (DPR) 523, unless the preponderance of evidence demonstrates that it is not historically or culturally significant;

4) Any object, building, structure, site, area, place, record, or manuscript which the Oakland City Council determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided the determination is supported by substantial evidence in light of the whole record. Generally, a resource is considered "historically significant" if it meets the criteria for listing on the California Register CEQA Guidelines Section 15064.5; or

5) A resource that is determined by the City Council to be historically or culturally significant even though it does not meet the other four criteria listed here.

A "local register of historical resources" means a list of properties officially designated or recognized as historically significant by a local government pursuant to a local ordinance or resolution, unless the preponderance of evidence demonstrates otherwise.

General Plan Land Use and Transportation Element

In March 1998, the Oakland City Council adopted the Land Use and Transportation Element (LUTE) of the Oakland General Plan. The following LUTE policy is relevant to historic resources under CEQA:

- ***Policy 1/C2.2 Reusing Abandoned Buildings:*** The reuse of abandoned buildings by non-traditional activities should be encouraged where the uses are consistent with, and will assist in the attainment of, the goals and objectives of all elements of the Plan.

General Plan Historic Preservation Element

In March 1994, the Oakland City Council adopted the Historic Preservation Element (HPE) of the Oakland General Plan. The HPE, amended on July 21, 1998, sets forth the policy for listing on the Local Register in Policy 3.8, as noted below. The HPE sets out a graduated system of ratings and designations resulting from OCHS and Oakland Zoning Regulations. The following HPE goal and policies are relevant to the proposed Project:

- ***GOAL 2:*** To preserve, protect, enhance, perpetuate, use, and prevent the unnecessary destruction or impairment of properties or physical features of special character or special historic, cultural, educational, architectural or aesthetic interest or value.

  Such properties or physical features include buildings, building components, structures, objects, districts, sites, natural features related to human presence, and activities taking place on or within such properties or physical features.

- ***Policy 3.1:*** **Avoid or minimize adverse historic preservation impacts related to discretionary city actions.** The City will make all reasonable efforts to avoid or minimize

adverse effects on the Character-Defining Elements of existing or Potential Designated Historic Properties which could result from private or public projects requiring discretionary City actions.

- ***Policy 3.4*** **City Acquisition for Historic Preservation Where Necessary.** Where all other means of preservation have been exhausted, the City will consider acquiring, by eminent domain if necessary, existing or Potential Designated Historic Properties, or portions thereof, in order to preserve them. Such acquisition may be in fee, as conservation easements, or a combination thereof.

- ***Policy 3.5:*** **Historic preservation and discretionary permit approvals.** For additions or alteration to Heritage Properties or Potential Designated Historic Properties requiring discretionary City permits, the City will make a finding that: (1) the design matches or is compatible with, but not necessarily identical to, the property's existing or historical design; or (2) the proposed design comprehensively modifies and is at least equal in quality to the existing design and is compatible with the character of the neighborhood; or (3) the existing design is undistinguished and does not warrant retention and the proposed design is compatible with the character of the neighborhood.

  For any project involving complete demolition of Heritage Properties or Potential Designated Historic Properties requiring discretionary City permits, the City will make a finding that: (1) the design quality of the proposed project is at least equal to that of the original structure and is compatible with the character of the neighborhood; or (2) the public benefits of the proposed project outweigh the benefit of retaining the original structure; or (3) the existing design is undistinguished and does not warrant retention and the proposed design is compatible with the character of the neighborhood.

- ***Policy 3.7:*** **Property relocation rather than demolition as part of discretionary projects.** As a condition of approval for all discretionary projects involving demolition of existing or Potential Designated Historic Properties, the City will normally require that reasonable efforts be made to relocate the properties to an acceptable site.

- ***Policy 3.8:*** **Definition of "Local Register of Historical Resources" and Historic Preservation "Significant Effects" for environmental review purposes.** For purposes of environmental review under the California Environmental Quality Act, the following properties will constitute the City of Oakland's Local Register of Historic Resources:

  1) All Designated Historic Properties [Landmarks, Heritage Properties, Study List Properties, Preservation Districts, and S-7 and S-20 Preservation Combining Zone Properties]; and

  2) Those Potential Designated Historic Properties that have an existing rating of "A" or "B" or are located within an Area of Primary Importance.

  Complete demolition of a Historical Resource will normally be considered a significant effect that cannot be mitigated to a level less than significant and will, in most cases, require preparation of an Environmental Impact Report.

  A proposed addition or alteration to a Historical Resource that has the potential to disqualify a property from Landmark or Preservation District eligibility or may have substantial adverse effects on the property's Character-Defining Elements will normally,

unless adequately mitigated, be considered to have a significant effect. Possible mitigation measures are suggested in Action 3.8.1 (below).

- **Action 3.8.1: Include Historic Preservation Impacts in City's Environmental Review Regulations**.

  Include Policy 3.8's definitions of "Local Register of Historical Resources" and historic preservation "significant effect" in the City's Environmental Review Regulations.

  Amend the Regulations to include specific measures that may be considered to mitigate significant effects to a Historical Resource. Measures appropriate to mitigate significant effects to a Historical Resource may include one or more of the following measures depending on the extent of the proposed addition or alteration.

  1) Modification of the project design to avoid adversely affecting the character defining elements of the property.

  2) Relocation of the affected Historical Resource to a location consistent with its historical or architectural character.

  If the above measures are not feasible, then other measures may be considered including, but not limited to the following:

  3) Modification of the project design to include restoration of the remaining historic character of the property.

  4) Modification of the project design to incorporate or replicate elements of the building's original architectural design.

  5) Salvage and preservation of significant features and materials of the structure in a local museum or within the new project.

  6) Measures to protect the Historical Resource from effects of on-site or other construction activities.

  7) Documentation in a Historic American Buildings Survey report or other appropriate format: photographs, oral history, video, etc.

  8) Placement of a plaque, commemorative, marker, or artistic or interpretive display on the site providing information on the historical significance of the resource.

  9) Contribution to a Facade Improvement Fund, the Historic Preservation Revolving Loan Fund, the Oakland Cultural Heritage Survey, or other program appropriate to the character or the resource.

- ***Policy 3.13:*** **Security of vacant properties.** Vacant or abandoned existing or Potential Designated Historic Properties shall be adequately secured in order to prevent unauthorized entry, theft, or property damage.

- ***Policy 4.1:*** **Archaeological resources.** To protect significant archaeological resources, the City will take special measures for discretionary projects involving ground disturbances located in archaeologically sensitive areas.

Conformity of the Project with General Plan goals and policies most relevant to historic resources is discussed throughout the Discussion of Impacts presented later in this section.

The OCHS uses a five-tier rating system for individual properties, ranging from "A" (highest importance) and "B" (major importance) to "E" (of no particular interest). This letter rating is termed the "Individual Property Rating" of a building and is based on the following criteria:

1) **Visual Quality/Design:** Evaluation of exterior design, interior design, materials and construction, style or type, supporting elements, feelings of association, and importance of designer.

2) **History/Association:** Association of person or organization, the importance of any event, association with patterns of history, and the age of the building.

3) **Context:** Continuity and familiarity of the building within the city, neighborhood, or district.

4) **Integrity and Reversibility:** Evaluation of the building's condition, its exterior and interior alterations, and any structural removals.

Preservation Study List

According to the HPE, the Preservation Study List is defined at Section 7005 of the Zoning Regulations as "a study list of facilities under serious study . . . for possible landmark designation ... or for other appropriate [preservation] action . . . " Properties can be added to or removed from the study list by the Landmarks Board, the City Planning Commission, or the Director of City Planning, but, in practice, this has mostly been done by the Board. About 300 properties are now on the Study list. Demolition of study list properties can be postponed for up to 60 days by the Director of City Planning.

Oakland Energy and Climate Action Plan (ECAP)

The Oakland Energy and Climate Action Plan (ECAP) was adopted by the City Council on December 4, 2012. The ECAP finds that building energy use, material consumption, and waste are significant sources of greenhouse gas (GHG) emissions, and all can be addressed through local action. The ECAP policies promote waste reduction through reuse and repair; and rehabilitation and renovation of older buildings. The ECAP policies also promote energy efficient upgrades specifically for historic buildings while also retaining their historic status.

Open Space Conservation and Recreation (OSCAR) Element

The Open Space Conservation and Recreation (OSCAR) Element of the City of Oakland General Plan, adopted in 1996, contains policies relevant to the protection and conservation of historic resources, particularly those within city parks. For example, Policy OS-2.5(d) states that the city should, "Increase the amount of urban parkland in the seven flatland planning areas, placing a priority on land with visual or historic significance." Objective REC-2 states that the city should, "Ensure that park are well designed, and that facilities and activities within parks are compatible with each other, the natural environment, historic resources, and the surrounding community."

Finally, Objective REC-2.6 states that the city should, "Respect historic park features when designing park improvements or programming new park activities."

City of Oakland Standard Conditions of Approval and Uniformly Applied Development Standards Imposed as Standard Conditions of Approval

The Standard Conditions Approval (SCAs) relevant to the Project's impacts on cultural resources are presented below. If the Project is approved by the City, all applicable SCAs would be adopted as conditions of approval and required, as applicable, to be implemented during project construction and operation to address impacts on cultural resources. The SCAs are incorporated and required as part of the Project, so they are not listed as mitigation measures.

- **SCA CUL-1: Archaeological and Paleontological Resources – Discovery During Construction.** *During construction.* Pursuant to CEQA Guidelines section 15064.5(f), in the event that any historic or prehistoric subsurface cultural resources are discovered during ground disturbing activities, all work within 50 feet of the resources shall be halted and the project applicant shall notify the City and consult with a qualified archaeologist or paleontologist, as applicable, to assess the significance of the find. In the case of discovery of paleontological resources, the assessment shall be done in accordance with the Society of Vertebrate Paleontology standards. If any find is determined to be significant, appropriate avoidance measures recommended by the consultant and approved by the City must be followed unless avoidance is determined unnecessary or infeasible by the City. Feasibility of avoidance shall be determined with consideration of factors such as the nature of the find, project design, costs, and other considerations. If avoidance is unnecessary or infeasible, other appropriate measures (e.g., data recovery, excavation) shall be instituted. Work may proceed on other parts of the project site while measures for the cultural resources are implemented.

  In the event of data recovery of archaeological resources, the project applicant shall submit an Archaeological Research Design and Treatment Plan (ARDTP) prepared by a qualified archaeologist for review and approval by the City. The ARDTP is required to identify how the proposed data recovery program would preserve the significant information the archaeological resource is expected to contain. The ARDTP shall identify the scientific/historic research questions applicable to the expected resource, the data classes the resource is expected to possess, and how the expected data classes would address the applicable research questions. The ARDTP shall include the analysis and specify the curation and storage methods. Data recovery, in general, shall be limited to the portions of the archaeological resource that could be impacted by the proposed project. Destructive data recovery methods shall not be applied to portions of the archaeological resources if nondestructive methods are practicable. Because the intent of the ARDTP is to save as much of the archaeological resource as possible, including moving the resource, if feasible, preparation and implementation of the ARDTP would reduce the potential adverse impact to less than significant. The project applicant shall implement the ARDTP at his/her expense.

  In the event of excavation of paleontological resources, the project applicant shall submit an excavation plan prepared by a qualified paleontologist to the City for review and approval. All significant cultural materials recovered shall be subject to scientific analysis, professional museum curation, and/or a report prepared by a qualified paleontologist, as

appropriate, according to current professional standards and at the expense of the project applicant.

When Required: During construction

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

- **SCA CUL-2: Archaeologically Sensitive Areas – Pre-Construction Measures.** *Prior to approval of construction-related permit; during construction.* The project applicant shall implement either Provision A (Intensive Pre-Construction Study) or Provision B (Construction ALERT Sheet) concerning archaeological resources.

  ***Provision A: Intensive Pre-Construction Study*.** The project applicant shall retain a qualified archaeologist to conduct a site-specific, intensive archaeological resources study for review and approval by the City prior to soil-disturbing activities occurring on the project site. The purpose of the site-specific, intensive archaeological resources study is to identify early the potential presence of history-period archaeological resources on the project site. At a minimum, the study shall include:

  a. Subsurface presence/absence studies of the project site. Field studies may include, but are not limited to, auguring and other common methods used to identify the presence of archaeological resources.

  b. A report disseminating the results of this research.

  c. Recommendations for any additional measures that could be necessary to mitigate any adverse impacts to recorded and/or inadvertently discovered cultural resources.

  If the results of the study indicate a high potential presence of historic-period archaeological resources on the project site, or a potential resource is discovered, the project applicant shall hire a qualified archaeologist to monitor any ground disturbing activities on the project site during construction and prepare an ALERT sheet pursuant to Provision B below that details what could potentially be found at the project site. Archaeological monitoring would include briefing construction personnel about the type of artifacts that may be present (as referenced in the ALERT sheet, required per Provision B below) and the procedures to follow if any artifacts are encountered, field recording and sampling in accordance with the Secretary of Interior's Standards and Guidelines for Archaeological Documentation, notifying the appropriate officials if human remains or cultural resources are discovered, and preparing a report to document negative findings after construction is completed if no archaeological resources are discovered during construction.

  Provision B: Construction ALERT Sheet. The project applicant shall prepare a construction "ALERT" sheet developed by a qualified archaeologist for review and approval by the City prior to soil-disturbing activities occurring on the project site. The ALERT sheet shall contain, at a minimum, visuals that depict each type of artifact that could be encountered on the project site. Training by the qualified archaeologist shall be provided to the project's prime contractor, any project subcontractor firms (including demolition, excavation, grading, foundation, and pile driving), and utility firms involved in soil-disturbing activities within the project site.

The ALERT sheet shall state, in addition to the basic archaeological resource protection measures contained in other standard conditions of approval, all work must stop and the City's Environmental Review Officer contacted in the event of discovery of the following cultural materials: concentrations of shellfish remains; evidence of fire (ashes, charcoal, burnt earth, fire-cracked rocks); concentrations of bones; recognizable Native American artifacts (arrowheads, shell beads, stone mortars [bowls], humanly shaped rock); building foundation remains; trash pits, privies (outhouse holes); floor remains; wells; concentrations of bottles, broken dishes, shoes, buttons, cut animal bones, hardware, household items, barrels, etc.; thick layers of burned building debris (charcoal, nails, fused glass, burned plaster, burned dishes); wood structural remains (building, ship, wharf); clay roof/floor tiles; stone walls or footings; or gravestones. Prior to any soil-disturbing activities, each contractor shall be responsible for ensuring that the ALERT sheet is circulated to all field personnel, including machine operators, field crew, pile drivers, and supervisory personnel. The ALERT sheet shall also be posted in a visible location at the project site.

When Required: Prior to approval of construction-related permit; during construction

Initial Approval: Bureau of Building

Monitoring/Inspection: Bureau of Building

- **SCA CUL-3: Human Remains – Discovery During Construction.** *During construction.* Pursuant to CEQA Guidelines section 15064.5(e)(1), in the event that human skeletal remains are uncovered at the project site during construction activities, all work shall immediately halt and the project applicant shall notify the City and the Alameda County Coroner. If the County Coroner determines that an investigation of the cause of death is required or that the remains are Native American, all work shall cease within 50 feet of the remains until appropriate arrangements are made. In the event that the remains are Native American, the City shall contact the California Native American Heritage Commission (NAHC), pursuant to subdivision (c) of section 7050.5 of the California Health and Safety Code. If the agencies determine that avoidance is not feasible, then an alternative plan shall be prepared with specific steps and timeframe required to resume construction activities. Monitoring, data recovery, determination of significance, and avoidance measures (if applicable) shall be completed expeditiously and at the expense of the project applicant.

  When Required: During construction

  Initial Approval: N/A

  Monitoring/Inspection: Bureau of Building

State Regulations

California Environmental Quality Act

CEQA, as codified in Public Resources Code (PRC) Sections 21000 et seq., is the principal statute governing the environmental review of projects in the state. CEQA requires lead agencies to determine if a proposed project would have a significant effect on historical resources, including archaeological resources. The CEQA Guidelines define a historical resource as: (1) a resource in the California Register; (2) a resource included in a local register of historical resources, as defined in PRC Section 5020.1(k) or identified as significant in a historical resource survey

meeting the requirements of PRC Section 5024.1(g); or (3) any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided the lead agency's determination is supported by substantial evidence in light of the whole record.

If a lead agency determines that an archaeological site is an historical resource, the provisions of PRC Section 21084.1 and CEQA Guidelines Section 15064.5 would apply. If an archaeological site does not meet the CEQA Guidelines criteria for a historical resource, then the site may meet the threshold of PRC Section 21083 regarding unique archaeological resources. A unique archaeological resource 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.

1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.

2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.

3) Is directly associated with a scientifically recognized important prehistoric or historic event or person" (PRC Section 21083.2 [g]).

The CEQA Guidelines note that if a resource is neither a unique archaeological resource nor a historical resource, the effects of the project on that resource shall not be considered a significant effect on the environment (CEQA Guidelines Section 15064[c][4]).

California Register of Historical Resources

The California Register is "an authoritative listing and guide to be used by state and local agencies, private groups, and citizens in identifying the existing historical resources of the state and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change" (PRC Section 5024.1[a]). The criteria for eligibility are based on National Register criteria (PRC Section 5024.1[b]). Certain resources are determined by the statute to be automatically included in the California Register, including California properties formally determined eligible for or listed in the National Register of Historic Places (National Register).

To be eligible for the California Register, an historical resource must be significant at the local, state, and/or federal level under one or more of the following criteria.

1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.

2) Is associated with the lives of persons important in our past.

3) 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.

4) Has yielded, or may be likely to yield, information important in prehistory or history (PRC Section 5024.1[c]).

For a resource to be eligible for the California Register, it must also retain enough integrity to be recognizable as a historical resource and to convey its significance. A resource that does not retain sufficient integrity to meet the National Register criteria may still be eligible for listing in the California Register.

Assembly Bill 52

In September of 2014, the California Legislature passed Assembly Bill (AB) 52, which added provisions to the PRC regarding the evaluation of impacts on tribal cultural resources under CEQA, and consultation requirements with California Native American tribes. In particular, AB52 now requires lead agencies to analyze project impacts on "tribal cultural resources" separately from archeological resources (PRC Section 21074; 21083.09). The Bill defines "tribal cultural resources" in a new section of the PRC Section 21074. AB 52 also requires lead agencies to engage in additional consultation procedures with respect to California Native American tribes (PRC Section 21080.3.1, 21080.3.2, 21082.3). Finally, AB 52 requires the Office of Planning and Research to update Appendix G of the CEQA Guidelines by July 1, 2016 to provide sample questions regarding impacts to tribal cultural resources (PRC Section 21083.09).

Federal Regulations

National Register of Historic Places

Cultural resources are considered through the National Historic Preservation Act (NHPA) of 1966, as amended (54 U.S.C. 306108), and its implementing regulations. Prior to implementing an "undertaking" (e.g., federal funding or issuing a federal permit), Section 106 of the NHPA requires federal agencies to consider the effects of the undertaking on historic properties (i.e., properties listed in or eligible for listing in the National Register) and to afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on any undertaking that would adversely affect properties eligible for listing in the National Register. Under the NHPA, a property is considered significant if it meets the National Register listing criteria at 36 CFR 60.4, as stated below:

> The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and that:
>
> a) Are associated with events that have made a significant contribution to the broad patterns of our history, or
>
> b) Are associated with the lives of persons significant in our past, or
>
> c) Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction, or
>
> d) Have yielded, or may be likely to yield, information important in prehistory or history.

Federal review of projects is normally referred to as the Section 106 process. This process is the responsibility of the federal lead agency. The Section 106 review normally involves a four-step procedure, which is described in detail in the implementing regulations (36 CFR Part 800):

- Identify historic properties in consultation with the SHPO and interested parties;
- Assess the effects of the undertaking on historic properties;
- Consult with the SHPO, other agencies, and interested parties to develop an agreement that addresses the treatment of historic properties and notify the Advisory Council on Historic Preservation; and finally,
- Proceed with the project according to the conditions of the agreement.

Background – Architectural Resources

1994 Historic Architectural Resources Surveys and Determinations

In 1994, Page & Turnbull, Historic Resource Consultants, prepared a *Context Statement and Historic Resources Inventory* (referred to as "1994 Historic Resources Inventory" or "1994 inventory"), which provided historic context and National Register Eligibility evaluation of 45 World War II-era structures on the Project site (Page & Turnbull, 1994a). The 1994 Historic Resources Inventory analyzed the Project site for its eligibility as a historic district and analyzed individual structures (built prior to 1945). The 1994 Historic Resources Inventory determined that the only resource identified as having historical value on the Project site was Club Knoll, the former clubhouse (Club Knoll) and only surviving part of the former golf course use on the Oak Knoll site.

While the 1994 inventory stated that the style and location of an adjacent World War II-era garage relative to the clubhouse (approximately 50 feet north of Club Knoll, separated by a north service road) indicated that it was "clearly intended to be an integral element of the clubhouse facilities," (1994 inventory form including Bldg. No.19 [garage], p.2), the 1994 *National Register of Historic Places Register Form for the Former Oak Knoll Golf and Country Club* (referred to as "1994 nomination form) (Page & Turnbull, 1994b) determined that the garage was "not associated with the period of significance of the clubhouse" and was a "non-contributing structure" within the boundaries of the nominated property" (1994 nomination form, Sec. 8, p.1). Club Knoll was constructed in 1924; its associated garage was constructed in 1942 (Page & Turnbull, 1994).

In 1995, Oakland's Landmarks Preservation Advisory Board (LPAB) determined that the club was eligible for landmark status with an "A" rating and placed Club Knoll on the City of Oakland's Preservation Study List. The "A" rating indicated that it is of highest importance and eligible for listing as a local landmark. The structure was therefore automatically listed on the City of Oakland's Local Register of Historic Resources (LRHR) at that time. The "A" rating was assigned based largely on the architectural interest and integrity of the structure. The "A" rating, its presence on the preservation study list, along with its eligibility for landmark status qualifies Club Knoll as a potential historic resource as defined by Section 15064.5 of the CEQA

Guidelines and Policy 3.8 of the Historic Preservation Element (HPE) of the General Plan. The LPAB evaluation also identified the Club Knoll garage as a 1942 garage addition that was part of the change in Club Knoll's historic setting over time, but only designated Club Knoll to the LRHR (LPAB, 1995).

The 1998 EIS/EIR noted that although consultation between the Navy and the California SHPO in 1994 and 1995 determined that neither Club Knoll nor its adjacent, free-standing World War II-era garage were eligible for listing in the National Register, Club Knoll had been placed on the local Oakland Preservation Study List by the LPAB and found to be eligible to become a City of Oakland landmark in 1995 (Weidell, 1994; Wall, 1995) (in **Appendix S** to this Draft SEIR). However, since Club Knoll was proposed for preservation and reuse with the Maximum Capacity Alternative, the 1998 EIS/EIR found that the Alternative would have no impact on cultural resources.

2006 Historic Architectural Resources Surveys and Determinations

The 2006 survey by Page & Turnbull (within Appendix S to this SEIR) identifies Club Knoll as eligible for listing in the California Register and the National Register; however, there has been no change in circumstances, other than the local listing of Club Knoll. The 2006 survey also identifies the Club Knoll garage as a contributing resource to Club Knoll. As indicated above, the City's 1995 designation identifies only Club Knoll, and not its garage, as a local resource.

The 2006 Page & Turnbull survey found that the overall NMCO site does not retain sufficient historical integrity to convey its history as a World War II-era semi-permanent hospital and be considered a potential historic district, consistent with its 1994 inventory and nomination form. This is due to the demolition of the majority of the World War II-era hospital and community buildings that had occurred by 1994. Page & Turnbull further concluded that the site lacks sufficient integrity to be eligible as a potential cultural landscape according to the Secretary of the Interior's Standards; the site has suffered from numerous alterations to topography, including new circulation paths and parking areas, substantial alterations to natural grade, and rerouting of natural resources (creeks). Therefore, the *overall* Oak Knoll site does not qualify for listing as a federal, state, or local historic district or cultural landscape (Page & Turnbull, 1994, 2006).

2015 Historic Architectural Resources Reconnaissance Survey

ESA completed a reconnaissance-level survey of the Project site on June 17, 2015 to confirm the existence and condition of all buildings and structures on the Project site (ESA, 2015a). As described above, nearly all buildings and structures associated with the former NMCO were demolished by 2011, with the majority demolished prior to 1994. As such, no standing buildings or structures were identified on the Project site, except for the Club Knoll and associated garage (constructed 1924/1942). The Seneca Center for Children and Families (former NMCO Barracks Building 69 A and B constructed 1942–1945) is located adjacent to the Project site. All of these extant structures were recorded with digital photography and field notes, and are described below. Current photographs of Club Knoll are shown in **Figure 4.4-1**.

Cross gable projection at entry, from courtyard, 2013

East elevation, 2013

West elevation viewed from former golf course, 2016

SOURCE: Carey & Co., 2016

Oak Knoll Project . 120645

Figure 4.4-1
Club Knoll Structure

Oak Knoll Project . 120645

SOURCE: Carey & Co., 2016b

Figure 4.4-2
Club Knoll Garage

- **Club Knoll (constructed 1924) – Within Project Site.** Club Knoll is a two-story building with a three-story bell tower designed in the Spanish Revival style of architecture, with stucco walls, Spanish tile roofing, and a walled courtyard entry. Built in 1924 as the clubhouse for the former Oak Knoll golf course, and later used as a restaurant by the US Navy until it was decommissioned in 1996, the property is currently unoccupied and abandoned. The building is secured by chain link fencing, and all windows and doors are covered with plywood. As such, only the exterior of the building was accessible to the surveyor. From exterior appearances observed during the July, 2015 reconnaissance survey, the building is in an advanced state of dilapidation, with evidence of vandalism, missing roofing tiles, broken windows, and overgrown vegetation surrounding the building.

  Although the building is in worse physical condition than in 1995 when it was identified as a City of Oakland category "A" building and placed on the Preservation Study List, the deterioration and damage is not so advanced that its status as a potential Oakland landmark would change. Despite its degraded physical condition, the building nonetheless retains its ability to convey its associations as a local representation of the Spanish Revival style of architecture, the basis for which it was identified as a potential Oakland landmark.

- **Club Knoll Garage (constructed 1942) – Within Project Site.** The associated two-car garage, built in 1942, was identified as a non-contributing resource to Club Knoll; the City's 1995 evaluation only identified Club Knoll, but not the adjacent garage, as eligible for listing in its local register. From visual observations during the July 2015 reconnaissance survey, the garage is in worse physical condition than when originally evaluated in 1995. The garage was further assessed in 2016, discussed below. A current photograph of the garage is provided in **Figure 4.4-2**.

- **Site Eligibility as a Cultural Landscape.** The 2006 update to the 1994 Historic Resources Inventory survey discussed above found that the former NMCO/Oak Knoll site does not retain sufficient historical integrity to convey its history as a potential historic district or be to be eligible as a potential cultural landscape due to the demolition of the majority of the World War II-era hospital and community buildings, and the numerous alterations to topography and creeks. A site survey of the property by ESA in 2015 indicates that all other former NMCO structures on the Project site have been demolished since 2011, with the exception of Club Knoll and off-site Seneca Center (see discussion below), which further supports the earlier finding that the former NMCO/Oak Knoll site would be ineligible as a cultural landscape.

- **Seneca Center for Children and Families (former NMCO Barracks Building 69 A and B, constructed 1942-1945) – Outside But Adjacent to Project Site.** The Seneca Center is a single-story building with an H-shaped plan, comprised of long, gable-roofed modules. Construction is comprised of concrete piers supporting wood framing and roofing. Walls are clad in cement asbestos shingles (replacement siding), and roofing is clad in asphalt shingles (replacement roofing). From visual observations during the July 2015 reconnaissance survey, all former porches on the east and west ends of the building have been enclosed. Wheelchair ramps have been added to the west-facing elevation. Windows are replacement aluminum frame units with double-hung sashes, and all doors are replacement wood frame core door units.

2016 Historic Architectural Resources Surveys and Determinations

Club Knoll

In May 2016, Carey & Co. completed for the Project sponsor an evaluation of Club Knoll for potential listing in the California Register of Historical Resources (CRHR), as well as an evaluation of the impacts of the proposed relocation of the building (Carey & Co., 2016). Carey & Co. recommended that Club Knoll is eligible for listing under CRHR Criterion 3 as a distinctive example of a Spanish Colonial Revival style clubhouse, and retains sufficient integrity to convey its architectural significance. (Carey & Co., 2016a, included as part of **Appendix T** to this Draft SEIR)

Club Knoll Character-Defining Features. Carey & Co. identified a number of exterior and interior character defining features which convey the building's significance as the embodiment of the Spanish Colonial Revival style of architecture. Exterior character-defining features include: the irregular plan with varied massing; the asymmetrical layout; the mix of roof types – gable and shed; the bell tower; the chimneys – stucco clad and rock; the varied openings – wide range of window and door sizes and shapes, wood and metal windows and doors; the Juliet balconies – metal railings adorn the small balconies; covered arcade around courtyard; exterior stair to main level; deck at second level; stucco cladding; red roof tiles; decorative stucco detailing – quatrefoil vents, brackets, keystones, etc.; its location built into the side of a knoll; the open landscape to the west of the building; and the enclosed courtyard with fireplace and fountain. Interior character-defining features include: the wood trusses and exposed wood ceiling construction; the decorative corbels; the decorative plasterwork at orchestra balcony and columns in the lounge; the wood panel doors; the wood floors; the wood columns and beams; the wood baseboards; the rock fireplaces; and the sequence of public spaces – lobby flanked by two large rooms (lounge to the south and dining to the north).

Club Knoll Relocation Evaluation. Carey & Co. found that relocation of Club Knoll to another location on the project site could result in adverse effects to the building's integrity of setting, and that the physical act of relocation may cause the loss of historic features that characterize the building, resulting in a potentially significant adverse impact to this historic resource. Carey & Co. recommended a number of measures to avoid or reduce the potential adverse impacts of relocation. These measures include: 1) documentation of Club Knoll prior to its relocation in accordance with Historic American Building Survey (HABS) guidelines, 2) preparation of a relocation plan containing detailed specifications for the relocation procedures, and 3) rehabilitation of Club Knoll following relocation in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties*, using the Rehabilitation Standards. With implementation of the above measures, Carey & Co. concluded that impacts to Club Knoll as a result of the proposed relocation would be mitigated to a level of less than significant.

Club Knoll Garage

Garage Description. In July 2016, Carey & Co. completed for the Project sponsor an evaluation of Club Knoll Garage. (Carey & Co., 2016b, included as part of **Appendix T** to this Draft SEIR) The garage structure was not part of the initial construction related to the Country Club and was

only built by the Navy when the Navy took ownership of the site in 1942. This small structure served as an ancillary building for Club Knoll. Likely built during the period when hospital administration officers were using the clubhouse as a residence or an officer's club, the building is the only structure to be designed in Spanish Colonial Revival style under the Navy's occupation. The structure has cladding materials that match that of Club Knoll, stucco walls and clay tile roof details.

The garage is single-story, stucco clad, flat roof structure has a shaped parapet and two single-car wood garage doors. The arched shaped parapet is finished in red roof tile. A wood header just above the paneled wood garage doors accentuates the front, or east elevation. The side elevations (north and south) each have slight projection topped with tile near the front, giving prominence to this section of the building. The rear, or west elevation, is stucco clad. (See Figure 4.4-2 of the garage.)

Current Historic Status. Page & Turnbull deemed the clubhouse, constructed for the Oak Knoll Golf Course and Country Club, eligible for the National Register in 1994, but the State Office of Historic Preservation and the Department of the Navy did not support that finding. The Club Knoll building was thought by Page & Turnbull to be eligible for the National Register under Criteria B and C. The National Register nomination goes on to state, "Although the garage is visually compatible with the clubhouse, it does not possess associations with the clubhouse's period of significance and, therefore, it does not contribute to the significance of the clubhouse."

In 2006, Page & Turnbull evaluated Club Knoll again and found the building to be eligible for the California Register of Historical Resources under Criterion 3. The garage structure next to Club Knoll was determined eligible for the CRHR as a contributing outbuilding because of its association with the clubhouse. The City of Oakland's Local Register of Historic Resources & Cultural Heritage Survey Evaluation gives the clubhouse a rating of a "B" meaning the building is of major importance at the local level. However, it is noted that this rating should be re-examined once the land leaves federal ownership. As of the 2006 Page & Turnbull report the rating had not been reexamined.

The garage structure does not appear to be eligible for the CRHR under Criterion 1 as the construction of the building does not relate to a historic event or trend. No persons of significance are known to be associated with the building; thus, it does not appear to be eligible for the CRHR under Criterion 2. The garage is not a work of a master, does not convey high artistic value, and is not an example of a particular type of construction. Therefore, the building does not appear to be eligible for the CRHR under Criterion 3. The garage is unlikely to yield information that is significant to history or prehistory and does not appear to be eligible under Criterion 4. In summary, the garage is not individually eligible for listing in the CRHR as it does not meet Criteria 1, 2, 3 or 4. Additionally, it is not eligible as a contributing structure to Club Knoll. The garage was constructed after the clubhouse and does not share the historic associations of the clubhouse. (Carey & Co., 2016b)

Background – Archaeological Resources

2006 Archaeological Resources Inventory

ESA completed a records search at the Northwest Information Center (NWIC) of the California Historical Resources Information System at Sonoma State University to update and supplement the information in the 1998 EIS/EIR. The records search included the Project site and a ¼-mile area radius. The records were accessed by utilizing the USGS 7.5-minute topographic quadrangle, Oakland East. Previous surveys, studies, and archaeological site records for the Project site and surrounding areas were accessed. Records were also accessed and reviewed in the *Directory of Properties in the Historic Property Data File for Alameda County* for information on sites of recognized historical significance in the National Register, the California Register, the California Inventory of Historic Resources (1976), the California Historical Landmarks (1996), and the California Points of Historical Interest (1992). GLO Plats and historic maps were also reviewed.

No previously identified cultural resources exist within the Project site. One prehistoric site, CA-ALA-57, was recorded approximately ½ mile southeast of the Project site. CA-ALA-57 consists of a single bedrock mortar in a sandstone outcrop. The site was discovered on the golf course in the late 1950s. No cultural resource survey reports have been filed at the NWIC for the Oak Knoll Project site; however, according to the 1998 EIS/EIR, "an informal walkover was performed by a professional archaeologist in 1990." The results of this survey did not identify any surface evidence of prehistoric activity.

An ESA archaeologist conducted a reconnaissance-level survey of the Project site on September 6, 2006. No prehistoric cultural resources were observed. Given the extensive surface disturbance due to the construction of numerous roads, parking lots, and former building sites, the surface visibility was minimal, which prevented any substantive examination of the native surface. Moreover, the extensive surface disturbances that have occurred prior to and during the tenure of the NMCO have largely destroyed the native topography, which included the grading for a golf course in the 1920s, the construction of a temporary hospital in the 1940s, and the construction of the existing main hospital in the 1960s (now demolished). The construction activities graded the slopes up to 30-feet below the pre-existing surface. Extensive grading also occurred during the City's construction of Keller Avenue, and no evidence of deposits or cultural resources were observed or recorded. The remaining steep slopes that still exist on the Project site are unlikely to yield archaeological deposits given the slope percentage and the low probability that intact deposits would exist on this type of topography.

2015 Archaeological Resources Inventory

ESA completed an updated records search at the NWIC on May 27, 2015 (File No. 14-1660). No new information on archaeological resources had been filed since the 2006 records search. On June 12, 2015, an ESA archaeologist conducted an intensive archaeological survey of the Project site (ESA, 2015b). Pedestrian survey was limited to unpaved areas of low to moderate slopes (less than 10 degrees) using 15 meter spacing between transects, while areas with steeper slopes were visually inspected from level ground. Rifle Range Branch Creek was inspected along the banks where slope and vegetation permitted.

Vegetation in the survey areas consisted of low grasses with 40–60 percent visibility, while dense trees and scrub with less than 10 percent visibility characterized drainages throughout the Project site, particularly in the southeastern quadrant. Soils were typically light brown silty loams, and gravels were common throughout the Project site. Parking lots, roads, paved walkways, and building foundations covered most of the level ground, while undisturbed areas were limited to steep slopes.

A cache of late 1950s-era Coke bottles was identified in the drainage south of Chesmire Street. The bottles were concentrated near the creek bed and scattered up the steep southerly slope directly below the former location of a helipad (Building/Structure 502). This cache has no known historical association (particular event or specific people) and was not further recorded.

No other historic-era artifacts were identified. Additionally no evidence of prehistoric use and occuption was identified in the Project site.

4.4.3 Discussion of Impacts

Significance Criteria

The City of Oakland has established thresholds of significance for CEQA impacts (City of Oakland, 2013). The Project would have a significant adverse impact on cultural resources if it would:

a) Cause a substantial adverse change in the significance of an historical resource as defined in CEQA Guidelines section 15064.5. Specifically, a substantial adverse change includes physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the historical resource would be "materially impaired." The significance of an historical resource is "materially impaired" when a project demolishes or materially alters, in an adverse manner, those physical characteristics of the resource that convey its historical significance and that justify its inclusion on, or eligibility for inclusion on an historical resource list (including the California Register of Historical Resources, the National Register of Historical Resources, Local Register, or historical resources survey form (DPR Form 523) with a rating of 1-5);

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines section 15064.5;

c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature; or

d) Disturb any human remains, including those interred outside of formal cemeteries.

As previously indicated in the above discussion of the California Register, the state CEQA Guidelines indicate that projects that are consistent with the *Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings* generally "shall be considered as mitigated to a level of less than a significant impact on the historic resource" (Section 15064.5(b)(3)).

Approach to Analysis

This analysis considers impacts on both known cultural and paleontological resources as well as inadvertent discoveries within the project area. Potential impacts on architectural resources are assessed by determining whether project activities would affect any such resources that have been identified as historical resources for the purposes of CEQA. While most historic buildings and many historic-period archaeological resources are generally significant because of their association with important events, people, or styles (CRHR criteria A, B, and C), the significance of most prehistoric and historic-period archaeological resources is usually assessed under Criterion D. This criterion stresses the potential for discovering important historical information within the site rather than the resource's significance as a surviving example of a type of construction or its association with an important person or event. The impact analysis for paleontological resources is based on the paleontological potential of the rock units to be disturbed by project-related excavations.

Once a resource has been identified as significant, it must be determined whether the project would "cause a substantial adverse change in the significance" of the resource (CEQA Guidelines 15064.5[b]). A substantial adverse change in the significance of a historical resource or unique archaeological resource means "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the historical resource would be materially impaired" (CEQA Guidelines Section 15064.5[b][1]). A historical resource is materially impaired through the demolition or alteration of the resource's physical characteristics that convey its historical significance and that justify its inclusion in the CRHR (CEQA Guidelines Section 15064.5[b][2][A]).

The impact discussion below is based on a review of the following documents by an ESA architectural historian who meets the Secretary of the Interior's Professional Qualifications Standards; the *Context Statement and Historic Resources Inventory* prepared by Page & Turnbull in 1994; the 1994 *National Register of Historic Places Register Form for the Former Oak Knoll Golf and Country Club*; the LPAB meeting minutes from June 12, 1995; the 1998 EIS/EIR; the 2006 survey conducted by Page & Turnbull; the Oak Knoll Relocation and Rehabilitation of Club Knoll work plan; and the Carey & Co. report prepared in May of 2016. ESA also conducted a reconnaissance-level survey of the Project site on June 17, 2015 to confirm the existence and condition of all buildings and structures on the Project site (ESA, 2015a).

New Information / Changed Circumstances

Club Knoll and its garage have experienced extensive vandalism and deterioration since preparation of the 1998 EIS/EIR. Also, since preparation of the 1998 EIS/EIR, all other remaining buildings on the Project site have been demolished.

Impacts and Mitigation Measures

Historical Resources

Impact CUL-1: Relocation and rehabilitation of Club Knoll could result in a substantial adverse change in the significance of a historical resource by adversely affecting the character-defining features that convey its historic significance and justify its inclusion in the City of Oakland's Local Register of Historic Resources. (Criterion a) (*Potentially Significant*)

1998 EIS/EIR.

The 1998 EIS/EIR noted that although Club Knoll was determined not eligible for listing on the National Register by the Navy and SHPO, the building was placed on the local Oakland Preservation Study List by the LPAB and found to be eligible to become a City of Oakland landmark in 1995. However, the analysis concluded that the Maximum Capacity Alternative would not impact historic resources because it would have retained Club Knoll for recreational use.

Proposed Project.

The proposed Project would relocate all portions of Club Knoll except the basement and third wing to a central portion of the site and rehabilitate the building. The relocated Club Knoll would serve as a community center for classes, gatherings, events, and possibly other accessory commercial uses.

Impacts to Club Knoll

Relocation of Club Knoll could result in a substantial adverse change in the significance of a historical resource by adversely affecting the character-defining features that convey its historic significance and justify its inclusion in the City of Oakland's Local Register of Historic Resources. As noted above, at the direction of the Project sponsor, Carey & Co. reviewed the *Oak Knoll Relocation and Rehabilitation of Club Knoll* work plan that the project sponsor submitted to the City (dated April 18, 2016). Carey & Co. recommended a number of measures to avoid or reduce the potential adverse impacts of the proposed relocation. Carey & Co. concluded that that with implementation of those measures, impacts to Club Knoll as a result of the proposed relocation would be mitigated to less than significant.

For purposes of this Draft SEIR analysis, ESA's qualified architectural historian reviewed the work plan submitted by the Project sponsor and determined that implementation of new Mitigation Measures CUL-1.1 through CUL-1.5, which include measures identified in the Carey & Co. report, would be required of the Project to ensure that the proposed relocation would comply with the *Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings.*

> **New Mitigation Measure CUL-1.1: *HABS Documentation*.** *Prior to approval of a construction-related permit for Club Knoll*, the Project sponsor shall document Club Knoll according to the Historic American Building Survey (HABS) standards, which requires:

a) Drawings: A full set of measured drawings depicting the building. Consideration may be given to using 3D laser scanning at an appropriate resolution to aid in the creation of the drawings.

b) Photographs: Photographs with large-format negatives of exterior and interior views of the existing building. Photocopies with large-format negatives, or high resolution digital copies of historic photographs. Consideration may be given to the use of high resolution digital photography in lieu of large-format negatives. If digital photography is selected, photo quality should meet the standards outlined in the National Register Photo Policy Factsheet updated 5/15/2013.

c) Written data: A historical report in Outline Format.

d) A qualified architectural historian or historical architect meeting the qualifications in *the Secretary of the Interior's Professional Qualification Standards* shall oversee the preparation of the plans, photographs and written data.

e) The documentation shall be submitted for review and approval by qualified staff of the City of Oakland Bureau of Planning, Oakland Cultural Heritage Survey (OCHS).

f) The documentation shall be filed with the Oakland Cultural Heritage Survey, the Oakland History Room at the Oakland Public Library, and the Northwest Information Center at Sonoma State University, the repository for the California Historical Resources Information System.

New Mitigation Measure CUL-1.2 ***Baseline Building Conditions Study (Structural).*** *Prior to approval of a construction-related permit for Club Knoll*, the Project sponsor shall prepare a Baseline Building Conditions Study to establish the baseline condition of the building and determine what kind of stabilization might be necessary to relocate the building. Specifically:

a) A preservation architect and a structural engineer, as defined in the Carey & Co. report dated May 3, 2016, shall undertake an existing condition study of Club Knoll.

b) The documentation shall take the form of written descriptions and visual illustrations, including of those physical characteristics of Club Knoll that convey its historic significance and must be protected and preserved, and recommendations for any structural reinforcement, stabilization, or protection before the relocation or any other alteration.

c) The Project sponsor shall implement work in accordance with the approved plan.

New Mitigation Measure CUL-1.3*: Relocation Travel Route.* *Prior to approval of a construction-related permit for Club Knoll*, the Project sponsor shall prepare a Relocation Travel Route Plan for review and approval by qualified staff of the City of Oakland Bureau of Planning, OCHS. Specifically, the plan shall:

a) Show the location of the proposed travel route from the existing Club Knoll location to the new location.

b) Identify and locate on-site covered, secured and enclosed storage areas where components of Club Knoll may be temporarily stored before or during relocation, if required.

c) Identify how the relocation site will be prepared to accept the relocated components of Club Knoll, including but not limited to grading and construction of the foundation.

d) The Project sponsor shall implement work in accordance with the approved plan.

New Mitigation Measure CUL-1.4: *Building Features Inventory and Plan*. *Prior to approval of a construction-related permit for Club Knoll*, the Project sponsor shall prepare a Building Features Inventory and Plan for review and approval by qualified staff of the City of Oakland Bureau of Planning, OCHS. Specifically, the inventory shall include the following, without limitation:

Character-defining Features

a) Identify the character-defining features of Club Knoll to be relocated, specifying features that cannot be repaired, are deteriorated or damaged beyond repair and will need to be replaced.

b) Describe how the character-defining features will be treated and cleaned to remove graffiti and/or mold.

Existing and Proposed Building Plans

c) Provide a complete set of schematic floor and roof plans and elevations showing existing conditions (which may come from the HABS report in Mitigation Measure CUL-1.1 or Baseline Building Conditions Study for Mitigation Measure CUL-1.2). The existing floor plans should identify elements and spaces proposed for demolition, as well as the location of where the building will be cut into moveable components (horizontally and vertically).

d) Provide a complete set of schematic floor plans identifying new walls, insertions, and other alterations proposed to interior spaces.

e) The existing and proposed building plans shall be prepared by a qualified preservation architect and structural engineer.

Materials Compatibility

f) Tests shall be conducted of the exterior stucco and interior plaster to ensure new materials match the original.

Qualifications

g) Identify the vendors and subcontractors to undertake restoration and relocation work. The contractor responsible for the relocation and rehabilitation work shall be experienced in the *Secretary of the Interior's Standards.*

h) The Project sponsor shall implement work in accordance with the approved plans and requirements.

New Mitigation Measures CUL-1.5: *Specific Relocation/Rehabilitation Measures*. *Ongoing, during the relocation activities for Club Knoll.* The Project sponsor shall incorporate the following mitigation measures into a final Club Knoll relocation work plan which it shall submit for review and approval by qualified staff of the City of Oakland Bureau of Planning, OCHS:

a) Ensure that all temporary work to shore and brace the building will be reversible, additive, and shall not destroy any surviving historic fabric in the building.

b) Ensure that a preservation architect and a structural engineer, as defined in the Carey & Co. report dated May 3, 2016, will be on site to monitor dismantlement and reassembly of Club Knoll.

c) New additions and adjacent or related new construction will be undertaken in such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

d) Ensure components and parts of the building dismantled during the relocation process are catalogued, protected, stored in a secure area, if necessary, and reassembled in their original location on the relocated building.

e) Ensure that the proposed steel frame and new interior systems will not be visible in the relocated building, except as necessary for life safety or in newly installed kitchen, bathrooms, elevators, or similar systems.

f) Ensure that protective barriers or buffers are provided to further protect the building from potential damage by construction activities from new construction around the relocated building, including the operation of construction equipment.

g) Ensure that if original wood floor material is found beneath more recent finishes, it shall be inspected for soundness and as much as possible shall be retained. Any deteriorated wood flooring shall be replaced with in-kind material.

h) Ensure all work, including improvements in compliance with the American Disabilities Act (ADA), will adhere to the *Secretary of the Interior's Standards for the Treatment of Historic Properties*, using the Rehabilitation Standards.

i) Ensure character-defining features that are not deteriorated beyond repair, including historic windows and surviving window hardware, are preserved during dismantling, and properly installed and reassembled in their original location.

j) Ensure the foundation is constructed such that the building, at the exterior stair location on the west elevation, is raised above to the surrounding finished grade.

The project sponsor shall implement the final work plan as approved by the City of Oakland.

Impacts to the NMCO Site and Adjacent NMCO Structure

The 2006 update to the 1994 Historic Resources Inventory survey found that the former NMCO/Oak Knoll site does not retain sufficient historical integrity to convey its history as a potential historic district or be to be eligible as a potential cultural landscape. A recent site survey of the property by ESA in 2015 indicates that all other former NMCO structures on the Project site have been demolished, which further supports this earlier finding. Because the former NMCO site is not considered to be a historical resource, adjacent new construction associated with the Project would not result in a new or more severe significant impact than identified in the 1998 EIS/EIR. No mitigation measures would be necessary.

The Seneca Center for Children and Families (former NMCO Barracks Building 69 A and B, constructed 1942-1945) currently exists outside of, but adjacent to, the Project site. This building was previously identified as ineligible for listing in the National Register. Because the former NMCO Barracks Building 69 A and B is not considered to be a historical resource, adjacent new construction associated with the Project would not result in a new or more severe significant impact than identified in the 1998 EIS/EIR. No mitigation measures would be necessary.

Summary

In summary, the implementation of new **Mitigation Measures CUL-1.1 through CUL-1.5** would reduce the potentially adverse effect of the proposed Project on the historic nature of the resource to less than significant

Impact Conclusion: Less Than Significant with Mitigation Measures.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact, New Mitigation Measures Identified.

Club Knoll Garage Demolition

Impact CUL-2: Demolition of the Club Knoll Garage would not result in a substantial adverse change of an historical resource. (Criterion a) (*Less than Significant*)

1998 EIS/EIR.

The 1998 EIS/EIR did not discuss or describe proposed treatment of the Oak Knoll garage within the Maximum Capacity Alternative, nor did it specify whether development of the Maximum Capacity Alternative would involve demolition of the garage. Thus, no impacts to cultural resources were identified and no mitigation measures were required.

Proposed Project.

The Club Knoll Garage was constructed in 1942, approximately 18 years after the construction of Club Knoll, and is located north of the main structure. Findings in the 1994 nomination form that indicated the garage was “not associated with the period of significance of the clubhouse” and was a “non-contributing structure” within the boundaries of the nominated property” (Club Knoll) (1994 nomination form, Sec. 8, p.1). In addition, LPAB did not note the garage as a distinctive feature in its evaluation of Club Knoll that resulted in its placement on the Preservation Study List. While the 2006 historic resource inventory prepared by Page & Turnbull identified notable architectural features (a log lintel and paneled roll-up doors), that analysis noted that the structure is dilapidated, appears structurally unsound (leaning) and has likely lost structural integrity (Page & Turnbull, 2006a and 2006b). A recent site survey of the property in 2015 indicates that while still standing, the garage is in worse physical shape than when it was last viewed in 2006 (ESA, 2015).

As discussed in the *Setting* section, most recently, Carey & Company's 2016 assessment determined that the garage is not individually eligible for listing in the CRHR as it does not meet Criteria 1, 2, 3 or 4, nor is it eligible as a contributing structure to Club Knoll. (Carey & Co., 2016b) Therefore, demolition of the Club Knoll Garage would not cause an adverse change in the significance of a historical resource as it is not considered a historical resource. Moreover, demolition of the garage would not cause and adverse change in the historical significance of Club Knoll, which will be relocated to elsewhere in the Project site (Impact CUL-1). As such, the impact would be less than significant and no mitigation measures are required.

Impact Conclusion: Less than Significant.

Comparison to 1998 EIS/EIR Findings: No new Significant Impact, no Mitigation Measures Identified.

Archaeological Resources

Impact CUL-3: The Project could result in significant impacts to unknown archaeological resources. (Criterion b) (*Less than Significant with SCAs*)

1998 EIS/EIR.

Archaeological investigations completed for the 1998Maximum Capacity Alternative indicated that no archaeological resources have been identified at the Project site, and that there is a low probability for the presence of buried archaeological resources. The 1998 EIS/EIR indicated further that the presence of intact subsurface deposits was unlikely given the extensive grading and development of the areas since the 1950s. The analysis concluded that the Maximum Capacity Alternative would not have a potential impact to archaeological resources. The 1998 EIS/EIR did indicate that upon transfer of the property, future owners would be advised as to the applicable regulations regarding the discovery of archaeological resources on the property during reuse of the Project site.

Proposed Project.

As previously discussed for the *2015 Archaeological Resources Inventory* in the *Setting* of this section, no new information on archaeological resources have been filed for the Project area since the 2006 records search. The 2015 intensive archaeological survey of the Project site conducted by ESA, no historic-era artifacts were identified, nor is there evidence of prehistoric use and occupation was identified in the Project site.

Consequently, no archaeological resources are expected to be impacted by the proposed Project. However, archaeological deposits can still be identified in areas of low sensitivity. The Project will require substantial grading, so the potential to encounter such resources is a potentially significant impact. Implementation of the City of Oakland's SCA CUL-1 (Archaeological and Paleontological Resources – Discovery During Construction) is considered adequate to ensure that subsurface archaeological materials are dealt with according to regulatory guidance and

would minimize the potential risk of impact to archaeological resources to a less-than-significant level. Through the City's project-level review of individual development project proposals, and prior to issuance of a demolition, grading, or building permit**,** the Project applicant shall implement Provision B (Construction ALERT Sheet) of the City of Oakland's SCA CUL-2.

Implementation of the City's SCA CUL-1 and SCA CUL-2 - Provision B ensures less-than-significant impacts to archaeological resources in the Project site.

Impact Conclusion: Less than Significant with SCAs.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact, No Mitigation Measures Identified.

Paleontological Resources

Impact CUL-4: The Project could directly or indirectly destroy a unique paleontological resource or site or unique geologic feature. (Criterion c) (*Less than Significant with SCAs*)

1998 EIS/EIR.

The 1998 EIS/EIR did not analyze whether the Maximum Capacity Alternative would have the potential to disturb paleontological resources and thus result in a significant impact.

Proposed Project.

The Oak Knoll Project is not anticipated to involve substantial changes to the Maximum Capacity Alternative that would result in significant impacts regarding paleontological resources. The Project site has been heavily graded and no longer retains much of the original overburden and the surface is now mostly comprised of artificial fill material. These types of sediments would not likely yield significant paleontological remains because they are surface deposits that are not considered fossil-bearing rock units. Even though significant fossil discoveries can be made even in areas designated as having low potential and could result from the excavation activities related to the Project (particularly grading that cuts into existing rock units), the likelihood of encountering unique paleontological resources or geologic features is minimal. However, consistent with current City practice, as the potential exists for such resources to be found on the Project site, this is considered a potentially significant impact. Implementation of the City of Oakland's SCA CUL-1 (Archaeological and Paleontological Resources – Discovery During Construction) is considered adequate to ensure that paleontological resources are dealt with according to regulatory guidance and would minimize the potential risk of impact to paleontological resources to a less-than-significant level.

Implementation of the City's SCA CUL-1 ensures less-than-significant impacts to paleontological resources in the Project site.

Impact Conclusion: Less than Significant with SCA.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact, No New Mitigation Measures Identified.

Human Remains

Impact CUL-5: The Project could disturb human remains, including those interred outside of formal cemeteries. (Criterion d) (*Less than Significant with SCAs*)

1998 EIS/EIR.

The 1998 EIS/EIR did not analyze whether the Maximum Capacity Alternative would have the potential to disturb human remains and thus result in a significant impact.

Proposed Project.

The Oak Knoll Project is not anticipated to involve substantial changes to the Maximum Capacity Alternative that would result in new significant impacts regarding the disturbance of human remains. As discussed above for archaeological resources, extensive surface disturbances and subsurface grading to 30 feet in depth has occurred on the Project site since its initial development in the 1920s, and no evidence of potential human remains have been documented. There is no indication that the Project site has been used for burial purposes in the recent or distant past. Thus, it is unlikely that human remains would be encountered during Project construction. However, consistent with current City practice, as the potential exists for such resources to be found on the Project site, this is considered a potentially significant impact. Implementation of the City of Oakland's SCA CUL-3 (Human Remains – Discovery During Construction) is considered adequate to ensure that human remains are handled according to regulatory guidance and would minimize the potential risk of impact to human remains to a less-than-significant level.

Implementation of the City's SCA CUL-3 ensures less-than-significant impacts to human remains in the Project site.

Impact Conclusion: Less than Significant with SCA.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact, No New Mitigation Measures Identified.

Cumulative

Impact CUL-6: The Project, in combination with other past, present, existing, approved, pending and reasonably foreseeable future projects, would not result in a significant impact to historic or cultural resources. (*Less than Significant with SCAs and Mitigation)*

Geographic Context

The geographic scope of potential cumulative impacts on cultural encompasses the Project site and species occurrences, habitats, and sensitive natural communities, biologically linked to the Project vicinity. The cumulative impact analysis assumes that construction of other projects in the geographical area would have to comply with the same regulatory requirements as the Project, including City of Oakland SCAs and other local, state and/or federal policies and regulatory requirements specific to historic and cultural resources. This adherence serves to avoid and reduce many impacts to less-than-significant levels on a project-by-project basis where feasible.

This analysis considers whether or not there would be a significant, adverse cumulative impact associated with Project in combination with past, present, existing, approved, pending and reasonably foreseeable future projects in the geographical area, and if so, whether or not the Project's incremental contribution to the cumulative impact would be considerable. Both conditions must apply in order for a project's cumulative effects to rise to the level of significance.

Impact Discussion

The proposed Project would result in a less-than-significant impact to the historic Club Knoll with implementation of Mitigation Measures CUL-1.1 through CUL 1-6. Similar mitigations would be required for other past, present, or reasonably foreseeable projects in the City of Oakland that would relocate and rehabilitate other historic resources, or specifically, other examples of historic, Spanish Colonial/Mission Revival style buildings like Club Knoll.

No other potential historical resources, as defined for purposes of assessing CEQA impacts, exist on the Project site. No change to historic resources are anticipated with the proposed Seneca School expansion adjacent to the Oak Knoll Project site. Other major cumulative developments include the recent Oakland Zoo Expansion Project, which has no recorded prehistoric or historic sites. Development under the Coliseum Area Specific Plan located approximately 3.0 miles from the Project site would involve demolition of the historic Coliseum Complex, a Local Register Property.

Additionally, all cumulative development would be subject to SCAs that address the potential impacts to archaeological resources, paleontological resources, human remains, as well as historic resources proposed for demolition: SCA CUL-1 (Archaeological and Paleontological Resources – Discovery During Construction), SCA CUL-2 (Archaeologically Sensitive Areas – Pre-Construction Measures), and SCA CUL-3 (Human Remains). Therefore, taken together, the proposed Project, combined with other cumulative development, would not combine to form a significant cumulative impact. The impact would be less than significant.

Impact Conclusion: Less than Significant with SCAs and Mitigation Measures.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact, New Mitigation Measures Identified.

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4.5 Geology and Soils

4.5.1 Introduction

This section assesses the potential for the Project to result in significant adverse impacts related to geology, soils, and mineral resources. To determine whether the proposed Project would result in any new impacts, or increases in the severity of impacts previously disclosed in the 1998 EIS/EIR, this analysis considers the impacts that would result from construction and operation activities that would take place within the Project site under current environmental and regulatory circumstances, and compares these impacts to those identified in the previous EIS/EIR, and mitigation measures in that document.

4.5.2 Setting

Regional Setting

The Project site and surroundings lie within the geologically complex region of California referred to as the Coast Range Geomorphic Province.1 The Coast Range province lies between the Pacific Ocean and the Great Valley (Sacramento and San Joaquin valleys) provinces and stretches from the Oregon border to the Santa Ynez Mountains near Santa Barbara. Much of the Coast Range province is composed of marine sedimentary deposits and volcanic rocks that form northwest trending mountain ridges and valleys, running subparallel to the San Andreas Fault Zone.

The relatively thick marine sediments dip east beneath the alluvium of the Great Valley. The Coast Ranges can be further divided into the northern and southern ranges, which are separated by the San Francisco Bay. The San Francisco Bay lies within a broad depression resulting from subsidence of the block between the San Andreas and the Hayward fault systems. West of the San Andreas Fault lies the Salinian Block, a granitic core that extends from the southern end of the province to north of the Farallon Islands.

Bedrock at the Project site is mapped predominantly as late Jurassic-age keratophyre and quartz keratophyre, (Jsv) a fine-grained volcanic rock (Graymer, 2000). Other bedrock mapped on-site includes late Jurassic and early Cretaceous Knoxville formation (KJk) along the eastern property line and in the southwestern portion of the site.

Project Setting

Geology

The Project site is located at elevations that range from a low of about 222 feet above mean sea level (msl) where Rifle Range Creek discharges from the site at Mountain Boulevard, to a high of about 665 feet above msl on the ridgeline adjacent to Keller Avenue. Most of the lowland site area has been affected by previous grading activity.

[1] A geomorphic province is an area that possesses similar bedrock, structure, history, and age. California has 11 geomorphic provinces.

The general subsurface stratigraphy encountered in the lowland area includes existing fills, alluvial deposits, and bedrock. The existing fills vary from 1 to 12 feet in thickness and are generally derived from on-site sources. The fills are low to highly expansive and underlain by 10 to 20 feet of alluvial deposits that are a heterogeneous mixture of silty clay, sandy silt, silty gravel and silty sand. Bedrock underlies the alluvium.

The general subsurface stratigraphy in the upland, hillside areas is residual soil over shallow bedrock, or colluvial filled swales and shallow landslides over bedrock. The residual soil cover on the hillside areas range from about 1 to 4 feet thick, is low to highly expansive, and was developed from weathering of the bedrock below. The colluvial and shallow landslide deposits on the hillside areas are located in topographic swales that have accumulated from eroded ridgelines and slopes. The encountered colluvium and landslide deposits are moderately to highly expansive, are 5 to 10 feet thick, and are underlain by bedrock.

Based on the findings of the exploratory field work, the bedrock materials consist primarily of keratophyre, and the rock encountered varied from friable to strong, highly fractured to crushed.

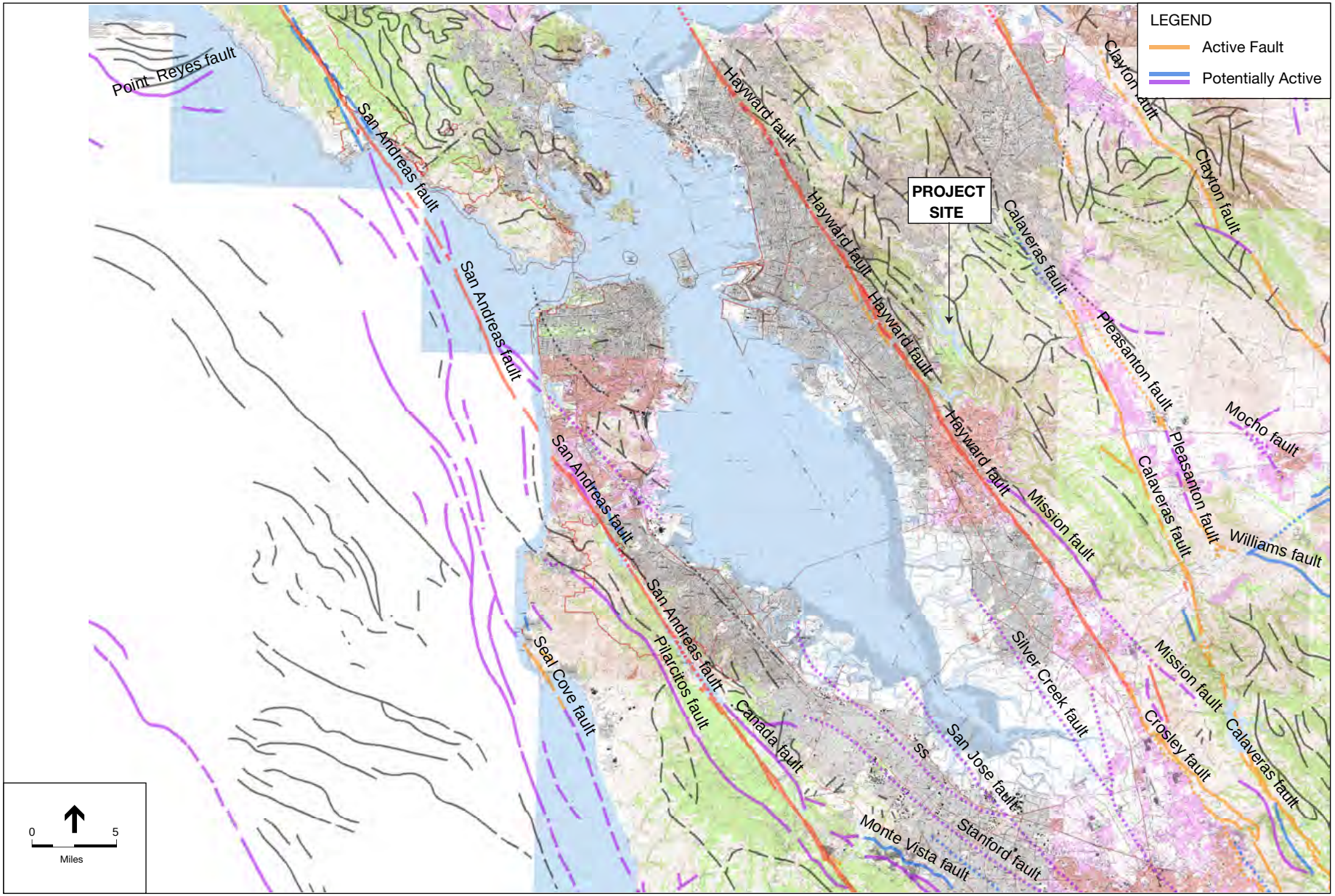
Fluctuations in groundwater levels occur seasonally and over a period of years. Groundwater has been encountered at depths ranging from approximately 1 to 43 feet below existing ground surface.

Faults and Seismicity

Earthquake magnitudes are most often measured by their Moment Magnitude (Mw), which is related to the physical characteristics of a fault including the rigidity of the rock, the size of fault rupture, and movement or displacement across a fault (CGS, 2002b). The Uniform California Earthquake Rupture Forecast (UCERF3, 2013) evaluated the 30-year probability of a Moment Magnitude 6.7 or greater earthquake occurring on the known active fault systems in the Bay Area. The UCERF3 generated an overall probability of 72 percent for the San Francisco Region as a whole, a probability of between 13 and 22 percent for the various subsections of the Hayward fault, 7 percent for the Calaveras fault, and 3 percent for the Concord-Green Valley fault.

The Project site is not located within a State of California Earthquake Fault Zone (CDMG, 1982) for known active faults.[2] The Project site is located between the active Hayward and Calaveras faults, as shown on **Figure 4.5-1**. **Table 4.5-1** lists the nearest active and potentially active faults, their classification and historical seismicity, and their Mw.

[2] An “active” fault is defined by the State of California as a fault that has had surface displacement within Holocene time (approximately the last 11,000 years). A “potentially active” fault is defined as a fault that has shown evidence of surface displacement during the Quaternary (last 1.6 million years), unless direct geologic evidence demonstrates inactivity for all of the Holocene or longer. This definition does not, of course, mean that faults lacking evidence of surface displacement are necessarily inactive. “Sufficiently active” is also used to describe a fault if there is some evidence that Holocene displacement occurred on one or more of its segments or branches (Hart, 2007).



SOURCE: Jennings, 2010

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Figure 4.5-1

Regional Fault Map

TABLE 4.5-1
ACTIVE FAULTS IN THE PROJECT SITE VICINITY

Fault	Location and Direction from Project Site	Recency of Movement	Fault Classification[a]	Historical Seismicity[b]	Maximum Moment Magnitude Earthquake (Mw)[c]
Mt. Diablo Thrust	6 miles east	Likely Holocene	Likely Active	Not Applicable	6.0
Concord-Green Valley	15 miles northeast	Historic (1955) Holocene	Active	Historic active creep	6.9
Calaveras (northern)	7 miles northeast	Historic (1861 rupture) Holocene	Active	M 5.6-M 6.4, 1861 M 4 to M 4.5 swarms 1970, 1990	6.8
Hayward	0.5 miles southwest	Pre-Historic (possible 1836; 1868 ruptures) Holocene	Active	M 6.8, 1868 Many <M 4.5	7.1
San Andreas	19 miles southwest	Historic (1906; 1989 ruptures)	Active	M 7.1, 1989 M 8.25, 1906 M 7.0, 1838 Many <M 6	7.9

[a] See footnote 2.
[b] Richter magnitude (M) and year for recent and/or large events. The Richter magnitude scale reflects the maximum amplitude of a particular type of seismic wave.
[c] Moment magnitude is related to the physical size of a fault rupture and movement across a fault. Moment magnitude provides a physically meaningful measure of the size of a faulting event (CGS 2002). The Maximum Moment Magnitude Earthquake (Mw), derived from the joint CGS/USGS Probabilistic Seismic Hazard Assessment for the State of California. (Peterson et al, 1996).

SOURCES: Jennings, 2010; Hart, 2007

The closest active fault to the site is the Hayward fault. The Hayward fault is one of the main branches of the San Andreas Fault and extends approximately 60 miles from San Jose along the East Bay Hills to Point Pinole (Lienkaemper, 2008). Although much of the area surrounding the fault system has experienced rapid urbanization over the last several decades, many geomorphic features indicative of strike-slip faulting can still be observed along the fault trace, such as, right-laterally offset drainages, shutter ridges, sag ponds and rift or hillside valleys.

The Hayward fault has been extensively studied and the active creeping trace is well defined in the site vicinity. The first regional maps of the Hayward fault were produced by Radbruch (1969) which included the possible location of the 27-mile long surface rupture associated with the 1868 earthquake. The Radbruch mapping included noted geomorphic features and compiled evidence of creep along the fault system.

In 2008, James Lienkaemper revisited Radbruch's (1969) mapping and produced a digitized database that summarizes recently active traces of the Hayward fault based on geomorphic expression, recent creep, and fault investigations. Lienkaemper similarly places the active trace outside the Project site. This nearest active trace is anticipated to show slip/displacement approximately 3 to 6 millimeters per year. Portions of the fault, well south of the Project site, show evidence of creep up to 10 millimeters per year as reported by Lienkaemper, 2008.

Figure 4.5-2 shows, in addition to these active faults, previously explored un-named faults that had been mapped crossing the northeastern border of the site during previous investigations (Radbruch (1969), Crane (1988), Graymer (1995), and Dibblee (2005) (as cited in ENGEO, 2015). None of these faults are considered active and previous exploratory trenches found no zones of shearing or other indications of faulting (ENGEO, 2015).

One of the mapped faults, known as the Chabot fault, crosses a relatively small area near the eastern edge of the site. The Chabot fault represents a bedrock discontinuity that juxtaposes rocks of the Franciscan complex and lower portions of the Great Valley sequence against Late Cretaceous and Tertiary bedrock units. As discussed previously the Chabot fault is not considered active and is not included on the State of California Earthquake Fault Zone map for known active faults (Hart, 2007). A nearby study of the seismic stability of the EBMUD South Reservoir performed by ESA Consultants and William Lettis and Associates in 1996, concluded that the Chabot fault has not moved within the past 35,000 years (ENGEO, 2015).

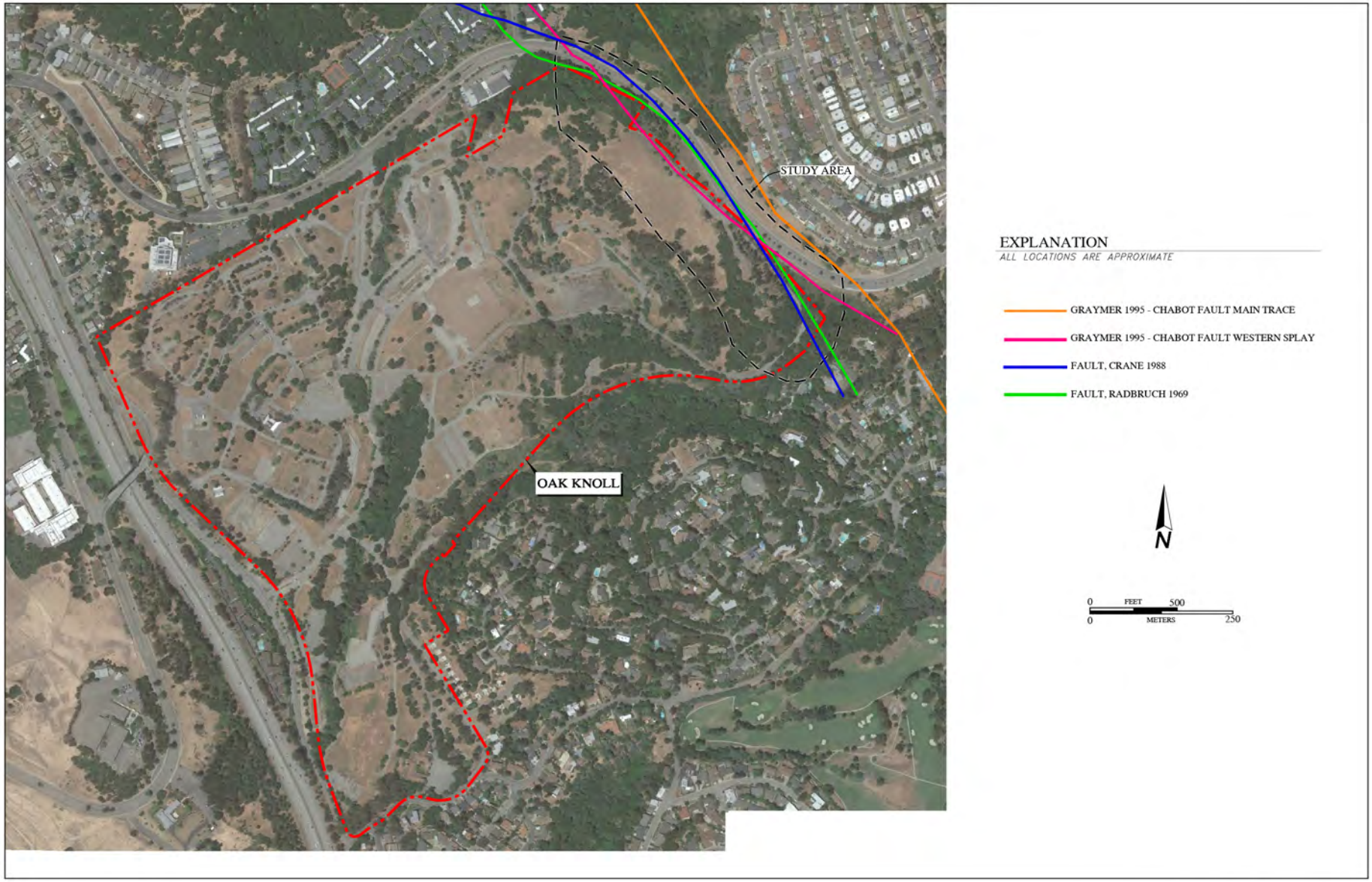
According to the most recent fault exploration study performed at the Project site, the fault mapped across the eastern portion of the site is not considered active and may actually represent a depositional contact as opposed to being representative of fault movement (ENGEO, 2015).

Ground movement during an earthquake can vary depending on the overall magnitude, distance to the fault, focus of earthquake energy, and type of geologic material. The composition of underlying soils, even those relatively distant from faults, can intensify ground shaking. Areas that are underlain by bedrock tend to experience less ground shaking than those underlain by unconsolidated sediments such as artificial fill. For this reason, earthquake intensities are also measured in terms of their observed effects at a given locality. The Modified Mercalli (MM) intensity scale (see **Table 4.5-2**) is commonly used to measure earthquake damage due to ground shaking. The MM values for intensity range from I (earthquake not felt) to XII (damage nearly total), and intensities ranging from IV to X could cause moderate to significant structural damage.[3] The intensities of an earthquake will vary over the region of a fault and generally decrease with distance from the epicenter of the earthquake.

Seismic Hazards

Seismic hazards include ground shaking, liquefaction, lateral spreading, differential settlement, landsliding, and inundation by encroaching waves (tsunami and seiches). There are no known active faults that intersect the Project site or immediate vicinity; therefore, fault rupture is not considered a potential geologic hazard capable of causing damage to proposed improvements.

[3] The damage level represents the estimated overall level of damage that will occur for various MM intensity levels. The damage, however, will not be uniform. Not all buildings perform identically in an earthquake. The age, material, type, method of construction, size, and shape of a building all affect its performance.



SOURCE: ENGEO, 2015

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Figure 4.5-2

Previously Identified Inactive Faults Map

TABLE 4.5-2
MODIFIED MERCALLI INTENSITY SCALE

Intensity Value	Intensity Description	Average Peak Ground Acceleration[a]
I	Not felt except by a very few persons under especially favorable circumstances.	< 0.0017 g
II	Felt only by a few persons at rest, especially on upper floors on buildings. Delicately suspended objects may swing.	0.0017–0.014 g
III	Felt noticeably indoors, especially on upper floors of buildings, but many people do not recognize it as an earthquake. Standing motor cars may rock slightly, vibration similar to a passing truck. Duration estimated.	0.0017–0.014 g
IV	During the day felt indoors by many, outdoors by few. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.	0.014–0.039 g
V	Felt by nearly everyone, many awakened. Some dishes and windows broken; a few instances of cracked plaster; unstable objects overturned. Disturbances of trees, poles may be noticed. Pendulum clocks may stop.	0.035–0.092 g
VI	Felt by all, many frightened and run outdoors. Some heavy furniture moved; and fallen plaster or damaged chimneys. Damage slight.	0.092–0.18 g
VII	Everybody runs outdoors. Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable in poorly built or badly designed structures; some chimneys broken. Noticed by persons driving motor cars.	0.18–0.34 g
VIII	Damage slight in specially designed structures; considerable in ordinary substantial buildings, with partial collapse; great in poorly built structures. Panel walls thrown out of frame structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned. Sand and mud ejected in small amounts. Changes in well water. Persons driving motor cars disturbed.	0.34–0.65 g
IX	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb; great in substantial buildings, with partial collapse. Buildings shifted off foundations. Ground cracked conspicuously. Underground pipes broken.	0.65–1.24 g
X	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations; ground badly cracked. Rails bent. Landslides considerable from riverbanks and steep slopes. Shifted sand and mud. Water splashed (slopped) over banks.	> 1.24 g
XI	Few, if any, (masonry) structures remain standing. Bridges destroyed. Broad fissures in ground. Underground pipelines completely out of service. Earth slumps and land slips in soft ground. Rails bent greatly.	> 1.24 g
XII	Damage total. Practically all works of construction are damaged greatly or destroyed. Waves seen on ground surface. Lines of sight and level are distorted. Objects are thrown upward into the air.	> 1.24 g

[a] Value is expressed as a fraction of the acceleration due to gravity (g). Gravity (g) is 9.8 meters per second squared. 1.0 g of acceleration is a rate of increase in speed equivalent to a car traveling 328 feet from rest in 4.5 seconds.

SOURCE: ABAG, 2003; CGS, 2003

Ground Shaking

Strong ground shaking from earthquakes generated by active faults in the Bay Area is a significant hazard to the Project. During the life of the Project, the proposed improvements are likely to be subjected to at least one moderate to severe earthquake that would cause strong ground shaking.

The severity of ground shaking at the site resulting from a specific earthquake would depend on the characteristics of the generating fault, distance to the energy source, the magnitude of the event, and the site-specific geologic conditions. According to the 2013 California Building Code (CBC), the mapped Maximum Considered Earthquake Geometric Mean (MCEG) Peak Ground Acceleration (PGA)[4] for the Project site is 0.95g. The maps[5] provided in the 2013 CBC were developed by the United States Geological Survey (USGS) and takes into consideration the uncertainties in the size and location of earthquakes and the resulting ground motions that can affect a particular site. By comparison, the maximum ground accelerations recorded in San Francisco and Oakland during the 1989 moment magnitude 6.9 Loma Prieta earthquake were approximately 0.3 g. However, the recording sites were located over 50 miles from the earthquake epicenter. Ground accelerations within the Loma Prieta epicenter region were 0.7 g (CGS, 1990).

Liquefaction

Liquefaction is the sudden temporary loss of shear strength in saturated, loose to medium-density granular sediments subjected to ground shaking. It generally occurs when seismically-induced ground shaking causes the pressure of the water between the granules to increase to a point equal to the pressure of the soil overburden. When this occurs, the soil can move like a fluid, hence the term liquefaction. Liquefaction can cause foundation failure of buildings and other facilities due to the reduction of foundation bearing strength. The broad valley along Rifle Range Creek is mapped as a State of California Seismic Hazard Zone (2003) for areas that may be susceptible to liquefaction. Given the limited cover overlying the potential liquefaction layer, there appears to be a relatively high risk that ground cracking, sand boils and lateral spreading could occur in conjunction with this liquefaction along the creek banks.

[4] Ground accelerations are expressed in terms of *g*, which is equal to the acceleration of gravity, or approximately 32.2 feet per second squared. An object that accelerates at 1 *g* for one second will reach a speed of 32.2 feet per second and cover a distance of 16.1 feet.

[5] The maps are typically expressed in terms of probability of exceeding a certain ground motion. For example, the maps showing 10 percent probability of exceedance in 50 years depict an annual probability of one in 475 of being exceeded each year. This level of ground shaking has been used for designing buildings in high seismic areas. These maps show ground motions that geologists and seismologists do not think would be exceeded in the next 50 years; in fact, there is a 90 percent chance that these ground motions would not be exceeded. This probability level allows engineers to design buildings for larger ground motions than geologists and seismologists think would occur during a 50-year interval, which makes buildings safer than if they were only designed for the ground motions that are expected to occur in the next 50 years. Seismic shaking maps are prepared using consensus information on historical earthquakes and faults. These levels of ground shaking are used primarily for formulating building codes and for designing buildings. The maps can also be used for estimating potential economic losses and preparing for emergency response (Peterson et al., 1996).

Differential Settlement

Earthquake shaking can produce compaction and densification of dry, uniformly graded, granular, and loose alluvial soil material. The amount of compaction across an area can vary due to differences in soil types, producing differential settlement. Existing fill may also be susceptible to differential settlement. Preliminary geotechnical information indicates that due to the density and alluvial nature of the soils observed during the investigation in the lowland area, the underlying materials at the Project site could result in earthquake-induced settlement and differential settlement (ENGEO, 2006b).

Other Geologic Hazards

Expansive Soil

Expansive soils exhibit a "shrink-swell" behavior. Shrink-swell is the cyclic change in volume (expansion and contraction) that occurs in fine-grained clay sediments from the process of wetting and drying. Structural damage may result over an extended period of time, usually as the result of inadequate soil and foundation engineering or the placement of structures directly on expansive soils. Typically, soils that exhibit expansive characteristics comprise the upper five feet of the surface. The effects of expansive soils could damage foundations of above-ground structures, paved roads and streets, and concrete slabs. Expansion and contraction of soils, depending on the season and the amount of surface water infiltration, could exert enough pressure on structures to result in cracking, settlement, and uplift. According to the geotechnical investigation performed at the Project site, the underlying soils at the site have a low to high expansion potential for expansion (ENGEO, 2006b).

Soil Erosion

Soil erosion is the process whereby soil materials are worn away and transported to another area by placement, and human activity. Excessive soil erosion can eventually lead to damage of building foundations and other improvements. Erosion is most likely on sloped areas with exposed soil, especially when unnatural slopes are created by cut and fill activities. Soil erosion rates can therefore be higher during the construction phase. Typically, the soil erosion potential during construction is reduced by using modern construction practices, and once an area is graded and covered with concrete, structures, asphalt, or vegetation, the soil erosion potential is nearly eliminated.

Landslides

Landslides are dependent on the slope and geology of an area as well as the amount of rainfall, excavation, and seismic activity. A landslide or slope failure is a mass of rock, soil, and debris displaced downslope by sliding, flowing, or falling. Steep slopes and downslope creep of surface materials characterize landslide-susceptible areas.

Steeper slopes in the northeastern portion of the site are located within State of California Seismic Hazard Zones for areas that may be susceptible to seismically induced landsliding. Seismically induced landslides are triggered by earthquake ground shaking. The risk of this hazard is generally greatest in the late winter when groundwater levels are highest and surficial soils are

saturated. As with all slopes in the region, this risk is also present at the site to varying degrees depending on the slope conditions and time of year. The hazard of seismically induced landslides can be mitigated by removal or stabilization of existing landslide debris, design of properly engineered cut and fill slopes or creation of sufficient buffers between the identified landslide areas and development areas. The stability of proposed cut and fill slopes will be specifically evaluated during design-level studies. Stabilization measures or setbacks from the identified landslide areas will also be evaluated on cases by case basis. (ENGEO, 2006b)

Mineral Resources

The California Geological Survey (CGS) has classified lands within the San Francisco Bay Region into Mineral Resource Zones (MRZs). The classification of MRZs is based on guidelines adopted by the California State Mining and Geology Board, as mandated by the Surface Mining and Reclamation Act (SMARA) of 1975 (Stinson et al., 1982). The different classifications are described more fully below:

- **MRZ-1**—Areas where adequate geologic information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence. This zone is applied where well developed lines of reasoning, based on economic-geologic principles and adequate data, indicate that the likelihood for occurrence of significant mineral deposits is nil or slight.

- **MRZ-2a**—Areas underlain by mineral deposits where geologic data show that significant measured or indicated resources are present. As shown on the diagram of the California Mineral Land Classification System, MRZ-2 is divided on the basis of both degree of knowledge and economic factors. Areas classified MRZ-2a contain discovered mineral deposits that are either measured or indicated reserves as determined by such evidence as drilling records, sample analysis, surface exposure, and mine information. Land included in the MRZ- 2a category is of prime importance because it contains known economic mineral deposits. A typical MRZ-2a area would include an operating mine, or an area where extensive sampling indicates the presence of a significant mineral deposit.

- **MRZ-2b**—Areas underlain by mineral deposits where geologic information indicates that significant inferred resources are present. Areas classified MRZ-2b contain discovered deposits that are either inferred reserves or deposits that are presently sub-economic as determined by limited sample analysis, exposure, and past mining history. Further exploration work and/or changes in technology or economics could result in upgrading areas classified MRZ-2b to MRZ-2a. A typical MRZ-2b area would include sites where there are good geologic reasons to believe that an extension of an operating mine exists or where there is an exposure of mineralization of economic importance.

- **MRZ-3a**—Areas containing known mineral deposit that may qualify as mineral resources. Further exploration work within these areas could result in the reclassification of specific localities into the MRZ-2a or MRZ-2b categories. MRZ- 3a areas are considered to have a moderate potential for the discovery of economic mineral deposits. As shown on the diagram of the California Mineral Land Classification System, MRZ-3 is divided on the basis of knowledge of economic characteristics of the resources. An example of a MRZ-3a area would be where there is direct evidence of a surface exposure of a geologic unit, such as a limestone body, known to be or to contain a mineral resource elsewhere but has not been sampled or tested at the current location.

- **MRZ-3b**—Areas containing inferred mineral deposits that may qualify as mineral resources. Land classified MRZ- 3b represents areas in geologic settings which appear to be favorable environments for the occurrence of specific mineral deposits. Further exploration work could result in the reclassification of all or part of these areas into the MRZ-3a category or specific localities into the MRZ-2a or MRZ-2b categories.

  MRZ-3b is applied to land where geologic evidence leads to the conclusion that it is plausible that economic mineral deposits are present. An example of a MRZ-3b area would be where there is indirect evidence such as a geophysical or geochemical anomaly along a permissible structure which indicates the possible presence of a mineral deposit or that an ore-forming process was operative.

- **MRZ-4**—Areas where geologic information does not rule out either the presence or absence of mineral resources. The distinction between the MRZ-1 and MRZ-4 categories is important for land-use considerations. It must be emphasized that MRZ-4 classification does not imply that there is little likelihood for the presence of mineral resources, but rather there is a lack of knowledge regarding mineral occurrence. Further exploration work could well result in the reclassification of land in MRZ-4 areas to MRZ-3 or MRZ-2 categories.

The analysis conducted for this Project (specifically to determine whether any new information of substantial importance or substantial change in circumstances exists that would result in a new significant effect) indicates that the California Geological Survey has classified the Project site area within different Mineral Resource Zones (as mandated by the Surface Mining and Reclamation Act [SMARA] of 1974). Approximately one-third of the Project site (the developed, northwest portion) is mapped as zone MRZ-2(a). Designation "MRZ-2" is defined as an area where adequate information indicates that significant mineral resources are present, or where it is judged that a high likelihood for their presence exists (Stinson, et al., 1982). The additional designation, "(a)", refers to a specific deposit of Leona Rhyolite that covers a very large area extending from the Project site to Peralta Creek in the Berkeley Hills. Numerous quarries have mined this deposit dating back to the beginning of the 20th century, most recently by Gallagher & Burke, Inc. which has recently ceased operations at Leona Quarry.

Other areas of the Project site are mapped as MRZ-3(a) and MRZ-4. The MRZ-3(a) zone maps small deposits of Leona Rhyolite that individually lack sufficient material to meet suggested threshold values as estimated by the California Geological Survey. An MRZ-4 zone is an area where available information is inadequate for assignment to any other MRZ zone.

Regulatory Setting

Federal Regulations

Earthquake Hazards Reduction Act

The Earthquake Hazards Reduction Act was enacted in 1997 to "reduce the risks to life and property from future earthquakes in the United States through the establishment and maintenance of an effective earthquake hazards and reduction program." To accomplish this, the Act established the National Earthquake Hazards Reduction Program (NEHRP). This program was significantly amended in November 1990 to refine the description of agency responsibilities, program goals, and objectives.

NEHRP's mission includes improved understanding, characterization, and prediction of hazards and vulnerabilities; improvement of building codes and land use practices; risk reduction through post-earthquake investigations and education; development and improvement of design and construction techniques; improvement of mitigation capacity; and accelerated application of research results. The NEHRP designates the Federal Emergency Management Agency (FEMA) as the lead agency of the program and assigns it with several planning, coordinating, and reporting responsibilities. Programs under NEHRP help inform and guide planning and building code requirements such as emergency evacuation responsibilities and seismic code standards.

Occupational Safety and Health Administration Regulations

Excavation and trenching are among the most hazardous construction activities. The Occupational Safety and Health Administration's (OSHA's) Excavation and Trenching standard, Title 29 of the Code of Federal Regulations (CFR), Part 1926.650, covers requirements for excavation and trenching operations. OSHA requires that all excavations in which employees could potentially be exposed to cave-ins be protected by sloping or benching the sides of the excavation, supporting the sides of the excavation, or placing a shield between the side of the excavation and the work area.

State Regulations

California Building Code

The California Building Code (CBC) has been codified in the California Code of Regulations (CCR) as Title 24, Part 2. Title 24 is administered by the California Building Standards Commission, which by law, is responsible for coordinating all building standards. Under State law, all building standards must be centralized in Title 24 or they are not enforceable. The purpose of the CBC is to establish minimum standards to safeguard the public health, safety, and general welfare through structural strength, means of egress facilities, and general stability by regulating and controlling the design, construction, quality of materials, use and occupancy, location, and maintenance of all building and structures within its jurisdiction. The 2013 CBC is based on the 2012 International Building Code (IBC) published by the International Code Conference. In addition, the CBC contains necessary California amendments, which are based on reference standards obtained from various technical committees and organizations such as the American Society of Civil Engineers (ASCE), the American Institute of Steel Construction (AISC), and the American Concrete Institute (ACI). ASCE Minimum Design Standards 7-05 provides requirements for general structural design and includes means for determining earthquake loads as well as other loads (e.g., flood, snow, wind) for inclusion into building codes. The provisions of the CBC apply to the construction, alteration, movement, replacement, and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout California.

The earthquake design requirements take into account the occupancy category of the structure, site class, soil classifications, and various seismic coefficients, which are used to determine a Seismic Design Category (SDC) for a Project as described in Chapter 16 of the CBC. The SDC is a classification system that combines the occupancy categories with the level of expected ground motions at the site and ranges from SDC A (very small seismic vulnerability) to SDC E (very

high seismic vulnerability and near a major fault). Design specifications are then determined according to the SDC in accordance with Chapter 16 of the CBC. Chapter 16, Section 1613 provides earthquake loading specifications for every structure, and portion thereof, including nonstructural components that are permanently attached to structures and their supports and attachments, which shall be designed and constructed to resist the effects of earthquake motions in accordance with ASCE 7-05.

Chapter 18 of the CBC covers the requirements of geotechnical investigations (Section 1803), excavation, grading, and fills (Section 1804), load bearing of soils (1805), foundations (Section 1808), shallow foundations (Section 1809), and deep foundations (Section 1810). Chapter 18 also describes analysis of expansive soils and the determination of the depth to groundwater table. For Seismic Design Categories D, E, and F, Chapter 18 requires analysis of slope instability, liquefaction, and surface rupture attributable to faulting or lateral spreading, plus an evaluation of lateral pressures on basement and retaining walls, liquefaction and soil strength loss, and lateral movement or reduction in foundation soil-bearing capacity. It also addresses mitigation measures to be considered in structural design, which may include ground stabilization, selecting appropriate foundation type and depths, selecting appropriate structural systems to accommodate anticipated displacements, or any combination of these measures. The potential for liquefaction and soil strength loss must be evaluated for site-specific peak ground acceleration magnitudes and source characteristics consistent with the design earthquake ground motions.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act was developed to protect the public from the effects of strong ground shaking, liquefaction, landslides, or other ground failure, and from other hazards caused by earthquakes. This act requires the State Geologist to delineate various seismic hazard zones and requires cities, counties, and other local permitting agencies to regulate certain development projects within these zones. Before a development permit may be granted for a site within a Seismic Hazard Zone, a geotechnical investigation of the site must be conducted and appropriate mitigation measures incorporated into the project design. The Project site is located within a Seismic Hazard Zone for liquefaction, as designated by the California Geological Survey. Therefore, evaluation and mitigation of potential liquefaction hazards must be conducted in accordance with the California Geological Survey, Special Publication 117, adopted March 13, 1997 and revised in 2008 (and renamed as Special Publication 117A) by the State Mining and Geology Board pursuant to the Seismic Hazards Mapping Act.

Local Regulations

City of Oakland General Plan

The Safety Element of the City of Oakland General Plan enumerates the following policies and actions designed to reduce risks associated with earthquakes that may affect the City of Oakland:

- ***Geologic Hazards, Policy GE-1*:** Develop and continue to enforce and carry out regulations and programs to reduce seismic hazards and hazards from seismically triggered phenomena.

Action GE-1.2: Enact regulations requiring the preparation of site-specific geologic or geotechnical reports for development proposals in areas subject to earthquake-induced liquefaction, settlement or severe ground shaking, and conditioning project approval on the incorporation of necessary mitigation measures.

- ***Geologic Hazards, Policy GE-2:*** Continue to enforce ordinances and implement programs that seek specifically to reduce the landslide and erosion hazards.

  Action GE-2.1: Continue to enforce provisions under the subdivision ordinance requiring that, under certain conditions, geotechnical reports be filed and soil hazards investigations be made to prevent grading from creating unstable slopes, and that any necessary corrective actions be taken.

  Action GE-2.2: Continue to enforce the grading, erosion and sedimentation ordinance by requiring, under certain conditions, grading permits and plans to control erosion and sedimentation.

  Action GE-2.6: Design fire-preventive vegetation-management techniques and practices for creeksides and high-slope areas that do not contribute to the landslide and erosion hazard.

- ***Geologic Hazards, Policy GE-3:*** Continue, enhance or develop regulations and programs designed to minimize seismically related structural hazards from new and existing buildings.

  Action GE-3.1: Adopt and amend as needed updated versions of the California building code so that optimal earthquake-protection standards are used in construction and renovation projects.

  Action GE-3.2: Continue to enforce the unreinforced masonry ordinance to require that potentially hazardous unreinforced masonry buildings be retrofitted or be otherwise made to reduce the risk of death and injury from their collapse during an earthquake.

  Action GE-3.3: Continue to enforce the earthquake-damaged structures ordinance to ensure that buildings damaged by earthquakes are repaired to the extent practicable.

- ***Geologic Hazards, Policy GE-4*:** Work to reduce potential damage from earthquakes to "lifeline" utility and transportation systems.

  Action GE-4.2: As knowledge about the mitigation of geologic hazards increases, encourage public and private utility providers to develop additional measures to further strengthen utility systems against damage from earthquakes, and review and comment on proposed mitigation measures.

The Open Space, Conservation, and Recreation Element of the City of Oakland General Plan include the following objectives, policies and actions designed to reduce risks associated with development on unstable parcels that may affect the City of Oakland:

- ***Open Space Element, Policy OS-1.3***: Development of hillside sites.

  Action OS-1.3.5: Conservation of Unstable Parcels. Use building code and environmental review requirements to ensure that development of hillside parcels

will be structurally sound, that infrastructure will be provided, and that adequate access will be available.

Conservation Element, Objective CO-2: Land Stability. To minimize safety hazards, environmental impacts, and aesthetics impacts associated with development on hillsides and in seismic high-risk areas.

- ***Conservation Element Policy CO-2.2***: Unstable Geologic Features

  Action CO-2.2.1: Geo-Technical Study Requirements. Maintain Standard Operating Procedures in the Office of Planning and Building which require geo-technical studies for major developments in areas with moderate to high groundshaking or liquefaction potential, or other geologically unstable features.

City of Oakland Municipal Code

The Safety Element of the City of Oakland's General Plan identifies policies and actions that apply to geologic hazards. The City implements these pertinent sections of the General Plan by enforcing the ordinances described. Among these are ordinances to minimize soil hazards, reduce soil erosion and protect stream quality, prevent grading from creating unstable slopes, abate unreinforced masonry building hazards, and mitigate fault rupture hazards.

***Subdivision Ordinance (incorporated in Chapter 16.20.060 of the Oakland Municipal Code*)**: Requires that the subdivider file a preliminary soil report with the City Engineer prior to the submission of a final subdivision map. The preliminary soil report must describe (1) how slopes will be kept stable against sliding and excessive erosion, and (2) if critically expansive soils are present or if other hazardous or problematic soil characteristics are present and what measures can be taken to avoid these hazards or problems. This preliminary soil report may be waived if the Building Inspector and City Engineer both agree that no preliminary analysis is necessary (Ordinance 11924, Section 4).

***Subdivision Ordinance (Chapter 16.20.080)*:** If the preliminary report indicates the presence of critically expansive soils, instability of slopes, or other soil problems which would lead to structural damage, a soil investigation of each lot in the subdivision shall be made by a civil engineer who is registered by the state of California. The soil investigation shall be made after grading, and a report shall be submitted recommending corrective action which is likely to prevent structural damage to each structure proposed to be constructed in the subdivision. Copies of the report shall be filed with the Building Inspector and the Street Engineering Department. The information contained in the report of the soils investigation may be included in the certificate respecting the grading work.

Grading Ordinance (Chapter 15.04.660): The Grading Ordinance requires a permit for grading activities on private or public property for projects that exceed certain criteria, such as amount of proposed excavation and degree of site slope. During project construction, the volume of the excavated fill material could exceed 50 cubic yards and could result in a 20 percent slope onsite, or the depth of excavation could exceed five feet at any location. Therefore, the project sponsor would be required to apply for the grading permit and prepare a grading plan, erosion and sedimentation control plan, and drainage plan.

***Creek Protection, Stormwater Management, and Discharge Control Ordinance (Chapter 13.16)*:** This ordinance prohibits activities that would result in the discharge of pollutants to Oakland's waterways or in damage to creeks, creek functions, or habitat. The

ordinance requires the use of standard BMPs to prevent pollution or erosion to creeks and/or storm drains. Additionally, a creek protection permit is required for any construction work on creekside properties. The ordinance establishes comprehensive guidelines for the regulation of discharges to the city's storm drain system and the protection of surface water quality. The ordinance identifies BMPs and other protective measures for development projects. Under the ordinance, the City of Oakland Public Works Agency issues permits for storm drainage facilities that would be connected to existing city drainage facilities. In 1997, the ordinance was amended to include the requirement for a creek protection permit for any construction or related activity on creekside property. The ordinance includes enforcement provisions to provide more effective methods to deter and reduce the discharge of pollutants to the storm drain system, local creeks, and San Francisco Bay. The provisions also list clear guidelines for creekside residents to protect the creek and habitat.

Building Services Division

In addition to compliance with building standards set forth by the 2009 IBC and 2010 CBC, a project applicant would be required to submit to the Oakland Building Services Division an engineering analysis accompanied by detailed engineering drawings for review and approval prior to excavation, grading, or construction activities on a project site. Specifically, an engineering analysis report and drawings of relevant grading or construction activities on a project site would be required to address constraints and incorporate recommendations identified in geotechnical investigations. These required submittals and City reviews ensure that the buildings are designed and constructed in conformance with the seismic and other requirements of all applicable building code regulations, pursuant to standard City of Oakland procedures.

City of Oakland Standard Conditions of Approval and Uniformly Applied Development Standards Imposed as Standard Conditions of Approval

The Standard Conditions of Approval (SCAs) relevant to the Project's impacts related to geology, soils, and minerals are presented below. If the Project is approved by the City, all applicable SCAs would be adopted as conditions of approval and required, as applicable, to be implemented during project construction and operation to address impacts related to geology, soils and minerals. The SCAs are incorporated and required as part of the Project, so they are not listed as mitigation measures.

- **SCA GEO-1: Soils Report.** *Prior to approval of construction-related permit.* The project applicant shall submit a soils report prepared by a registered geotechnical engineer for City review and approval. The soils report shall contain, at a minimum, field test results and observations regarding the nature, distribution and strength of existing soils, and recommendations for appropriate grading practices and project design. The project applicant shall implement the recommendations contained in the approved report during project design and construction.

  When Required: Prior to approval of construction-related permit

  Initial Approval: Bureau of Building

  Monitoring/Inspection: Bureau of Building

- **SCA GEO-2: Seismic Hazards Zone (Landslide/Liquefaction).** *Prior to approval of construction-related permit.* The project applicant shall submit a site-specific geotechnical report, consistent with California Geological Survey Special Publication 117 (as amended), prepared by a registered geotechnical engineer for City review and approval containing at a minimum a description of the geological and geotechnical conditions at the site, an evaluation of site-specific seismic hazards based on geological and geotechnical conditions, and recommended measures to reduce potential impacts related to liquefaction and/or slope stability hazards. The project applicant shall implement the recommendations contained in the approved report during project design and construction.

  When Required: Prior to approval of construction-related permit

  Initial Approval: Bureau of Building

  Monitoring/Inspection: Bureau of Building

- **SCA GEO-3: Construction-Related Permit(s).** *Prior to approval of construction-related permit.* The project applicant shall obtain all required construction-related permits/approvals from the City. The project shall comply with all standards, requirements and conditions contained in construction-related codes, including but not limited to the Oakland Building Code and the Oakland Grading Regulations, to ensure structural integrity and safe construction.

  When Required: Prior to approval of construction-related permit

  Initial Approval: Bureau of Building

  Monitoring/Inspection: Bureau of Building

- **SCA GEO-4: Oakland Area Geologic Hazard Abatement District (GHAD).** *Ongoing as specified in the condition.* Prior to approval of the final map or issuance of a building permit (whichever occurs first), the project applicant shall provide to the City 1) all required resolutions from the GHAD and City Council showing that the project property has been annexed into the GHAD, and 2) a statement from the GHAD Manager stating that an adequate funding mechanism is in place to fund the GHAD operations for the annexed property. To begin the annexation process, the project applicant shall submit a petition for annexation to the GHAD Manager which shall include but is not limited to a proposed Plan of Control as defined in Public Resource Code Section 26509, specifying all anticipated operations and maintenance responsibilities of the GHAD for the annexed property. The project applicant will be required to pay to the GHAD costs and fees associated with the annexation request, which includes the preparation and review of all necessary documents and resolutions by the GHAD Manager and/or GHAD Attorney. The GHAD Manager may require the project applicant to provide initial funding to allow the GHAD to operate with respect to the annexed property during the time a secure and stable financing source is obtained to ultimately fund the long term operations of the GHAD for the annexed property. If a real property assessment is proposed as a financing mechanism, the project applicant shall prepare an engineer's report identifying the projected costs and budget for GHAD operations for the annexed property and comply with all assessment voting requirements and other requirements in Proposition 218. If annexation is not approved by the GHAD and/or City Council, the project applicant shall demonstrate to the City's satisfaction that 1) another entity will and has assumed the responsibilities proposed for the GHAD ("Other Responsible Entity") and 2) there is an adequate financing mechanism in place to carry out those responsibilities.

The project applicant shall defend, hold harmless, and indemnify the GHAD, its officers, and agents against any and all liability, damages, claims, demands, judgments, losses, or other forms of legal or equitable relief relating to the GHAD annexation process and the securing/approval of funding sources by the GHAD and in the case of the City Council members, actions taken by said members while acting as the GHAD Board of Directors.

The project applicant shall request the GHAD or Other Responsible Entity to defend, hold harmless, and indemnify the Indemnified Parties (as defined in these Conditions of Approval) and their insurers against any and all liability, damages, claims, demands, judgments, losses, or other forms of legal or equitable relief related to the responsibilities and operation of the GHAD or Other Responsible Entity (including, without limitation, maintenance of GHAD/Other Responsibility Entity owned property) relating to the annexed property ("Indemnified Geologic Claims") and in the case of the City Council members, actions taken by said members while acting as the GHAD Board of Directors. This indemnity shall include, without limitation, payment of litigation expenses relating to the qualified Indemnified Geologic Claims. The Indemnified Parties shall take all reasonable steps to promptly notify the GHAD/Other Responsible Entity of any claim, demand, or legal actions that may create a claim for indemnification under this condition of approval. Within 90 days of the annexation to the GHAD or acceptance by the Other Responsible Entity, the applicant shall request the GHAD or Other Responsible Entity to enter into an Indemnification Agreement to establish in more specific detail the terms and conditions of the indemnification obligations set forth herein. The parties acknowledge that the GHAD can only provide indemnification as allowed by law. Any failure of any party to timely execute such Indemnification Agreement shall not be construed to limit any right or obligation otherwise specified in these Conditions of Approval.

When Required: Ongoing as specified in the condition

Initial Approval: Bureau of Planning

Monitoring/Inspection: Bureau of Planning

4.5.3 Discussion of Impacts

Significance Criteria

The City of Oakland has established thresholds of significance for CEQA impacts (City of Oakland, 2013). Per the City's thresholds, the proposed Project would cause significant adverse impacts related to geology, soils, and mineral resources if it would expose people or structures to geologic hazards, soils, and/or seismic conditions so unfavorable that they could not be overcome by special design using reasonable construction and maintenance practices – specifically, if the Project would:

a) Expose people or structures to substantial risk of loss, injury, or death involving:

1) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map or Seismic Hazards Map issued by the State Geologist for the area or based on other substantial evidence of a known fault [**NOTE**: Refer to California Geological Survey 42 and 117 and Public Resources Code section 2690 et. seq.];

2) Strong seismic ground shaking;

3) Seismic-related ground failure, including liquefaction, lateral spreading, subsidence, collapse; or

4) Landslides;

b) Result in substantial soil erosion or loss of topsoil, creating substantial risks to life, property, or creeks/waterways;

c) Be located on expansive soil, as defined in section 1802.3.2 of the California Building Code (2013, as it may be revised), creating substantial risks to life or property;

d) Be located above a well, pit, swamp, mound, tank vault, or unmarked sewer line, creating substantial risks to life or property;

e) Be located above landfills for which there is no approved closure and post-closure plan, or unknown fill soils, creating substantial risks to life or property ; or

f) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.

In addition, the Project would cause significant adverse impacts related to mineral resources if it would:

g) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state; or

h) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.

Impacts Not Further Evaluated

The following discusses of each topic for which there would be no geology, soils, or mineral resources associated with that above criteria for the reasons stated below.

The Project would not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving (Criterion a.1).

1. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault. Refer to Division of Mines and Geology Special Publication 42.

The 1998 EIS/EIR did not analyze the potential for the Maximum Capacity Alternative to result in a significant impact regarding exposure to seismic fault rupture. The 1998 analysis identified that the nearest active fault trace to the Project site was the Hayward fault approximately 1.5 miles to the west. According to the more recent geotechnical evaluation, the distance has been stated closer to ½ mile from the Hayward fault (ENGEO, 2015). The 1998 analysis discussed the effect of the Maximum Capacity Alternative on the likelihood of earthquakes to occur (which is not a significance criterion under the CEQA Guidelines), and concluded that there would be no impact.

The proposed Project site and immediate vicinity is not intersected by an active fault zone as delineated under the Alquist-Priolo Earthquake Zoning Act (Hart, 2007). A recent geotechnical investigation on the fault segments identified during past investigations concluded that the mapped segments show no indication of fault movement and may be considered to represent depositional transitions rather than fault displacements (ENGEO, 2015). As a result no fault setback zone would be required.

The Project site does not have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater (Criterion f).

The 1998 EIS/EIR did not discuss the capability of soils on the site to support alternative wastewater disposal systems. The Maximum Capacity Alternative did not propose the installation of a septic or alternative wastewater system. No impact or mitigation measure was identified. The proposed Project also does not include the installation of a septic or alternative wastewater system. Therefore, there would be no impact related to the ability for the site soils to accommodate such a system. Therefore there is no impact.

The Project would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state, or result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan. (Criteria g and h).

The 1998 EIS/EIR identified that pyrite has been mined in deposits of Leona Rhyolite in the vicinity of the site; however pyrite is no longer an economic mineral resource in the area. No other mineral resources were identified in the vicinity of the site. The Maximum Capacity Alternative did not analyze whether it would result in a significant loss of mineral resources and no impact or mitigation measure was identified.

The Project site has been mapped by the CGS (formerly California Department of Mines and Geology) as mostly MRZ-4, an area where there is a lack of information to determine whether mineral deposits are present. Only a small fraction of the area has been mapped as containing a significant mineral resource area (MRA-2a), which is the area associated with the Leona Rhyolite deposit that was formerly mined at the Leona Quarry located north of the Project site. This area is located on the portion of the site that was previously developed. In addition, the eastern end of the site is mapped as MRZ-3a, an area where mineral resources that may qualify as mineral resources are present, but which individually lack sufficient material to meet suggested mining threshold values as estimated by the California Geological Survey. (Stinson et al., 1982). In the decades over which the City has contemplated developing the majority of the Project area with residences, no one has proposed mining on the site.

The majority of the Project site has already been developed and any significant mineral resources present have been unavailable for many years. Therefore, the proposed Project would result in no impact on currently available mineral resources. No significant impact is identified.

New Information / Changed Circumstances

There is no information of substantial importance or substantial change in circumstances regarding geology or soils that would result in new significant effect not previously identified for the Maximum Capacity Alternative in the 1998 EIS/EIR. As mentioned in the impact analysis below, the 1998 EIS/EIR identified that the nearest active fault trace to the Project site was the Hayward fault approximately 1.5 miles to the west. However, according to the more recent geotechnical evaluation prepared for the current Project on the site, the distance has been stated closer to ½ miles from the Hayward fault (ENGEO, 2015). This new (updated) information, as well as more detailed information about the construction of the proposed Project that was not provided at a project-level for the Maximum Capacity Alternative in the 1998 EIS/EIR, is factored into the Project analysis below to assess the effects of the proposed Project changes.

Impacts and Mitigation Measures

Impact GEO-1: The Project could expose people or structures to substantial risk of loss, injury, or death involving strong seismic ground shaking. (Criterion a.2) (*Less than Significant with SCAs*)

According to the USGS, the Project site would likely experience at least one major earthquake (i.e., greater than M 6.7) within 30 years beginning from 2014 (USGS, 2015). The intensity of such an event would depend on the causative fault and the distance to the epicenter, the moment magnitude, and the duration of shaking. The closest active fault to the site (1/2 miles) is the Hayward fault although a number of other active faults are found in the region. In general, ground shaking tends to be more severe in softer sediments such as alluvial deposits, where surface waves can be amplified causing a longer duration of ground shaking compared to bedrock materials. An area where bedrock is exposed or located relatively shallow tends to experience surface waves from an earthquake as more of a sharp jolt. As discussed in the *Setting*, ground shaking at the Project site and surroundings has been mapped to with a PGA of 0.95g according to the 2013 CBC. Ground shaking of this magnitude could cause significant damage in structures that are not adequately engineered.

1998 EIS/EIR.

The 1998 analysis concluded that given the proximity of the Project site to the Hayward fault (which makes the site susceptible to very strong groundshaking from an earthquake), the Maximum Capacity Alternative would result in a significant but mitigable impact since it would increase the number of people and structures (compared to Navy pre-closure) that would be exposed to the geologically active Hayward fault and strong potential groundshaking or earthquake. The 1998 EIS/EIR identified the following Mitigation 1 to reduce the impact to less than significant:

> **1998 EIS/EIR Mitigation 1:** At a minimum, seismic upgrades to reduce life safety risks associated with structural failures of the "H-shaped Buildings" (except Building 69 which has already been upgraded,) for moderate-probability earthquake, should be performed prior to reuse to meet life safety criteria. Any existing structures identified for retention for future use should be evaluated in detail to determine the cost-effectiveness of seismic

upgrades. Existing utilities needed to support emergency services should be evaluated prior to reuse to determine if upgrades are needed to meet existing code requirements.

Proposed Project.

It is not anticipated that the proposed Project would have substantial changes to the previously analyzed Maximum Capacity Alternative that would result in a new significant impact regarding exposure to seismic groundshaking. As noted above, the Project site is located in a seismically active region that is anticipated to experience a strong earthquake in the next 30 years (USGS, 2015). The proximity of the Project site to the Hayward fault (approximately 0.5 miles) makes the site susceptible to very strong groundshaking and, as identified in the 1998 EIS/EIR and the Preliminary Geotechnical Exploration Report prepared by ENGEO (ENGEO, 2006b) (included as part of **Appendix U** to this Draft SEIR).

Unlike the Maximum Capacity Alternative, the proposed Project would relocate the Club Knoll, except for the basement and third wing, and demolish the Club Knoll garage on the Project site; (the "H-shaped Buildings" have already been demolished). Therefore, other than the relocation of parts of Club Knoll, the required seismic upgrades to remaining buildings prior to their reuse would not apply to the proposed Project. Seismic stabilization for the relocated Club Knoll structure would be required. Because Club Knoll would be relocated and remain on-site, new Mitigation Measure CUL-1.2, including requirements for seismic stabilization, would apply (see section 4.4, *Cultural and Paleontological Resources*). Accordingly, 1998 EIS/EIR Mitigation 1 is superseded by current SCAs and specific implementation measures that further those SCAs, discussed below.

Consistent with standard geotechnical engineering practice for large scale developments, the preliminary geotechnical explorations conducted for the Project site are intended to identify the range of geotechnical issues that exist on the site. As indicated in the Preliminary Geotechnical Report (ENGEO, 2006, included as **Appendix U** to this Draft SEIR), and its 2015 Supplement (included as part of **Appendix AA** to this Draft SEIR), the recommendations presented therein are appropriate for planning purposes and shall be refined as part of site-specific geotechnical investigations that will provide detailed recommendations for each building site as required by the City's **SCA GEO-1** (Soils Report) and the CBC (ENGEO, 2006b; ENGEO, 2015). The preliminary findings and recommendations help to determine where further delineation and investigation is necessary.

For new construction, all of the aforementioned seismic hazards can be reduced to less than significant through the application of current industry standard geotechnical practices and seismic structural design according to the requirements found in the most recent version of the CBC, which includes or exceeds the requirements of the IBC. After decades of study of past earthquakes and the performance of structures and other improvements, building codes have incorporated measures to reduce the potential for catastrophic damage to occur in buildings, roadways, and utility connections. Although damage and injury cannot be completely avoided during a significant seismic event, construction or renovation in accordance with the CBC would reasonably reduce the potential damage and personal injury to less-than-significant levels.

A design-level geotechnical investigation would be performed for each Project site in accordance with the City's SCA GEO-1 (Soils Report). The analyses would be in accordance with applicable City ordinances and policies and consistent with the most recent version of the CBC, which requires structural design that can accommodate ground accelerations expected from known active faults. The investigations would determine final design parameters for the earthwork, foundations, foundation slabs, and any surrounding related improvements (utilities, parking lots, roadways, and sidewalks). The investigations would be reviewed and approved by a certified engineering geologist or geotechnical engineer. Therefore, the application of current seismic design criteria required under the CBC and SCA GEO-1 (Soils Report), would reduce the potential impacts associated with ground shaking during a major seismic event to less than significant.

In addition, pursuant to **SCA GEO-2** (Seismic Hazards Zone), the Project applicant must submit a site-specific geotechnical report consistent with California Geological Survey Special Publication 117 (as amended), prepared by a registered geotechnical engineer for City review and approval that contains a description of the geological and geotechnical conditions at the site, an evaluation of site-specific seismic hazards based on geological and geotechnical conditions, and recommended measures to reduce potential impacts related to earthquake reduced hazards. The Project applicant must implement the recommendations contained in the approved report during project design and construction, in addition to complying with all relevant building codes.

As specified in the Preliminary Geotechnical Reports (ENGEO, 2006, included as **Appendix U** to this Draft SEIR) and its 2015 Supplement (ENGEO, 2015, included as **Appendix AA** to this Draft SEIR) for the Project, the Project applicant shall be required to implement the following detailed SCA Implementation Measure in furtherance of SCA GEO-2:

> **SCA Implementation Measure GEO-2.1:** To further implement SCA GEO-2, the Project applicant shall implement the following measures, as applicable, based on the site-specific geotechnical report to be developed pursuant to SCA GEO-2:
>
> The contact between the Jurassic Volcanics and the Knoxville Formation should be further examined during grading for the Project to determine if supplemental corrective grading measures are needed to address potential engineering issues, such as weak sheared material or a groundwater barrier. If the determination is affirmative, the Project applicant shall identify and implement required additional corrective grading measures.

Summary

In summary, implementation of the City's SCA GEO-1 (Soils Report) and SCA GEO-2 (Seismic Hazards Zone), furthered by SCA Implementation Measure GEO-2.1, fully address the risk of exposure to strong seismic groundshaking and requires that site-specific design-level investigations be developed for each site. Implementation of these SCAs, which would be incorporated into the Project, would reduce the potential impact from groundshaking to less than significant because it requires preparation, review, and approval of the site-specific design-level investigations consistent with applicable regulations (i.e. CBC) and policies to ensure buildings are constructed to minimize seismic exposure risk. No new mitigation measures are required, and 1998 EIS/EIR Mitigation 1 would continue to apply, but is replaced with current City SCAs. In addition, SCA Implementation Measure GEO-2.1, would further ensure (through specific implementation of the SCAs) that the

Project would not expose people or structures to risk of loss, injury or death ground shaking requiring that additional examination be conducted during grading to further ensure that any potential engineering issues are corrected with appropriate measures.

Impact Conclusion: Less than Significant with SCAs and related Implementation Measure.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact, Previous Mitigation Replaced by Current SCAs.

Impact GEO-2: The Project could expose people or structures to substantial risk of loss, injury, or death involving seismic-related ground failure, including liquefaction, lateral spreading, subsidence or collapse. (Criterion a.3) (*Less than Significant with SCAs*)

1998 EIS/EIR.

As noted under Impact GEO-1, the 1998 EIS/EIR analysis concluded that given the proximity of the Project site to the Hayward fault, the site is susceptible to very strong groundshaking from an earthquake. A large earthquake could induce ground failure including liquefaction, lateral spreading (related to liquefaction), subsidence or collapse. The 1998 analysis, however, stated that due to the clay rich nature of the onsite soils, the potential for liquefaction at the site was low.

Proposed Project.

Project construction and operation would not expose people or structures to seismic ground failure, including liquefaction, lateral spreading, subsidence or collapse, to cause substantial risk of loss, injury or death. While these conditions exist on areas of the Project site (discussed below), they do not occur where development is proposed, and detailed, corrective measures are specified to address these conditions and would be implemented by the Project.

Since the 1998 EIS/EIR, the CGS seismic analysis methods have been updated and many identified areas throughout the Bay Area are now considered to have a high susceptibility for liquefaction. At the Project site this includes areas along the Rifle Range Creek and its floodplain. Project development along these areas must be setback from the creek as part of the proposed restoration efforts. In addition, as part of a site specific geotechnical analysis, all proposed development would receive an evaluation for liquefaction, lateral spreading, subsidence and collapse in accordance with the City's SCAs GEO-1 and GEO-2 as well as the Seismic Hazards Mapping Act, if applicable. Any proposed improvements located within a Seismic Hazard zone would be required to adhere to the standards of Special Publication 117A, in accordance with SCA GEO-2 (Seismic Hazards Zone), which the Project has initiated with preparation of the site-specific design level geotechnical report for Oak Knoll. The Project is also required to adhere to **SCA GEO-4** (Oakland Area Geologic Hazard Abatement District - GHAD) which details the process for creating/annexing and financing a GHAD.

To the extent that the preliminary recommendations from the geotechnical investigation are appropriate to implement during the preliminary design phase of the Project, they have been

considered and incorporated into the preliminary grading including plans for corrective grading to address existing unstable conditions onsite. As specified in the Preliminary Geotechnical Report and its 2015 Supplement for the Project, the Project applicant shall be required to implement the following detailed SCA Implementation Measure in furtherance of SCA GEO-2:

SCA Implementation Measure GEO-2.2: To further implement SCA GEO-2, the Project applicant shall implement these following corrective measures to repair existing unstable site conditions, as applicable, based on the site-specific geotechnical report to be developed pursuant to SCA GEO-2:

Liquefaction - To address potential effects of liquefaction, the project could implement any one or more of the following, as necessary:

a) Avoid development within 50 feet of the potential liquefaction zone, as designated by the State seismic hazard zones map;

b) Conduct in-situ treatment, such as dynamic compaction;

c) Perform remedial grading measures, such as removal and replacement of a portion or all of the potentially liquefiable soil with engineered fill; and

d) Ensure placement of a compacted fill cap over the potential liquefaction zones, potentially with use of geogrid reinforced fill.

e) Employ foundation design measures, such as deep foundations that extend through the potential liquefaction zone.

Lateral Spreading – To address potential effects of lurching and lateral spreading, the project could include any one or more of the following, as necessary:

f) Ensure that, if a setback of improvements from creek banks is used to reduce the susceptibility to lurching and lateral spreading in areas identified along Rifle Range Creek, improvements should be set back outside an upward 4:1 (horizontal:vertical) projection from the toe of the creek bank;

g) Key and bench where fills are placed on sloping ground; and

h) Use drilled pier foundation systems designed to accommodate expected lateral loads for structures situated on slopes, as determined on case-by-case basis.

As a result, incorporation of these corrective measures with adherence to the City's SCA GEO-2, as it specifically pertains to seismically induced ground failure, will be furthered by SCA Implementation Measure GEO-2.2, as well as CBC requirements and Special Publication 117A. Together, these measures would reduce potential impacts from seismically induced liquefaction, lateral spreading, subsidence or collapse to less than significant levels. The Project will also adhere to SCA GEO-4 given the potential for seismically-induced or other ground failure hazards on the Project site, but not to reduce the impacts of such hazards.

Impact Conclusion: Less than Significant with SCAs and related Implementation Measure.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact, No New Mitigation Required.

Impact GEO-3: The Project could expose people or structures to substantial risk of loss, injury, or death involving landslides. (Criterion a.4) (*Less than Significant with SCAs*)

1998 EIS/EIR.

The 1998 EIS/EIR identified that the Maximum Capacity Alternative would result in a significant impact due to slope failure, particularly at areas not previously developed and located at the base of steep slopes. The following mitigation measure was identified to reduce the impact to less than significant:

> **1998 EIS/EIR Mitigation 2**: Grading permits from the City of Oakland will be required for site preparation work involving movement of more than five cubic yards of soil or on slopes greater than 20 percent. Compliance with requirements of the grading permits should reduce risks of slope failure in new development areas. Geotechnical investigations should be conducted to identify potential geologic hazards that may affect new building or road sites in potentially vulnerable areas, adjacent to or including slopes greater than 20 percent. Stability of the slope underlain by existing landslide deposits at the north end of the site should be specifically evaluated to identify potential hazards to development in this area. A geotechnical engineer should review design plans and details and other improvement plans to determine whether they are compatible with the geotechnical conditions of the site. A geotechnical engineer and engineering geologist also should inspect site grading and should document placement of engineered fills, stability of cut and fill slopes, and placement of subdrains.

Proposed Project.

Project construction and operation would have no impact on seismic activity. The corrective grading proposed by the Project may reduce the landslide hazards to the existing people and structures that could occur from seismic activity.

The Oak Knoll Project is not anticipated to involve substantial differences compared to the Maximum Capacity Alternative that would result in new significant impacts regarding landslides induced by seismic activity with the proposed Project. Since preparation of the 1998 EIS/EIR, the California Geological Survey identified areas on the Project site that are considered Seismic Hazard Zones for both liquefaction (discussed above) and seismically induced landslides (CGS, 2003; ENGEO, 2006b). Areas of potential seismically induced landslides generally occur along the steeply sloped areas in the easternmost portion of the site. Additionally, the Project site is underlain by artificial fill, alluvium, colluvium, and landslide deposits, each of which create conditions of potential unstable conditions associated with ground failure (ENGEO, 2006b, 2006c). As discussed below, certain residential development on the Project site would occur in these areas.

The Seismic Hazard Zones for liquefaction and seismically induced landslides are established according to the Seismic Hazards Mapping Act which requires identification of areas with high potential for liquefaction or seismically induced landslides. Pursuant to SCA GEO-2 (Seismic

Hazards Zone), development within these zones requires a site-specific geotechnical investigation with appropriate measures, as applicable, according to the specifications of Special Publication 117A (as also mentioned above for liquefaction).[6] As discussed above, Preliminary Geotechnical Reports (ENGEO, 2006, included as **Appendix U** to this Draft SEIR) and its 2015 Supplement (ENGEO, 2015, included as **Appendix AA** to this Draft SEIR) prepared for the Project pursuant to SCA GEO-1 (Soils Report) identified preliminary recommendations to address geological hazards. In addition to the requirement that further site-specific design-level geotechnical investigations occur, preliminary recommendations are provided to reduce the impacts of seismically induced landslides in steeply sloped areas, as well landslides that may occur due to soil instability and existing fills that have not been constructed according to current standards for engineered fill. As noted above, the preliminary recommendations from the geotechnical investigation are appropriate to implement during the preliminary design phase of the Project, and have been considered and incorporated into the preliminary grading including plans. The Project applicant shall be required to implement the following detailed SCA Implementation Measure in furtherance of SCA GEO-2.

SCA Implementation Measure GEO-2.3: To further implement SCA GEO-2, the Project applicant shall implement these following corrective measures to repair existing unstable site conditions, as applicable, based on the site-specific geotechnical report to be developed pursuant to SCA GEO-2:

a) Removal of existing fill, colluvium and slide debris to expose rock (in specific upland areas of the site);

b) Removal of existing fill and compressible soil to expose stiff native material (generally throughout the central area of the site); and

c) Reconstruct specific slopes with select granular fills and/or geogrid reinforced fill, based on final design slope stability analysis (focusing on creek bank slopes and upland fill slopes).

Seismically-Induced Landslides – To address potential effects of seismically-induced landslides, the project shall:

d) Ensure properly engineered cut and fill slopes, stabilization of landslides, and/or creation of sufficient buffers between identified landslide areas and development areas, as determined on case-by-case basis.

Landslides and Slope Instability **–** To address potential effects of landslides and slope instability, the project shall (in addition to implementation of Mitigation Measure GEO-3 regarding slope stability):

e) Where development encroaches into the mapped landslide areas, conduct remedial grading as determined on case-by-case basis;

f) Minimize potential for adverse impacts from soil creep by benching through surficial soils during fill placement and by design of drill pier foundation systems to accommodate lateral loads from soil creep, as determined on case-by-case basis;

[6] California Division of Mines and Geology (CDMG), *Guidelines for Evaluating Seismic Hazards in California,* CDMG Special Publication 117A, revised 2008.

g) Limit graded slopes for the project to within the following preliminary criteria although findings of further design-level geotechnical exploration and use of specific treatments (such as geogrid reinforced fill slopes and use of higher strength fill material based on laboratory testing) may support fill slopes that exceed these preliminary criteria:

h) Remove existing fills located within the development area and replace them with engineered fill; existing fill materials that are free of deleterious debris may be placed onsite as engineered fill;

i) Use of heavy duty or larger-track mounted excavators or removal of bedrock to the depth of planned utilities (and replacement with engineered fill) may be required for trenching in localized areas of deeper bedrock cuts that may generate oversized material (i.e. rocks larger than one foot in diameter); and

j) In the eastern hilltop area of the site, larger-track mounted excavators may be needed to excavate rock at depths of 10 feet or more below original grade, and overexcavation during mass grading of street sections in areas of deeper cuts to depths below the level of proposed utilities may be appropriate.

With SCA GEO-1 (Soils Report), the Project is required to implement specific measures selected from those recommended in the preliminary and supplemental geotechnical exploration prepared by ENGEO (2006 and 2015) to the extent necessary, which would reduce the potentially significant impact to seismic-related ground failure landslides and unstable conditions to less than significant.

The Project will also be required to implement SCA GEO-4 (Oakland Area Geologic Hazard Abatement District - GHAD), as the Project involves the development on a site that contains hazardous conditions.

Summary

The City's SCA GEO-1 (Soils Report) and SCA GEO-2 (Seismic Hazards Zone) address the risk of landslides induced by seismic activity because they require that site-specific design-level investigations be developed and implemented. Detailed Project-specific measures that further the implementation of SCA GEO-2, as it pertains to seismically induced landslides, exist in SCA Implementation Measure SCA GEO-2.3. SCA GEO-1, SCA GEO-2 and Implementation Measure SCA GEO-2.3 would be incorporated as part of the Project and are equally or more effective to fully accomplish the requirements of 1998 EIS/EIR Mitigation 2, with the SCAs providing even greater protection than Mitigation 2. The impact of the proposed Project would be less than significant.

Impact Conclusion: Less than Significant with SCAs and related Implementation Measure.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact; No New Mitigation Measures Required; Previous Mitigation Replaced with SCA.

Impact GEO-4: The Project could result in substantial soil erosion or loss of topsoil, creating substantial risks to life, property, or creeks/waterways. (Criterion b) (*Less than* Significant *with SCAs*)

1998 EIS/EIR.

Development of the Maximum Capacity Alternative would involve substantial earthwork and grading which would disturb large areas of topsoil. The 1998 EIS/EIR identified the potential for soil erosion and loss of topsoil as "nonsignificant" (i.e., less than significant) since, as stated in the 1998 EIS/EIR, most development of the Maximum Capacity Alternative would occur on slopes less than 30 percent, and where development would occur on slopes above 30 percent the Project would employ best management practices ("BMPs") involving grading techniques and revegetation. No mitigation measure was identified.

Proposed Project.

The Oak Knoll Project is not anticipated to involve substantial changes to the Maximum Capacity Alternative that would result in new significant impacts regarding erosion or loss of top soil. Like the Maximum Capacity Alternative, the proposed Project would involve significant earthwork and grading which would disturb large areas of topsoil, including the steeply sloping areas at the upper elevations of the easternmost portion of the site where soils are especially susceptible to soil loss from erosion. The extent of erosion that could occur varies depending on soil type, slope steepness and stability, vegetation/cover, and weather conditions. Water and wind induced erosion could occur during the construction phase of the Project when concrete and asphalt is removed and soils are stockpiled and exposed. Areas disturbed by grading would be subject to a variety of ground stabilization measures, landscaping, pavement, structural foundations, etc., as needed, which would stabilize the soils and minimize or eliminate any permanent erosion potential.

The Project would be required by County ordinance, the City's SCA GEO-3 (Construction-Related Permits) as well as through the NPDES Construction General Permit administered by the State to establish erosion control measures for grading activities to prevent the loss of topsoil from water and wind during construction. The Erosion Control Plan would include, at a minimum, the following requirements to prevent the soil erosion from wind or rain during construction:

- Excavation and grading activities would be scheduled for the dry season only (April 15 to October 15), to the extent possible. This would reduce the chance of severe erosion from intense rainfall and surface runoff, as well as the potential for soil saturation.
- Temporary erosion control measures would be provided until re-vegetation is established or impervious surfaces (e.g., asphalt, concrete) are added.
- After completion of grading, erosion protection would be provided on all cut-and-fill slopes.
- Erosion control BMPs selected and implemented for the Project would be in place and operational prior to the onset of major earthwork on the site.

Implementation of the Erosion Control Plan and required BMPs as part of the NPDES Construction General Permit pursuant to SCA GEO-3 would minimize erosion impacts during construction and reduce the potential impacts to less than significant.

Impact Conclusion: Less than Significant with SCAs.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact; No New Mitigation Measures Required.

Impact GEO-5: The Project could occur on expansive soils, creating substantial risks to life and property. (Criterion c) (*Less than Significant with SCAs*)

1998 EIS/EIR.

The 1998 EIS/EIR identified that the project soils underlying areas of the project site were expansive clay soils that could result in differential settlement, and that impact associated with development of the Maximum Capacity Alternative would be "nonsignificant" (i.e., less than significant) since geotechnical investigation of soils would be conducted in the building areas where expansive soils may exist and that drainage would be directed away from building foundations and roadways. No mitigation measure was identified.

Proposed Project.

The Oak Knoll Project is not anticipated to involve substantial changes to the Maximum Capacity Alternative that would result in new significant impacts regarding risk associated with development on expansive soils.

The clayey soils onsite have been identified in the preliminary geotechnical investigation conducted on the Project site as highly expansive (ENGEO, 2006b). Expansive soils have the potential to shrink and swell with changes in moisture which can cause damage to foundations and other improvements. Specifically, the effects of expansive soils, if present, could damage foundations of aboveground structures. The preliminary geotechnical investigation identified the clayey soil materials at the site are considered highly expansive (ENGEO, 2006b). Surface structures with foundations constructed in expansive soils could experience expansion and contraction depending on the season and the amount of surface water infiltration. The expansion and contraction could exert enough pressure on a structure to result in cracking, settlement, and uplift.

Consistent with discussion in the 1998 EIS/EIR, standard engineering practices as required by the City's SCA GEO-1 (Soils Report) and CBC requirements would reduce significant impacts associated with expansive soils to less than significant. Each development within the Project would have a site-specific geotechnical investigation. As part of these investigations, standard to current engineering practices and required under CBC, each site would be evaluated for potential expansive soils. The final geotechnical report for each site would include recommendations for any potential hazards associated with expansive soils, if any are present. For example, the site specific geotechnical investigations would include recommendations that address foundation design, soil

replacement with engineered fill, and implementation of drainage control to address the potential adverse effects of expansive or clayey soils onsite. The reports would be prepared and reviewed by a qualified geotechnical engineer to confirm specific treatments that will reduce the risk of development on expansive soils. These requirements would prevent the creation of risks to life and property from expansive soils, and this impact would be less than significant.

Impact Conclusion: Less than Significant with SCAs.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact; No New Mitigation Measures Identified.

Impact GEO-6: The Project could be located above a well, pit, swamp, mound, tank vault, unmarked sewer line, a landfill for which there is no approved closure and post-closure plan, or unknown fill soils, creating substantial risks to life or property. (Criteria d and e) (*Less than Significant with Mitigation Measure GEO-3*)

1998 EIS/EIR.

The 1998 EIS/EIR did not discuss the potential for the Project site to be underlain by subsurface wells, pits, swamps, mounds, tank vaults, unmarked sewer lines, or landfills that lack a closure plan that would pose substantial risk to persons or property upon development of the Maximum Capacity Alternative. No impact or mitigation measure was identified.

Proposed Project.

Based on Project site investigations and existing utility identification conducted by the Project sponsor and qualified consultants, no subsurface wells, pits, swamps, mounds, tank vaults, unmarked sewer lines, landfills lacking closure, or unknown fill have been identified at the Project site. However, given the U.S. Navy's use, development, and redevelopment of the Project site over approximately 54 years (generally 1942 to 1996), it is possible that certain undocumented characteristics, such as undocumented fill or tank vaults, may exist on site. Therefore, consistent with current City of Oakland environmental review practice for military base reuse, there is a potentially significant impact that was not identified in the 1998 EIS/EIR. However, implementation of Mitigation Measure GEO-3 would mitigate this potentially significant impact to less than significant.

New Mitigation Measure GEO-3: If during construction activities previously unidentified conditions such as wells, pits, swamps, mounds, tank vaults, unmarked sewer lines, suspected landfill areas, or unknown fill soils are encountered, construction in the immediate area shall cease until the City of Oakland Fire Department Hazardous Materials Unit or other applicable oversight agency has been notified. If there is any indication that the condition includes hazardous materials or waste or otherwise creates a substantial risk to life or property, then the lead agency shall direct any appropriate remediation measures, consistent with any and all applicable laws and regulations. Construction can resume at the discretion of the oversight agency.

Impact Conclusion: Less than Significant after Mitigation

Comparison to 1998 EIS/EIR Findings: No New Significant Impact; New Mitigation Measure Identified

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Cumulative

Impact GEO-7: The Project would not have a considerable contribution to cumulative impacts related to geology and soils, considering the combined effect of the Project and past, present, approved, pending, and reasonably foreseeable future projects in the area and citywide. (*Less than Significant*)

Geographic Context

The Bay Area is within a seismically active region with a wide range of geologic and soil conditions. These conditions can vary widely within a short distance, making the cumulative context for potential impacts from exposing people and structures to seismic related risks localized or even site-specific. Potential cumulative geology and seismic impacts do not extend far beyond a project's boundaries, since such impacts are typically confined to specific locations and do not combine to create a cumulative impact.

Impact Discussion

1998 EIS/EIR.

The 1998 EIS/EIR analysis did not discuss or describe potential cumulative impacts related to geology, soils and seismicity. As stated above, however, the 1998 EIS/EIR analysis concluded that the Maximum Capacity Alternative would result in "nonsignificant" (i.e., less than significant) impacts with implementation of the identified mitigation measures.

Proposed Project.

The Project site is located in a seismically active area and future Project development could expose additional people and structures to potentially adverse effects associated with earthquakes including seismic ground shaking and seismic related ground failure. Project SCAs would minimize the potential for Project impacts. Project-specific mitigation would also be implemented (New Mitigation Measure GEO-3) to reduce effects to less than significant levels. The impact of the risks associated with exposure to potential geological and soils hazards is localized because of the dependence on site specific conditions and would not affect the immediate vicinity surrounding the proposed Project area.

The proposed Project and other pending and planned projects in the City would all be constructed in accordance with the most recent version of the California Building Code seismic safety requirements and recommendations contained in the Project area specific geotechnical reports, as well as in accordance with all required construction-related permits/approvals from the City pursuant to SCA GEO-3 (Construction-Related Permits). With these requirements in place, the Project's impacts would remain localized and would be unlikely to combine with the other projects. Future development would be constructed to more current standards which could

potentially provide greater protection than those of older structures within the region. Finally, the Project shall implement SCA GEO-4 (Oakland Area GHAD) which would set aside financial reserves to address preventative maintenance and future geologic hazards. Other cumulative development with similar hazardous site conditions would also incorporate the City SCAs to address hazardous geology and soils conditions and their associated risks. Therefore, potential exposure to geological and soils hazards resulting from construction and operation of the proposed Project, combined with other past, present, approved, pending, and reasonably foreseeable future would not result in a significant cumulative effect.

Impact Conclusion: Less than Significant with SCAs and Mitigation Measures.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact; New Mitigation Measures Identified.

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4.6 Greenhouse Gas Emissions and Climate Change

4.6.1 Introduction

This section assesses the potential for the Project to result in significant adverse environmental impacts from greenhouse gas (GHG) emissions. This analysis considers the GHG emissions that would result from construction and operation activities that would take place within the project area, and compares these emissions to thresholds of significance.

4.6.2 Setting

Environmental Setting

Greenhouse Gases and Climate Change

Gases that trap heat in the atmosphere are called greenhouse gases or GHGs. What GHGs have in common is that they allow sunlight to enter the atmosphere, but trap a portion of the outward-bound infrared radiation, which warms the air. The process is similar to the effect greenhouses have in raising the internal temperature, hence the name GHGs. Both natural processes and human activities emit GHGs. The natural accumulation of GHGs in the atmosphere regulates the Earth's temperature; however, emissions from human activities such as fossil fuel-based electricity production, the use of internal combustion engines and motor vehicles have elevated the concentration of GHGs in the atmosphere. This anthropogenic accumulation of GHGs has contributed to an increase in the temperature of the Earth's atmosphere and has contributed to global climate change. Global climate change is a change in the average weather on earth that can be measured by wind patterns, storms, precipitation, and temperature. Although there is disagreement as to the rate of global climate change multiple studies published in peer-reviewed scientific journals show that 97 percent or more of actively publishing scientists agree: climate-warming trends over the past century are very likely due to human activities (NASA, 2015). The principal GHGs are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), perfluorocarbons (PFCs), hydrofluorocarbons (HFCs) and nitrogen trifluoride (NF_3). CO_2 is the most common reference gas for climate change.

To account for the Global Warming Potential (GWP) of GHGs, GHG emissions are often quantified and reported as CO_2 equivalents (CO_2e). For example, SF_6 is a GHG commonly used in the utility industry as an insulating gas in circuit breakers and other electronic equipment. SF_6, while comprising a small fraction of the total GHGs emitted annually world-wide, is a much more potent GHG with 23,900 times the GWP as CO_2[1]. Large emission sources are reported in million metric tons of CO_2e.[2] Each of the principle gases is discussed below.

[1] The California Emissions Estimator Model (CalEEMod) is the modeling software used chiefly for determining GHG emissions from CEQA projects. CalEEMod currently utilizes the Global Warming Potentials from the Intergovernmental Panel on Climate Change (IPCC) Second Assessment Report (SAR).

[2] The term metric ton is commonly used in the US to refer to the metric system unit, tonne, which is defined as a mass equal to 1,000 kilograms. A metric ton is approximately 1.1 short tons and approximately 2,204.6 pounds.

Carbon Dioxide. In the atmosphere, carbon generally exists in its oxidized form, as CO_2. Natural sources of CO_2 include the respiration (breathing) of humans, animals and plants, volcanic outgassing, decomposition of organic matter, and evaporation from the oceans. Human-caused sources of CO_2 include the combustion of fossil fuels and wood, waste incineration, mineral production, and deforestation. Natural removal processes, such as photosynthesis by land- and ocean-dwelling plant species, cannot keep pace with this extra input of man-made CO_2 and consequently the gas is building up in the atmosphere.

Methane. CH_4 is produced when organic matter decomposes in environments lacking sufficient oxygen. Natural sources include wetlands, termites, and oceans. Decomposition occurring in landfills accounts for the majority of human-generated CH_4 emissions in California and in the United States as a whole. Agricultural processes such as intestinal fermentation, manure management, and rice cultivation are also significant sources of CH_4 in California. CH_4 accounted for approximately 6 percent of gross climate change emissions (CO_2e) in California in 2002.

Nitrous Oxide. N_2O is produced naturally by a wide variety of biological sources, particularly microbial action in soils and water. Tropical soils and oceans account for the majority of natural source emissions. N_2O is a product of the reaction that occurs between nitrogen and oxygen during fuel combustion. Both mobile and stationary combustion emit N_2O, and the quantity emitted varies according to the type of fuel, technology, and pollution control device used, as well as maintenance and operating practices. Agricultural soil management and fossil fuel combustion are the primary sources of human-generated N_2O emissions in California. N_2O emissions accounted for nearly 7 percent of man-made GHG emissions (CO_2e) in California in 2002.

Hydrofluorocarbons, Perfluorocarbons, and Sulfur Hexafluoride. HFCs are primarily used as substitutes for ozone-depleting substances regulated under the Montreal Protoco1.[3] PFCs and SF_6 are emitted from various industrial processes, including aluminum smelting, semiconductor manufacturing, electric power transmission and distribution, and magnesium casting. There is no aluminum or magnesium production in California; however, the rapid growth in the semiconductor industry leads to greater use of PFCs. HFCs, PFCs, and SF_6 accounted for about 3.5 percent of man-made GHG emissions (CO_2e) in California in 2002.

Nitrogen trifluoride. NF_3 is primarily used in manufacturing semiconductor and LCD panels, and certain types of solar panels and chemical lasers. The ability to measure NF_3 atmospheric concentrations has only recently been possible and this has revealed much higher concentrations than originally assumed. This is a major cause of concern as NF_3 is an extremely potent GHG and has a GWP of 17,200 (WRI 2012).

Effects of Climate Change

The potential effects of global climate change are described in the following section.

[3] The Montreal Protocol is an international treaty that became effective on January 1, 1989, and was intended to protect the ozone layer by phasing out the production of several groups of halogenated hydrocarbons believed to be responsible for ozone depletion.

Temperature Increase. State-of-the art climate models indicate that temperatures in California may be expected to rise 3°F to 10.5°F by the end of the century (CCCC, 2006). Because GHGs persist for a long time in the atmosphere, accumulate over time, and are generally well-mixed, their impact on the atmosphere cannot be tied to a specific point of emission. Climate change refers to any significant change in measures of climate (such as temperature, precipitation, or wind) lasting for an extended period (decades or longer).

The primary effect of global climate change has been a rise in the average global temperature. The impact of human activities on global climate change is readily apparent in the observational record. For example, surface temperature data show that 11 of the 12 years from 1995 to 2006 rank among the 12 warmest since 1850, the beginning of the instrumental record for global surface temperature (CEC, 2009).

Climate change modeling shows that further warming could occur, which would induce additional changes in the global climate system during the current century. Changes to the global climate system, ecosystems, and the environment of California could include, but are not limited to the following:

- The loss of sea ice and mountain snow pack, resulting in higher sea levels and higher sea surface evaporation rates with a corresponding increase in tropospheric water vapor due to the atmosphere's ability to hold more water vapor at higher temperatures;
- Rise in the global average sea level primarily due to thermal expansion and melting of glaciers and ice caps in the Greenland and Antarctic ice sheets;
- Changes in weather that include widespread changes in precipitation, ocean salinity, and wind patterns, and more energetic aspects of extreme weather, including droughts, heavy precipitation, heat waves, extreme cold, and tropical cyclones;
- Decline of the Sierra snowpack, which accounts for a significant amount of the surface water storage in California, by 70 percent to as much as 90 percent over the next 100 years;
- Increase in the number of days conducive to ozone formation by 25 to 85 percent (depending on the future temperature scenario) in high-ozone areas of Los Angeles and the San Joaquin Valley by the end of the 21st century; and
- High potential for erosion of California's coastlines and seawater intrusion into the Delta and levee systems due to the rise in sea level

Precipitation and Water Supply. Global average precipitation is expected to increase overall during the 21st century as the result of climate change, but will vary in different parts of the world. However, global climate models are generally not well suited for predicting regional changes in precipitation because of the scale of regionally important factors, such as the proximity of mountain ranges that affect precipitation (IPCC, 2007).

Most of California's precipitation falls in the northern part of the State during the winter. A vast network of man-made reservoirs and aqueducts capture and transport water throughout the State from northern California rivers, as the greatest demand for water comes from users in the southern part of the State during the spring and summer (CCCC, 2006). Rising temperatures,

potentially compounded by decreases in precipitation, could severely reduce spring snowpack, increasing the risk of summer water shortages.

Warmer temperatures could increase the period when water is on the ground by reducing soil freeze. However, warmer temperatures could also lead to higher evaporation or shorter rainfall seasons, shortening the recharge season. Warmer winters could increase the amount of runoff available for groundwater recharge. However, the additional runoff would occur at a time when some basins, particularly in Northern California, are being recharged at their maximum capacity.

As discussed in Section 4.14, *Utilities and Service Systems*, of this chapter, the East Bay Municipal Utility District (EBMUD) is the water district that serves the City of Oakland and many other East Bay cities. EBMUD accounted for water demands associated with the Project within the 2010 Urban Water Management Plan (UWMP). The UWMP includes an analysis of past, present, existing, pending, and reasonably foreseeable future development projects based on the Association of Bay Area Governments (ABAG's) Projections 2009 and assumes that over 100,000 persons will be added to Oakland between 2000 and 2035 and plans to supply water for such growth. The UWMP describes the potential effects of climate change on water supply, including the water supply that is most vulnerable. Additionally, EBMUD initiated planning for climate change into their Strategic Plan and issued its first Climate Change Monitoring and Response Plan in 2008. They also regularly participate in working groups on the issue in order to create tools to better adapt to changing supplies.

Sea Level Rise. Rising sea level is one of the major areas of concern related to global climate change. Two of the primary causes for a sea level rise are the thermal expansion of ocean waters (water expanding as it heats up) and the addition of water to ocean basins by the melting of land-based ice. Sea levels could rise an additional 55 inches by the end of the century as global climate change continues (BCDC, 2013). Although these projections are on a global scale, the rate of sea level rise along California's coast is relatively consistent with the worldwide average rate observed over the past century. (DPW, 2006). Sea level rise of this magnitude would increasingly threaten California's coastal regions with more intense coastal storms, accelerated coastal erosion, threats to vital levees, and disruption of inland water systems, wetlands, and natural habitats. Residents may also be affected if wastewater treatment is compromised by inundation from rising sea levels, given that a number of treatment plants discharge to the Bay.

Water Quality. Water quality depends on a wide range of variables such as water temperature, flow, runoff rates and timing, waste discharge loads, and the ability of watersheds to assimilate wastes and pollutants. Climate change could alter water quality in a variety of ways, including through higher winter flows that reduce pollutant concentrations (through dilution) or increase erosion of land surfaces and stream channels, leading to higher sediment, chemical, and nutrient loads in rivers. Water temperature increases and decreased water flows can result in increasing concentrations of pollutants and salinity. Increases in water temperature alone can lead to adverse changes in water quality, even in the absence of changes in precipitation.

Public Health. Global climate change is also anticipated to result in more extreme heat events (CCCC, 2006). These extreme heat events increase the risk of death from dehydration, heart

attack, stroke, and respiratory distress, especially with people who are ill, children, the elderly, and the poor, who may lack access to air conditioning and medical assistance. According to the California Climate Change Center, more research is needed to understand the effects of higher temperatures and how adapting to these temperatures can minimize health effects (CCCC, 2006).

While the possible outcomes and the feedback mechanisms involved are not fully understood and much research remains to be done, the potential for substantial environmental, social, and economic consequences over the long term may be great. All of these impacts will have either direct or indirect negative effects for the residents and businesses of the proposed project and the City of Oakland (the City).

Emissions Inventories

An emissions inventory that identifies and quantifies the primary human-generated sources and sinks of GHGs is a well-recognized and useful tool for addressing climate change. This section summarizes the latest information on global, United States, California, and local GHG emission inventories.

Global Emissions. Global estimates are based on country inventories developed as part of programs of the United Nations Framework Convention on Climate Change (UNFCCC). Worldwide emissions of GHGs in 2004 were 27 billion metric tons of CO_2e per year (UNFCCC, 2007).

U.S. Emissions. In 2010, the United States emitted about 1,633 2 million metric tons (VINIT) of CO_2e, with each individual at home releasing approximately 4 metric tons per year. Of the four major sectors nationwide — residential, commercial, industrial and transportation — transportation accounts for the highest amount of GHG emissions (approximately 35 to 40 percent); these emissions are entirely generated from direct fossil fuel combustion. Between 1990 and 2009, total U.S. GHG emissions rose by 7.3 percent, but emissions decreased from 2008 to 2009 by 6.1 percent. This decrease was primarily due to: (1) a decrease in economic output resulting in a decrease in energy consumption across all sectors; and (2) a decrease in the carbon intensity of fuels used to generate electricity due to fuel switching as the price of coal increased, and the price of natural gas dropped sharply. Since 1990, U.S. emissions have increased at an average annual rate of 0.4 percent (U.S. EPA, 2012).

State of California Emissions. The California Air Resources Board (CARB) estimated that in 2013, California produced 459 million gross metric tons of CO_2e emissions. CARB found that transportation was the source of 37 percent of the state's GHG emissions; followed by industrial sources at 23 percent and electricity generation at 20 percent (CARB, 2015). California has the fourth lowest per-capita CO_2 emission rate from fossil fuel combustion in the country, due to the success of its energy efficiency and renewable energy programs and commitments that have lowered the State's GHG emissions rate of growth by more than half of what it would have been otherwise (CEC, 2007).

Bay Area Emissions Inventory. In the nine county San Francisco Bay Area, GHG emissions from the transportation sector represent one of the two largest sources of the Bay Area's GHG emissions at 36.4 percent, matched only by the industrial/ commercial uses, which also account for 36.4 percent of the Bay Area's 95.8 million metric tons of CO_2e in 2007. Electricity/co-generation sources account for about 16 percent of the Bay Area's GHG emissions, followed by residential fuel usage at about 7 percent. Off-road equipment and agricultural/farming sources currently account for approximately 3 percent and 1 percent of the total Bay Area GHG emissions, respectively (BAAQMD, 2010).

Alameda County Emissions Inventory. Emission inventories developed for Alameda County for its Community GHG Emissions 2005 Roll-up Inventory, Methodology, and Results reveal that activities in the unincorporated County regions and within the County's 14 municipalities generated approximately 13.7 million gross metric tons of CO_2e emissions in 2005 (Alameda County, 2009). The transportation sector is the greatest contributor generating approximately 57 percent of these emissions while commercial/industrial sector accounts for 18 percent. The residential, direct access fuel/power purchases, and waste sectors make up 14 percent, 7 percent and 4 percent, respectively.

City of Oakland Emissions Inventory. In 2003, the City of Oakland, in partnership with the International Council for Local Environmental Initiatives (ICLEI), an international association of local, regional, and national governments and government organizations that have made a commitment to sustainable development, prepared the Baseline Greenhouse Gas Emissions Inventory Report to determine the community-wide levels of GHG emissions that the City of Oakland emitted in its base year, 2005 (ICLEI, 2006). The City recently updated its core emissions inventory for 2013. The current citywide GHG emissions inventory includes "local government focus area" emissions associated with energy used and waste produced within the Oakland city limits, as well as other emission sources associated with activities occurring in Oakland, such as industrial point sources, energy used to convey water to Oakland, pass-through highway travel, and energy used to manufacture products purchased and used in Oakland. **Table 4.6-1** describes Oakland's local government focus area emissions.

TABLE 4.6-1
OAKLAND CORE CITYWIDE GHG EMISSIONS SUMMARY – 2013 (tons/year)

GHG Emissions Source	Metric Tons of Carbon Dioxide Equivalent (CO_2e)	Percent
Transportation on Local (Non-Highway) Roads (gasoline and diesel)	718,392	51%
Commercial/Industrial Electricity	231,431	Collectively, building energy use is 35%
Commercial/Industrial Natural Gas	242,165	
Residential Electricity	136,588	
Residential Natural Gas	336,395	
Landfilled Solid Waste	63,205	2%

SOURCE: City of Oakland, 2016.

Oakland emitted approximately 2.7 million tons of CO_2e in 2013 from all major sources, half of which were from transportation. The report shows that the City's emissions have decreased by approximately 8 percent since 2003, but more than 14 percent since 2005 due largely to the City work in reducing waste-related emissions. Despite these decreases, emissions are not on track to meet the City's 2020 goal. The inventory report also estimated emissions from municipal government activities, which constitute approximately 1.0 percent of total community-wide emissions. The report also forecasts future communitywide emissions for 2020. From year 2013, to meet the 2020 goal of 1.9 million tons CO_2e (core emissions), Oakland must reduce emissions by approximately 0.85 million tons CO_2e, assuming continued GHG emissions at or above current rates into the future. (Oakland, 2016)

Regulatory Setting

Federal

On December 9, 2009, the U.S. EPA Administrator signed two distinct findings regarding GHGs under Section 202(a) of the CAA, which states that the U.S. EPA Administrator should regulate and develop standards for "emission[s] of air pollution from any class or classes of new motor vehicles or new motor vehicle engines, which in [its] judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare." The final rule was effective January 14, 2010. The rule addresses two distinct findings: Endangerment Finding and Cause or Contribute Finding.

Under the Endangerment Finding, the Administrator found that the current and projected concentrations of the six key GHGs (i.e., CO_2, CH_4, N_2O, HFCs, perflurorocarbons, and sulfur hexafluoride) in the atmosphere threaten the public health and welfare of current and future generations. Under the Cause or Contribute Finding, the Administrator found that the combined emissions of these GHGs from new motor vehicles and new motor vehicle engines contribute to GHG pollution which threatens public health and welfare.

State of California

The CARB is the agency responsible for coordination and oversight of state and local air pollution control programs in California. There are currently no state regulations in California that establish ambient air quality standards for GHGs. However, California has passed laws directing CARB to develop actions to reduce GHG emissions, and several state legislative actions related to climate change and GHG emissions have come into play in the past decade.

State of California Executive Orders

Executive Order S-3-05. In 2005, in recognition of California's vulnerability to the effects of climate change, then-Governor Arnold Schwarzenegger issued Executive Order S-3-05, which set forth a series of target dates by which statewide emissions of GHGs would be progressively reduced, as follows:

- By 2010, reduce GHG emissions to 2000 levels;

- By 2020, reduce GHG emissions to 1990 levels; and
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

Executive Order S-1-07. Executive Order S-1-07, which was signed by then- Governor Schwarzenegger in 2007, proclaims that the transportation sector is the main source of GHG emissions in California, generating more than 40 percent of statewide emissions. It established a goal to reduce the carbon intensity of transportation fuels sold in California by at least 10 percent by 2020. This order also directs CARB to determine whether this Low Carbon Fuel Standard (LCFS) could be adopted as a discrete early-action measure as part of the effort to meet the mandates in AB 32.

On April 23, 2009 CARB approved the proposed regulation to implement the LCFS. The LCFS will reduce GHG emissions from the transportation sector in California by about 16 million metric tons in 2020.

Executive Orders S-14-08 and S-21-09. In November 2008, then-Governor Schwarzenegger signed Executive Order S-14-08, which expands the state's Renewable Portfolio Standard to 33% renewable power by 2020. In September 2009, then-Governor Schwarzenegger continued California's commitment to the Renewable Portfolio Standard by signing Executive Order S-21-09, which directs CARB under its AB 32 authority to enact regulations to help the state meet its Renewable Portfolio Standard goal of 33% renewable energy by 2020.

Executive Order S-13-08. Governor Arnold Schwarzenegger signed EO S-13-08 on November 14, 2008. The order called on state agencies to develop California's first strategy to identify and prepare for expected climate impacts. As a result the *2009 California Climate Adaptation Strategy (CAS)* report was developed to summarize the best known science on climate change impacts in the State to assess vulnerability and outline possible solutions that can be implemented within and across State agencies to promote resiliency. The State has also developed an Adaptation Planning Guide (CDNR, 2012) to provide a decision-making framework intended for use by local and regional stakeholders to aid in the interpretation of climate science and to develop a systematic rationale for reducing risks caused or exacerbated by climate change. The State's third major assessment on climate change explores local and statewide vulnerabilities to climate change, highlighting opportunities for taking concrete actions to reduce climate-change impacts.

Executive Order B-30-15. Governor Brown signed EO-B-30-15 on April 29, 2015, establishing a statewide GHG reduction target of 40% below 1990 levels by 2030, as an interim target intended to keep the state on track to achieve S-3-05's target of 80% below 1990 levels by 2050.

State of California Legislation

Assembly Bill 1493. In 2002, then-Governor Gray Davis signed Assembly Bill (AB) 1493. AB 1493 requires that CARB develop and adopt, by January 1, 2005, regulations that achieve "the maximum feasible reduction of greenhouse gases emitted by passenger vehicles and light-duty trucks and other vehicles determined by CARB to be vehicles whose primary use is noncommercial personal transportation in the State."

To meet the requirements of AB 1493, in 2004 CARB approved amendments to the California Code of Regulations (CCR) adding GHG emissions standards to California's existing standards for motor vehicle emissions. All mobile sources are required to comply with these regulations as they are phased in from 2009 through 2016.

Assembly Bill 32 – California Global Warming Solutions Act and the Scoping Plan. In September 2006, then-Governor Arnold Schwarzenegger signed the California Global Warming Solutions Act (AB 32; California Health and Safety Code Division 25.5, §§ 38500 - 38599). AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and establishes a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. This reduction will be accomplished by enforcing a statewide cap on GHG emissions that will be phased in starting in 2012. To effectively implement the cap, AB 32 directs CARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources. AB 32 specifies that regulations adopted in response to AB 1493 should be used to address GHG emissions from vehicles. However, AB 32 also includes language stating that if the AB 1493 regulations cannot be implemented, then CARB should develop new regulations to control vehicle GHG emissions under the authorization of AB 32.

AB 32 requires CARB to adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrived at the cap; institute a schedule to meet the emissions cap; and develop tracking, reporting, and enforcement mechanisms to ensure that the state reduces GHG emissions enough to meet the cap. AB 32 also includes guidance on instituting emissions reductions in an economically efficient manner, along with conditions to ensure that businesses and consumers are not unfairly affected by the reductions. According to CARB's *Climate Change Scoping Plan* (CARB, 2014), the 2020 target of 427 million metric tons of CO_2e requires the reduction of 169 million metric tons of CO_2e, or approximately 28.3 percent, from the state's projected 2020 business-as-usual (BAU) emissions level of 596 million metric tons of CO_2e. However, CARB has discretionary authority to seek greater reductions in more significant and growing GHG sectors, such as transportation, as compared to other sectors that are not anticipated to significantly increase emissions. In May 2014, the First Update to the AB 32 Scoping Plan was approved by the Board (CARB, 2014). This document includes expanded analysis of project alternatives as well as updates the 2020 emission projections in light of the current economic forecasts. Considering the updated 2020 BAU estimate of 509 million metric tons of CO_2e, a 16 percent reduction below the estimated BAU levels would be necessary to return to 1990 levels by 2020.

CARB's *Scoping Plan* (CARB, 2014) calculates 2020 BAU emissions as the emissions that would be expected to occur in the absence of any GHG reduction measures. The 2020 BAU emissions estimate was derived by projecting emissions from a past baseline year using growth factors specific to each of the different economic sectors, i.e. transportation, electrical power, commercial, residential, industrial etc. CARB is proposing to update the number for the 2020 limit based on the updated GWPs from the IPCC's Fourth Assessment. Then new statewide target, weighting the 1990 emissions with 100-year GWPs is 431 $MTCO_2e$, an approximate 1% increase from the original target of 427 $MTCO_2e$.

CARB's *Scoping Plan* also breaks down the amount of GHG emissions reductions CARB recommends for each emissions sector of the state's GHG inventory. CARB's Scoping Plan expects reductions in GHG emissions to be achieved from the following sector-based measures:

- Energy – 25 $MTCO_2e$
- Transportation – 23 $MTCO_2e$
- High GWP – 5 $MTCO_2e$
- Waste – 2 $MTCO_2e$
- Cap and Trade – 23 $MTCO_2e$

CARB has identified a GHG reduction target of 5 million metric tons (of the 174 million metric ton total) for local land use changes (Table 2 of CARB's Scoping Plan).Such reductions may be achieved as Senate Bill (SB) 375 is implemented. CARB's Scoping Plan states that successful implementation of the plan relies on local governments' land use, planning, and urban growth decisions because local governments have primary authority to plan, zone, approve, and permit land development to accommodate population growth and the changing needs of their jurisdictions. CARB further acknowledges that decisions on how land is used will have large effects on the GHG emissions that will result from the transportation, housing, industry, forestry, water, agriculture, electricity, and natural gas emission sectors. CARB's *Scoping Plan* does not include any direct discussion about GHG emissions generated by construction activity.

CARB's *Scoping* Plan expands the list of nine Discrete Early Action Measures to a list of 39 Recommended Actions contained in Appendices C and E of CARB's *Scoping Plan*. These measures are presented in **Table 4.6-2**: Recommended Actions from CARB Climate Change Scoping Plan.

Senate Bills 1078 and 107. SB 1078 (Chapter 516, Statutes of 2002) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20% of their supply from renewable sources by 2017. SB 107 (Chapter 464, Statutes of 2006) changed the target date to 2010.

Senate Bill 97. In 2007, the State Legislature passed SB 97, which required amendment of the *CEQA Guidelines* to incorporate analysis of, and mitigation for, GHG emissions from projects subject to CEQA. The California Natural Resources Agency adopted these amendments on December 30, 2009. They took effect on March 18, 2010, after review by the Office of Administrative Law and filing with the Secretary of State for inclusion in the California Code of Regulations.

The Guidelines revisions include a new section (§ 15064.4) that specifically addresses the potential significance of GHG emissions. § 15064.4 calls for a "good-faith effort" to "describe, calculate or estimate" GHG emissions. § 15064.4 further states that the analysis of the significance of any GHG impacts should include consideration of the extent to which the project would increase or reduce GHG emissions; exceed a locally applicable threshold of significance; and comply with "regulations or requirements adopted to implement a statewide, regional, or

TABLE 4.6-2
RECOMMENDED ACTIONS FROM CARB CLIMATE CHANGE SCOPING PLAN

ID #	Sector	Strategy Name
T-1	Transportation	Pavley I and II – Light-Duty Vehicle GHG Standards
T-2	Transportation	LCFS (Discrete Early Action)
T-3	Transportation	Regional Transportation-Related GHG Targets
T-4	Transportation	Vehicle Efficiency Measures
T-5	Transportation	Ship Electrification at Ports (Discrete Early Action)
T-6	Transportation	Goods-movement Efficiency Measures
T-7	Transportation	Heavy Duty Vehicle GHG Emission Reduction Measure – Aerodynamic Efficiency (Discrete Early Action)
T-8	Transportation	Medium and Heavy-Duty Vehicle Hybridization
T-9	Transportation	High Speed Rail
E-1	Electricity and Natural Gas	Increased Utility Energy efficiency programs More stringent Building and Appliance Standards
E-2	Electricity and Natural Gas	Increase Combined Heat and Power Use by 30,000GWh
E-3	Electricity and Natural Gas	Renewables Portfolio Standard
E-4	Electricity and Natural Gas	Million Solar Roofs
CR-1	Electricity and Natural Gas	Energy Efficiency
CR-2	Electricity and Natural Gas	Solar Water Heating
GB-1	Green Buildings	Green Buildings
W-1	Water	Water Use Efficiency
W-2	Water	Water Recycling
W-3	Water	Water System Energy Efficiency
W-4	Water	Reuse Urban Runoff
W-5	Water	Increase Renewable Energy Production
W-6	Water	Public Goods Charge (Water)
I-1	Industry	Energy Efficiency and Co-benefits Audits for Large Industrial Sources
I-2	Industry	Oil and Gas Extraction GHG Emission Reduction
I-3	Industry	GHG Leak Reduction from Oil and Gas Transmission
I-4	Industry	Refinery Flare Recovery Process Improvements
I-5	Industry	Removal of CH_4 Exemption from Existing Refinery Regulations
RW-1	Recycling and Waste Management	Landfill CH_4 Control (Discrete Early Action)
RW-2	Recycling and Waste Management	Additional Reductions in Landfill CH_4 – Capture Improvements
RW-3	Recycling and Waste Management	High Recycling/Zero Waste
F-1	Forestry	Sustainable Forest Target
H-1	High GWP Gases	Motor Vehicle Air Conditioning Systems (Discrete Early Action)
H-2	High GWP Gases	SF_6 Limits in Non-Utility and Non-Semiconductor Applications (Discrete Early Action)
H-3	High GWP Gases	Reduction in Perfluorocarbons in Semiconductor Manufacturing (Discrete Early Action)
H-4	High GWP Gases	Limit High GWP Use in Consumer Products (Discrete Early Action, Adopted June 2008)
H-5	High GWP Gases	High GWP Reductions from Mobile Sources
H-6	High GWP Gases	High GWP Reductions from Stationary Sources
H-7	High GWP Gases	Mitigation Fee on High GWP Gases
A-1	Agriculture	CH_4 Capture at Large Dairies

SOURCE: CARB, 2009 – Initial Scoping Plan.

local plan for the reduction or mitigation of greenhouse gas emissions." The new guidelines also state that a project may be found to have a less-than-significant impact on GHG emissions if it complies with an adopted plan that includes specific measures to sufficiently reduce GHG emissions (Sec. 15064(h)(3)). Importantly, however, the *CEQA Guidelines* do not require or recommend a specific analytical methodology or provide quantitative criteria for determining the significance of GHG emissions. No quantitative significance threshold is included in the Amendments. The Amendments also include a new Subdivision 15064.7(c) which clarifies that in developing thresholds of significance, a lead agency may appropriately review thresholds developed by other public agencies, or recommended by other experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence.

Senate Bill 375. Signed into law on October 1, 2008, SB 375 supplements GHG reductions from new vehicle technology and fuel standards with reductions from more efficient land use patterns and improved transportation. Under the law, the ARB approved GHG reduction targets in February 2011 for California's 18 federally designated regional planning bodies, known as Metropolitan Planning Organizations (MPOs). The ARB may update the targets every 4 years and must update them every 8 years. MPOs in turn must demonstrate how their plans, policies and transportation investments meet the targets set by the ARB through Sustainable Communities Strategy. The target reductions for the Bay Area are a regional reduction of per-capita CO2 emissions from cars and light-duty trucks by 7% by 2020 and by 15% by 2035, compared to a 2005 baseline. ABAG addresses these goals in *Plan Bay Area*, which identifies Priority Development areas near transit options to reduce use of on-road vehicles.

Senate Bill X 1-2. Senate Bill X1-2, signed by Governor Edmund G. Brown in April 2011, enacted the California Renewable Energy Resources Act. The law obligates all California electricity providers, including investor-owned and publicly-owned utilities, to obtain at least 33% of their energy from renewable resources by the year 2020.

Senate Bill 350. The Clean Energy and Pollution Reduction Act of 2015. SB 350 (Chapter 547, Statutes of 2015) was approved by Governor Brown on October 7, 2015. SB 350 increased the standards of the California Renewable Portfolio Standards (RPS) program by requiring that the amount of electricity generated and sold to retail customers per year from eligible renewable energy resources be increased from 33 percent to 50 percent by December 31. 2030. The Act requires the State Energy Resources Conservation and Development Commission to establish annual targets for statewide energy efficiency savings and demand reduction that will achieve a cumulative doubling of statewide energy efficiency savings in existing electricity and natural gas final end uses of retail customers by January 1, 2030.

State of California Building Codes

California Building and Energy Efficiency Standards (Title 24). Title 24, Part 6 of the California Code of Regulations (CCR) requires that the design of building shells and building components conserve energy. These standards are updated periodically to consider and incorporate new energy efficiency technologies and methods. Residential buildings built to 2016 Title 24 Standards, which will go in effect on January 1, 2017, will use about 28 percent less

energy for lighting, heating, cooling, ventilation, and water heating compared to the 2013 Title 24 Standards, which went into effect on January 1, 2014. The 2013 Standards are approximately 24 percent more energy efficient for residential buildings, and 30 percent more energy efficient for nonresidential buildings, compared to the previous 2008 Building and Energy Efficiency Standards (CEC, 2016).

California Green Buildings Standards Code (CALGreen). On July 17, 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Part 11, Title 24) was adopted as part of the California Building Standards Code (Title 24, CCR), known as CALGreen. The 2010 edition of the code established voluntary standards on planning and design for sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and internal air quality. The mandatory provisions of the code became effective January 1, 2011. CALGreen refers to the mandatory Building Standards described above, and also includes voluntary Tier 1 and Tier 2 programs for cities and counties that wish to adopt more stringent green building requirements

Regional Regulations and Guidelines

Bay Area Air Quality Management District. BAAQMD is the regional government agency that regulates sources of air pollution within the nine San Francisco Bay Area counties. The BAAQMD regulates GHG emissions through the following plans, programs, and guidelines.

Clean Air Plan. BAAQMD and other air districts prepare clean air plans in accordance with the State and federal Clean Air Acts. On September 15, 2010, the BAAQMD Board of Directors adopted the final *Bay Area 2010 Clean Air Plan* (CAP). The Bay Area 2010 CAP is a comprehensive plan to improve Bay Area air quality and protect public health through implementation of a control strategy designed to reduce emissions and ambient concentrations of harmful pollutants. The 2010 CAP control strategies include revised, updated, and new measures in the three traditional control measure categories, including stationary sources measures, mobile source measures, and transportation control measures. In addition, the Bay Area 2010 CAP identifies two new categories of control measures, including land use and local impact measures and energy and climate (GHG emissions) measures (BAAQMD, 2010). BAAQMD is in the process of updating its 2010 CAP. The update will include a Regional Climate Protection Strategy which will include measures designed to make progress toward achieving the Governor's statewide 2050 goal for GHG emissions reductions.

BAAQMD Climate Protection Program. BAAQMD established a climate protection program to reduce pollutants that contribute to global climate change and affect air quality in the San Francisco Bay Area Air Basin. The climate protection program includes measures that promote energy efficiency, reduce vehicle miles traveled, and develop alternative sources of energy, all of which assist in reducing emissions of GHG and in reducing air pollutants that affect the health of residents. BAAQMD also seeks to support current climate protection programs in the region and to stimulate additional efforts through public education and outreach, technical assistance to local governments and other interested parties, and promotion of collaborative efforts among stakeholders.

BAAQMD CEQA Air Quality Guidelines. BAAQMD CEQA Air Quality Guidelines were prepared to assist in the evaluation of air quality impacts of projects and plans proposed within the Bay Area. The guidelines provide recommended procedures for evaluating potential air impacts during the environmental review process, consistent with CEQA requirements, and include recommended thresholds of significance, mitigation measures, and background air quality information. The guidelines also include recommended assessment methodologies for air toxics, odors, and greenhouse gas emissions. In June 2010, the BAAQMD's Board of Directors adopted CEQA thresholds of significance and an update of the CEQA Guidelines, which included significance threshold for greenhouse gas emissions. In May 2011, the updated BAAQMD CEQA Air Quality Guidelines were amended to include a risk and hazards threshold for new receptors and modified procedures for assessing impacts related to risk and hazard impacts.

On March 5, 2012, the Alameda County Superior Court issued a judgment finding that the BAAQMD had failed to comply with CEQA when it adopted the thresholds of significance in the BAAQMD CEQA Air Quality Guidelines. That decision was appealed to the Court of Appeal and one of the issues in the case has been decided by the California Supreme Court. The Supreme Court found that CEQA does not require an analysis of how existing environmental conditions will impact future residents or users of a proposed project, and remanded the case down for the lower court to decide remaining issues. Following the Superior Court order, the BAAQMD released revised *CEQA Air Quality Guidelines* in May of 2012 that include guidance on calculating air pollution emissions, obtaining information regarding the health impacts of air pollutants, and identifying potential mitigation measures, and which set aside the significance thresholds. There was no challenge to BAAQMD's 2010 greenhouse gas thresholds or the substantial evidence supporting those thresholds.

BAAQMD's Guidelines recommend two different GHG thresholds. The first threshold, 1,100 MT CO2e per year, is a numeric emissions level below which a project's contribution to global climate change would be less than cumulatively considerable. For larger and mixed-use projects, the Guidelines state that emissions would be less than cumulatively significant if the project as a whole would result in an efficiency of 4.6 MT CO2e per service population or better. (2011 BAAQMD Guideline Update at D-27).

Under the 2011 CEQA Air Quality Guidelines, a local government may prepare a qualified GHG Reduction Strategy that is consistent with AB 32 goals. If a project is consistent with an adopted qualified GHG Reduction Strategy and General Plan that addresses the project's GHG emissions, it can be presumed that the project will not have significant GHG emissions under CEQA.[4] The 2011 Guidelines also included a quantitative threshold for project level analyses based on estimated GHG emissions as well as per capita metrics. Oakland's ECAP is a qualified GHG Reduction Strategy.

Metropolitan Transportation Commission/Association of Bay Area Governments Sustainable Communities Strategy. MTC is the federally recognized metropolitan planning organization (MPO) for the nine county Bay Area, which includes Alameda County and the City

[4] Bay Area Air Quality Management District, 2011. *CEQA Air Quality Guidelines*. May 2011.

of Oakland. On July 18, 2013, the Plan Bay Area was jointly approved by ABAG's Executive Board and by MTC. The Plan includes the region's Sustainable Communities Strategy and the 2040 Regional Transportation Plan. The Sustainable Communities Strategy lays out how the region will meet GHG reduction targets set by the California Air Resources Board (CARB). CARB's targets call for the region to reduce per capita vehicular GHG emissions seven percent by 2020 and 15 percent by 2035 from a 2005 baseline.

City of Oakland

City of Oakland General Plan

Land Use and Transportation Element (LUTE)

The LUTE (which includes the Pedestrian Master Plan and Bicycle Master Plan) of the Oakland General Plan contains the following policies that address issues related to reducing transportation-related sources of GHG Emissions and their effects on Climate Change:

- ***Policy T.2.1: Encouraging Transit-Oriented Development:*** Transit-oriented development should be encouraged at existing or proposed transit nodes, defined by the convergence of two or more modes of public transit such as BART, bus, shuttle service, light rail or electric trolley, ferry, and inter-city or commuter rail.

- ***Policy T.2.2: Guiding Transit-Oriented Development.*** Transit-oriented developments should be pedestrian oriented, encourage night and day time use, provide the neighborhood with needed goods and services, contain a mix of land uses, and be designed to be compatible with the character of surrounding neighborhoods.

- ***Policy T.3.5: Including Bikeways and Pedestrian Walks.*** The City should include bikeways and pedestrian ways in the planning of new, reconstructed, or realigned streets, wherever possible.

- ***Policy T.3.6: Incorporating Design Feature for Alternative Travel.*** The City will require new development, rebuilding, or retrofit to incorporate design features in their projects that encourage use of alternative modes of transportation such as transit, bicycling, and walking.

- ***Policy T.4.2: Creating Transportation Incentives.*** Through cooperation with other agencies, the City should create incentives to encourage travelers to use alternative transportation options.

- ***Policy T.4.5: Preparing a Bicycle and Pedestrian Master Plan.*** The City should prepare, adopt, and implement a Bicycle and Pedestrian Master Plan as a part of the Transportation Element of [the] General Plan.

- ***Policy N.3.2: Encouraging Infill Development.*** In order to facilitate the construction of needed housing units, infill development that is consistent with the General Plan should take place throughout the City.

Open Space, Conservation and Recreation Element (OSCAR)

The OSCAR Element includes policies that address GHG reduction and adaptation to global climate change. Listed below are OSCAR policies that encourage the provision of open space,

which increases vegetation area (trees, grass, landscaping, etc.) to effect cooler climate, reduce excessive solar gain, and absorb CO_2; OSCAR policies that encourage stormwater management, which relates to the maintenance of floodplains and infrastructure to accommodate potential increased storms and flooding; and OSCAR policies that encourage energy efficiency and use of alternative energy sources, which directly address reducing GHG emissions.

- ***Policy OS.1.1: Wildland Parks.*** Conserve existing City and Regional Parks characterized by steep slopes, large groundwater recharge areas, native plant and animal communities, extreme fire hazards, or similar conditions.
- ***Policy OS.2.1: Protection of Park Open Space.*** Manage Oakland's urban parks to protect and enhance their open space character while accommodating a wide range of outdoor recreational activities.
- ***Policy CO-12.1: Land Use Patterns Which Promote Air Quality:*** Promote land use patterns and densities which help improve regional air quality conditions by: (a) minimizing dependence on single passenger autos; (b) promoting projects which minimize quick auto starts and stops, such as live-work development, mixed use development, and office development with ground floor retail space; (c) separating land uses which are sensitive to pollution from the sources of air pollution; and (d) supporting telecommuting, flexible work hours, and behavioral changes which reduce the percentage of people in Oakland who must drive to work on a daily basis.
- ***Policy CO.12.3: Transportation Systems Management.*** Expand existing transportation systems management and transportation demand management strategies which reduce congestion, vehicle idling, and travel in single passenger autos.
- ***Policy CO-12.4: Design of Development to Minimize Air Quality Impacts:*** Require that development projects be designed in a manner which reduces potential adverse air quality impacts. This may include: (a) the use of vegetation and landscaping to absorb carbon monoxide and to buffer sensitive receptors; (b) the use of low-polluting energy sources and energy conservation measures; and (c) designs which encourage transit use and facilitate bicycle and pedestrian travel.
- ***Policy CO.13.2: Energy Efficiency.*** Support public information campaigns, energy audits, the use of energy-saving appliances and vehicles, and other efforts which help Oakland residents, businesses, and City operations become more energy efficient.
- ***Policy CO.13.3: Construction Methods and Materials.*** Encourage the use of energy-efficient construction and building materials. Encourage site plans for new development which maximize energy efficiency.
- ***Policy CO.13.4: Alternative Energy Sources.*** Accommodate the development and use of alternative energy resources, including solar energy and technologies which convert waste or industrial byproducts to energy, provided that such activities are compatible with surrounding land uses and regional air and water quality requirements.

Historic Preservation Element (HPE)

A key HPE policy relevant to climate change encourages the reuse of existing building (and building materials) resources, which could reduce landfill material (a source of methane, a GHG), avoid the incineration of materials (which produces CO_2 as a by-product), avoid the need to transport materials to disposal sites (which produces GHG emissions), and eliminate the need for

materials to be replaced by new product (which often requires the use of fossil fuels to obtain raw and manufacture new material).

Safety Element

Safety Element policies that address wildfire hazards related to climate change in that increased temperatures could increase fire risk in areas that become drier due to climate change. Also, wildfire results in the loss of vegetation; carbon is stored in vegetation, and when the vegetation burns, the carbon returns to the atmosphere. The occurrence of wildfire also emits particulate matters into the atmosphere. Safety Element policies regarding storm-induced flooding hazards related to the potential to accommodate potential increase in storms and flooding as a result of climate change.

- ***Policy FI-3:*** Prioritize the reduction of the wildfire hazard, with an emphasis on prevention.
- ***Policy FL-1:*** Enforce and update local ordinances and comply with regional orders that would reduce the risk of storm-induced flooding.
- ***Policy FL-2:*** Continue or strengthen city programs that seek to minimize the storm-induced flooding hazard.

Housing Element

- ***Policy 7.1: Sustainable Residential Development Programs.*** In conjunction with the City's adopted Energy and Climate Action Plan (ECAP), develop and promote programs to foster the incorporation of sustainable design principles, energy efficiency and smart growth principles into residential developments. Offer education and technical assistance regarding sustainable development to project applicants.
- ***Policy 7.2: Minimize Energy Consumption.*** Encourage the incorporation of energy conservation design features in existing and future residential development beyond minimum standards required by State building code.
- ***Policy 7.3: Encourage Development that Reduces Carbon Emissions.*** Continue to direct development toward existing communities and encourage infill development at densities that are higher than—but compatible with-- the surrounding communities. Encourage development in close proximity to transit, and with a mix of land uses in the same zoning district, or on the same site, so as to reduce the number and frequency of trips made by automobile.
- ***Policy 7.4: Minimize Environmental Impacts from New Housing.*** Work with developers to encourage construction of new housing that, where feasible, reduces the footprint of the building and landscaping, preserves green spaces, and supports ecological systems.
- ***Policy 7.5: Climate Adaptation and Neighborhood Resiliency.*** Continue to study the potential local effects of climate change in collaboration with local and regional partners, such as BCDC. Identify potential adaptation strategies to improve community resilience to climate change, and integrate these strategies in new development, where appropriate.

Oakland Energy and Climate Action Plan

The City adopted an Oakland Energy and Climate Action Plan (ECAP) on December 2, 2012, which identifies, evaluates and recommends prioritized actions to reduce energy consumption and

GHG emissions in Oakland. The ECAP identifies energy and climate goals, clarifies policy direction, and identifies priority actions for reducing energy use and GHG emissions. (City of Oakland, 2012).

The ECAP outlines a ten year plan including more than 150 actions that will enable Oakland to achieve a 36% reduction in GHG emissions with respect to each of these GHG sources. Oakland can accomplish this goal by 2020 through:

- 20% reduction in vehicle miles traveled annually as residents, workers and visitors meet daily needs by walking, bicycling, and using transit;
- 24 million gallons of oil saved annually due to less driving and more fuel efficient vehicles on local roads
- 32% decrease in electricity consumption through renewable generation, conservation and energy efficiency
- 14% decrease in natural gas consumption through building retrofits, solar hot water projects and conservation
- 62 million kWh and 2.7 million therms annually of new renewable energy used to meet local needs
- 375,000 tons of waste diverted away from local landfills through waste reduction, reuse, recycling, and composting

The ECAP also recommends a Three Year Priority Implementation Plan; a prioritized subset of actions recommended for implementation in the next three years. These priority actions will capitalize on near term opportunities and lay the groundwork for long term progress. Some of the recommended priority actions can be implemented with existing and anticipated resources. Others will require the identification of new, in some cases significant, resources to move forward.

The following Priority Actions (PAs) of the ECAP direct the City to take actions that would affect private development in the City:

- ***PA7. Adopt a Green Building Ordinance for Private Development.*** This was adopted in 2011, as discussed later in this section (see *Green Building Ordinance)*.
- ***PA 15. Create an Oakland Specific Water Efficient Landscaping Ordinance (WELO).*** The City will create an Oakland-specific WELO providing citywide standards for public space that ensure stormwater retention and water conservation features are incorporated into landscaping. The Oakland-specific WELO will be designed to implement California's new model WELO and align with Bay Friendly Landscaping Guidelines.
- ***PA 10. Encourage Participation in Local Energy Efficiency Programs.*** The City will encourage businesses to improve building energy performance by an average of 20% by enrolling in local energy efficiency programs such as Smart Lights and taking advantage of other Pacific Gas & Electric (PG&E) programs and incentives for energy improvements. The Smart Lights program facilitates cost-effective lighting efficiency improvements for retail and small businesses in Oakland, offering expert advice and coordinating lighting retrofit implementation

- ***PA31: Improve Transportation and Land Use Planning Integration in Every Land Use Effort.*** In addition to creating a citywide comprehensive transportation plan, the City will seek resources to reduce long term vehicle miles traveled (VMT) and associated GHG emissions by ensuring that all City planning efforts fully integrate attention to land use and transportation.

- ***PA37: Plan for Electric Vehicle Infrastructure.*** The City will seek resources to address electric vehicle infrastructure planning and develop new processes to facilitate community adoption of electric vehicle technologies. The City is already partnering with other Bay Area cities and other partners in an effort to make the Bay Area the electric vehicle capital of the United States.

- ***PA46: Consider Energy Benchmarking for Commercial Buildings.*** The City will seek resources to research and develop options for requiring energy benchmarking of commercial sector buildings. Benchmarking energy can yield insights into energy performance and opportunities to save energy and money through improved efficiency and conservation. Energy benchmarking tools are available to help private building owners gain additional perspective on the relative energy use of their buildings, and where opportunities for efficiency improvements may exist.

- ***PA50: Facilitate Community Solar Programs.*** The City will seek resources to encourage and collaborate with local partners to offer a community solar program(s) promoting increased use of renewable energy.

Other City of Oakland Sustainability Programs and Policies

The City of Oakland has supported and adopted a number of programs and policies designed to reduce GHG emissions and continue Oakland's progress toward becoming a model sustainable city (City of Oakland, 2015). Other programs and policies of relevance to the adoption and development under the Specific Plan which impact the proposed project include:

Sustainable Oakland Program. Oakland's sustainability efforts, which include actions that could reduce GHG emissions, are coordinated through the Sustainable Oakland program, a product of the Oakland Sustainability Community Development Initiative (SDI) created in 1998 (Ordinance 74678 C.M.S.).

Green Building Ordinance. The City of Oakland adopted mandatory green building standards for private development projects on October 19, 2010 (13040 C.M.S.). The following project types are included in the City's green building ordinance:

- Residential New Construction
- Residential Additions and Alterations
- Non-Residential New Construction
- Non-Residential Additions and Alterations
- Removal of a Historic Resource and New Construction
- Historic Residential Additions and Alterations
- Historic Non-Residential Additions and Alterations
- Mixed Use Construction
- Construction Requiring a Landscape Plan

All buildings or projects must comply with all requirements of the 2013 California Building Energy Efficiency Standards and subsequent updates to those standards, as well as meet a variety of checklist requirements. These ordinance indirectly reduce GHGs through design features lowering building energy use and will directly impact the proposed project as it contains new construction of residential and non-residential uses.

Waste Reduction and Recycling Programs. The City of Oakland has implemented a residential recycling program that has increased total yard trimming collections by 46 percent compared to 2004, and recycling tonnage by 37 percent. The City also adopted Construction and Demolition Recycling requirements, for which the City passed a resolution in July 2000 (Ordinance 12253. OMC Chapter 15.34), requiring certain nonresidential or apartment house projects to recycle 100 percent of all Asphalt & Concrete (A/C) materials and 65 percent of all other materials. This program directly reduces GHG emissions from the waste sector by diverting degradable organic carbon from the landfill that would otherwise produce methane and through the reuse of existing construction and demolition waste materials that reduce upstream fossil-based energy GHG emission required for the acquisition and fabrication of manufacturing virgin building materials

Zero Waste Resolution. In March 2006, the Oakland City Council adopted a Zero Waste Goal by 2020 Resolution (Resolution 79774 C.M.S.) and commissioned the creation of a Zero Waste Strategic Plan to achieve the goal. As stated above, reducing waste avoids landfill methane emissions and reduces the dependence on the fossil-based energy required to manufacture virgin materials.

City of Oakland Standard Conditions of Approval

The City's Standard Conditions of Approval (SCAs) that directly pertain to GHGs and that apply to construction and operation of the proposed project are listed below. If the project is approved by the City, all applicable SCAs will be adopted as conditions of approval and required, as applicable, to help address GHG emissions. Because the conditions of approval are incorporated as part of the project, they are not listed as mitigation measures. The following is an excerpt from the City's SCAs as they pertain to GHGs, as modified February 5, 2016:

> The following condition applies under any of the following scenarios for projects which result in a net increase in greenhouse gas (GHG) emissions:
>
> > **Scenario A:** Projects which (a) involve a land use development (i.e., a project that does not require a permit from the Bay Area Air Quality Management District [BAAQMD] to operate), (b) exceed the GHG emissions screening criteria contained in the BAAQMD CEQA Guidelines,[5] and (c) after a GHG analysis is prepared would produce total GHG emissions of more than 1,100 metric tons of CO2e

[5] For residential development projects, refer to the City's Housing Element EIR screening criteria. The Housing Element EIR's analysis showed that residential development projects of less than 172 units would not result in a significant climate change impact and, therefore, no project-specific GHG analysis is required for such projects. Under an alternative approach in the Housing Element EIR, the analysis found that ANY residential development project (including those containing 172 or more units) would not result in a significant climate change impact and that no project-specific GHG analysis would be required. For residential projects containing 172 or more units, please consult with City Planning staff and the City Attorney's office on the appropriate GHG review. For nonresidential development projects and mixed-use development projects, the nonresidential component of the project must be compared to the BAAQMD screening criteria and the applicable threshold if the screening criteria are exceeded, independently from any residential component the project.

annually and more than 4.6 metric tons of CO2e per service population annually (with "service population" defined as the total number of employees and residents of the project).

Scenario B: Projects which (a) involve a land use development, (b) exceed the GHG emissions screening criteria contained in the BAAQMD CEQA Guidelines[6], and (c) after a GHG analysis is prepared would exceed at least one of the BAAQMD Thresholds of Significance (more than 1,100 metric tons of CO_2e annually OR more than 4.6 metric tons of CO_2e per service population annually), and (d) are considered to be "Very Large Projects."[7]

During preparation of this Draft EIR, the Project sponsor directed its qualified consultant to prepare a draft *Greenhouse Gas Reduction Plan* based on preliminary emissions assessments that showed significant GHG emissions that placed the proposed Project under Scenario B: the Project exceeded both of the BAAQMD thresholds of significance and is defined as a "very large project" as it is a residential development of more than 500 dwelling units. Therefore, the following SCA GHG-1 would apply.

The Project sponsor subsequently prepared a draft Transportation Demand Management (TDM) Program (Appendix BB to this document) and submitted other modifications to the Project. As analyzed in this section, the project's GHG emissions would still exceed one of the BAAQMD Thresholds of Significance. The GHG emissions presented in Impact GHG-1 prepared by ESA for this EIR would meet, but would not exceed, the efficiency threshold of 4.6 metric tons of CO_2e per service population annually but the project would still produce total GHG emissions greater than 1,100 metric tons of CO_2e per year. Thus, the Greenhouse Gas Reduction (GGRP) analysis and application presented below would still apply to this project.

- **SCA GHG-1: Greenhouse Gas (GHG) Reduction Plan**

  a. Greenhouse Gas (GHG) Reduction Plan.

  Requirement. The project applicant shall retain a qualified air quality consultant to develop a Greenhouse Gas (GHG) Reduction Plan for City review and approval and shall implement the approved GHG Reduction Plan.

  The goal of the GHG Reduction Plan shall be to increase energy efficiency and reduce GHG emissions to below at least one of the Bay Area Quality Management District's (BAAQMD's) CEQA Thresholds of Significance (1,100 metric tons of CO_2e per year or 4.6 metric tons of CO_2e per year per service population) AND to

6 See footnote above.

7 A "Very Large Project" is defined as any of the following:
(A) Residential development of more than 500 dwelling units;
(B) Shopping center or business establishment employing more than 1,000 persons or encompassing more than 500,000 square feet of floor space;
(C) Commercial office building employing more than 1,000 persons or encompassing more than 250,000 square feet of floor space;
(D) Hotel/motel development of more than 500 rooms;
(E) Industrial, manufacturing, processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or encompassing more than 650,000 square feet of floor area; or
(F) Any combination of smaller versions of the above that when combined result in equivalent annual GHG emissions as the above.

reduce GHG emissions by 36 percent below the project's 2005 "business-as-usual" baseline GHG emissions (as explained below) to help implement the City's Energy and Climate Action Plan (adopted in 2012) which calls for reducing GHG emissions by 36 percent below 2005 levels. The GHG Reduction Plan shall include, at a minimum, (a) a detailed GHG emissions inventory for the project under a "business-as-usual" scenario with no consideration of project design features, or other energy efficiencies, (b) an "adjusted" baseline GHG emissions inventory for the project, taking into consideration energy efficiencies included as part of the project (including the City's Standard Conditions of Approval, proposed mitigation measures, project design features, and other City requirements) and additional GHG reduction measures available to further reduce GHG emissions, and (c) requirements for ongoing monitoring and reporting to demonstrate that the additional GHG reduction measures are being implemented. If the project is to be constructed in phases, the GHG Reduction Plan shall provide GHG emission scenarios by phase.

Potential GHG reduction measures to be considered include, but are not be limited to, measures recommended in BAAQMD's latest CEQA Air Quality Guidelines, the California Air Resources Board Scoping Plan (December 2008, as may be revised), the California Air Pollution Control Officers Association (CAPCOA) Quantifying Greenhouse Gas Mitigation Measures (August 2010, as may be revised), the California Attorney General's website, and Reference Guides on Leadership in Energy and Environmental Design (LEED) published by the U.S. Green Building Council.

The types of allowable GHG reduction measures include the following (listed in order of City preference): (1) physical design features; (2) operational features; and (3) the payment of fees to fund GHG-reducing programs (i.e., the purchase of "carbon credits") as explained below.

The allowable locations of the GHG reduction measures include the following (listed in order of City preference): (1) the project site; (2) off-site within the City of Oakland; (3) off-site within the San Francisco Bay Area Air Basin; (4) off-site within the State of California; then (5) elsewhere in the United States.

As with preferred locations for the implementation of all GHG reductions measures, the preference for carbon credit purchases include those that can be achieved as follows (listed in order of City preference): (1) within the City of Oakland; (2) within the San Francisco Bay Area Air Basin; (3) within the State of California; then (4) elsewhere in the United States. The cost of carbon credit purchases shall be based on current market value at the time purchased and shall be based on the project's operational emissions estimated in the GHG Reduction Plan or subsequent approved emissions inventory, which may result in emissions that are higher or lower than those estimated in the GHG Reduction Plan.

For physical GHG reduction measures to be incorporated into the design of the project, the measures shall be included on the drawings submitted for construction-related permits.

When Required: Prior to approval of construction-related permit

Initial Approval: Bureau of Planning

Monitoring/Inspection: N/A

b. GHG Reduction Plan Implementation During Construction.

Requirement. The project applicant shall implement the GHG Reduction Plan during construction of the project. For physical GHG reduction measures to be incorporated into the design of the project, the measures shall be implemented during construction. For physical GHG reduction measures to be incorporated into off-site projects, the project applicant shall obtain all necessary permits/approvals and the measures shall be included on drawings and submitted to the City Planning Director or his/her designee for review and approval. These off-site improvements shall be installed prior to completion of the subject project (or prior to completion of the project phase for phased projects). For GHG reduction measures involving the purchase of carbon credits, evidence of the payment/purchase shall be submitted to the City for review and approval prior to completion of the project (or prior to completion of the project phase, for phased projects).

When Required: During construction

Initial Approval: Bureau of Planning

Monitoring/Inspection: Bureau of Building

c. GHG Reduction Plan Implementation After Construction.

Requirement. The project applicant shall implement the GHG Reduction Plan after construction of the project (or at the completion of the project phase for phased projects). For operational GHG reduction measures to be incorporated into the project or off-site projects, the measures shall be implemented on an indefinite and ongoing basis.

The project applicant shall satisfy the following requirements for ongoing monitoring and reporting to demonstrate that the additional GHG reduction measures are being implemented. The GHG Reduction Plan requires regular periodic evaluation over the life of the project (generally estimated to be at least 40 years) to determine how the Plan is achieving required GHG emissions reductions over time, as well as the efficacy of the specific additional GHG reduction measures identified in the Plan.

Annual Report. Implementation of the GHG reduction measures and related requirements shall be ensured through compliance with Conditions of Approval adopted for the project. Generally, starting two years after the City issues the first Certificate of Occupancy for the project, the project applicant shall prepare each year of the useful life of the project an Annual GHG Emissions Reduction Report ("Annual Report"), for review and approval by the City Planning Director or his/her designee. The Annual Report shall be submitted to an independent reviewer of the City's choosing, to be paid for by the project applicant.

The Annual Report shall summarize the project's implementation of GHG reduction measures over the preceding year, intended upcoming changes, compliance with the conditions of the Plan, and include a brief summary of the previous year's Annual Report results (starting the second year). The Annual Report shall include a comparison of annual project emissions to the baseline emissions reported in the GHG Plan.

The GHG Reduction Plan shall be considered fully attained when project emissions are less than either applicable numeric BAAQMD CEQA Thresholds AND GHG emissions are 36 percent below the project's 2005 "business-as-usual" baseline GHG emissions, as confirmed by the City through an established monitoring program. Monitoring and reporting activities will continue at the City's discretion, as discussed below.

Corrective Procedure. If the third Annual Report, or any report thereafter, indicates that, in spite of the implementation of the GHG Reduction Plan, the project is not achieving the GHG reduction goal, the project applicant shall prepare a report for City review and approval, which proposes additional or revised GHG measures to better achieve the GHG emissions reduction goals, including without limitation, a discussion on the feasibility and effectiveness of the menu of other additional measures ("Corrective GHG Action Plan"). The project applicant shall then implement the approved Corrective GHG Action Plan.

If, one year after the Corrective GHG Action Plan is implemented, the required GHG emissions reduction target is still not being achieved, or if the project applicant fails to submit a report at the times described above, or if the reports do not meet City requirements outlined above, the City may, in addition to its other remedies, (a) assess the project applicant a financial penalty based upon actual percentage reduction in GHG emissions as compared to the percent reduction in GHG emissions established in the GHG Reduction Plan; or (b) refer the matter to the City Planning Commission for scheduling of a compliance hearing to determine whether the project's approvals should be revoked, altered or additional conditions of approval imposed.

The penalty as described in (a) above shall be determined by the City Planning Director or his/her designee and be commensurate with the percentage GHG emissions reduction not achieved (compared to the applicable numeric significance thresholds) or required percentage reduction from the "adjusted" baseline.

In determining whether a financial penalty or other remedy is appropriate, the City shall not impose a penalty if the project applicant has made a good faith effort to comply with the GHG Reduction Plan.

The City would only have the ability to impose a monetary penalty after a reasonable cure period and in accordance with the enforcement process outlined in Planning Code Chapter 17.152. If a financial penalty is imposed, such penalty sums shall be used by the City solely toward the implementation of the GHG Reduction Plan.

Timeline Discretion and Summary. The City shall have the discretion to reasonably modify the timing of reporting, with reasonable notice and opportunity to comment by the applicant, to coincide with other related monitoring and reporting required for the project.

When Required: Ongoing

Initial Approval: Bureau of Planning

Monitoring/Inspection: Bureau of Planning

- **SCA GHG-2: Green Building Requirements – Bay Friendly Landscape**

  [The SCA below applies to the projects listed below AND that are rated using the Bay Friendly Basic Landscape Checklists:

  a. Construction projects with over 25,000 sq. ft. of total floor area of new construction requiring a landscape plan.]

  a. Compliance with Green Building Requirements During Plan-Check

  Requirement: The project applicant shall comply with the applicable requirements of the City of Oakland Green Building Ordinance (chapter 18.02 of the Oakland Municipal Code) for projects using the Bay Friendly Basic Landscape Checklist.

  i. The following information shall be submitted to the City for review and approval with the application for a building permit:

  - Completed copy of the final green building checklist approved during the review of the Planning and Zoning permit.
  - Copy of the Unreasonable Hardship Exemption, if granted, during the review of the Planning and Zoning permit.
  - Permit plans that show, in general notes, detailed design drawings, and specifications as necessary, compliance with the items listed in subsection (ii) below.
  - Copy of the signed statement by the Green Building Certifier approved during the review of the Planning and Zoning permit that the project complied with the requirements of the Green Building Ordinance.
  - Signed statement by the Green Building Certifier that the project still complies with the requirements of the Green Building Ordinance, unless an Unreasonable Hardship Exemption was granted during the review of the Planning and Zoning permit.
  - Other documentation as deemed necessary by the City to demonstrate compliance with the Green Building Ordinance.

  ii. The set of plans in subsection (i) shall demonstrate compliance with the following:

  - All green building points identified on the checklist approved during review of the Planning and Zoning permit, unless a Request for Revision Plan-check application is submitted and approved by the Bureau of Planning that shows the previously approved points that will be eliminated or substituted.

  When Required: Prior to approval of construction-related permit

  Initial Approval: Bureau of Building

  Monitoring/Inspection: N/A

  b. Compliance with Green Building Requirements During Construction

  Requirement: The project applicant shall comply with the applicable requirements of the Oakland Green Building Ordinance and the Bay Friendly Basic Landscape Checklist during construction of the project.

The following information shall be submitted to the City for review and approval:

i. Completed copies of the green building checklists approved during the review of the Planning and Zoning permit and during the review of the building

ii. Other documentation as deemed necessary by the City to demonstrate compliance with the Green Building Ordinance.

When Required: During construction

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

The following applicable Standard Conditions of Approval that address greenhouse gas emissions and climate change are stated in full in Section 4.14, *Utilities and Service Systems*, of this document.

- **SCA UTIL-6: Water Efficient Landscapes (WELO).**

4.6.3 Discussion of Impacts

Significance Criteria

The City of Oakland has established thresholds of significance for CEQA impacts (City of Oakland, 2015a). The City's thresholds of significance for GHG impacts and global climate change are generally based on the thresholds of significance adopted by the BAAQMD in May 2010 (BAAQMD, 2010a). The BAAQMD thresholds were originally developed for project operation impacts only. Therefore, combining both the construction emissions and operation emissions for comparison to the threshold represents a conservative analysis of total greenhouse gas impacts. GHG gas impacts are, by their nature, cumulative impacts.

The project would have a significant impact on climate change if it would do any of the following:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment, specifically:

Project-Level Impacts: For a project involving a land use development, produce total emissions of more than 1,100 metric tons of CO_2e annually **AND**[8] more than 4.6 metric tons of CO_2e per service population annually.[9] The project's impact would be considered significant if the emissions exceed **EITHER** the 1,100 metric tons threshold or the 4.6 metric tons threshold, as applicable. Accordingly, the impact would be considered less than significant if the project's emissions are below **EITHER** of these thresholds. (A

[8] The BAAQMD CEQA Guidelines state that the project would have a less-than-significant impact if CO_2e emissions do not exceed the 1,100 metric tons threshold OR the 4.6 metric tons per service population threshold. Because Oakland's thresholds are structured to indicate when a project would have a significant impact, the thresholds are presented here such that the project would have a significant impact if it exceeded the 1,100 metric tons threshold OR the 4.6 metric tons per service population threshold.

[9] Land use developments are projects that do not require a BAAQMD permit to operate. The service population includes both the residents and the employees of the project. BAAQMD recommends use of the 4.6 metric tons per service population threshold for large and mixed-use projects. (2011 BAAQMD Update at D-22 and D-27.)

project has a less than significant impact if the metric tons threshold is exceeded but the service population threshold is not.)

b) The project's expected greenhouse gas emissions during construction should be annualized over a period of 40 years and then added to the expected emissions during operation for comparison to the threshold. A 40-year period is used because 40 years is considered the average life expectancy of a building before it is remodeled with considerations for increased energy efficiency. Conflict with an applicable plan, policy, or regulation adopted for the purposes of reducing emissions of greenhouse gases.

Approach to Analysis

Methodology

The analysis of potential GHG impacts uses the project-level methodology identified by the BAAQMD, the regional agency primarily responsible for developing air quality plans for the Bay Area, including the City of Oakland. This methodology is outlined in the BAAQMD document *California Environmental Quality Act Air Quality Guidelines* (BAAQMD, 2012). This project-level analysis considers construction and operational emissions from the proposed Project consistent with BAAQMD's Air Quality Guidelines.

Where a potential significant effect on the environment from the project is identified, the document, as appropriate, identifies City SCAs and/or project-specific non-CEQA recommendations to address these issues.

Quantitative and Qualitative Approach

This EIR uses both a quantitative and a qualitative approach to this GHG analysis. The quantitative approach is used to answer the first significance criterion question listed above ("a"): Would the project generate GHG emissions, either directly or indirectly, that may contribute to a significant cumulative impact on the environment such as climate change? The BAAQMD quantitative thresholds discussed above are used to determine if this significance criterion is met.

The qualitative approach addresses the second significance criterion question listed above ("b"): Would the project conflict with an applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs? Theoretically, if a project implements applicable reduction strategies identified in the CARB Scoping Plans, the City of Oakland's ECAP, or other applicable plans, policies, or regulations adopted to help toward reducing GHGs, it could reasonably follow that the project would not conflict with those applicable plans, policies or regulations.

CalEEMod

GHG emissions resulting from the proposed project were estimated using the CalEEMod emissions estimator Model version 2013.2.2, the latest version available at the time of the NOP for this EIR. CalEEMod was developed and approved by the California air districts accounts and is considered the best available tool for calculating project emissions when air quality analyses are required for CEQA documents. Additionally, default mobile emission factors of the CalEEMod model were updated with EMFAC2014 emission factors which were approved by U.S. EPA in December of 2015.

The analysis was prepared in accordance with the methodology established in the *CalEEMod User's Guide* and, where appropriate, the default data in Appendix D of that document. CalEEMod estimates emissions from each GHG source: energy, waste, water, area and mobile. The sources, Project-specific assumptions, and level of emissions from each are described in the quantitative analysis below (Impact GHG-1). The CalEEMod output files for construction and operational GHG emissions have been provided in Appendix I to this document. (Also see discussion of CalEEMod in Section 4.2, *Air Quality*.)

Net Change in Emissions and Local/Global Context

For this assessment, it is not possible to predict whether emission sources associated with the proposed Project would move from outside the air basin (and thus generate "new" emissions within the air basin), or whether they are sources that already exist and are merely relocated within the air basin. Because the effects of GHGs are global, if the Project merely shifts the location of the GHG-emitting activities (locations of residences and businesses and where people drive), there would not be a net new increase of emissions. It also cannot be determined until the buildout of Oak Knoll whether occupants would have shorter commute distances, require fewer vehicle trips, walk, bike, or use public transit more often, instead of driving, or use overall less energy by virtue of the development's characteristics or proximity to workers' housing. If these types of changes occur, particularly with the implementation of TDM, overall vehicle miles traveled could be reduced and it would be reasonable that the proposed Project would result in a potential net reduction in GHG emissions, locally and globally.

The GHG analysis presented here also takes into account growth and increased vehicle travel within the regional context, which is the regional air basin and cumulative development, as described in the *Cumulative Context* section in the beginning of Chapter 4 in this Draft EIR. Therefore, there is no separate cumulative analysis section with regard to GHG emissions and consistency with related plans. Further, the methodology applied here assumes that all emission sources with the project would be new sources that would combine with existing conditions. For this assessment, it is not possible to predict whether emission sources (residents and businesses) associated with the project would move from outside the air basin (and thus generate "new" emissions within the air basin), or whether they are sources that already exist and are merely relocated within the air basin. Because the effects of GHGs are global, if the project merely shifts the location of the GHG-emitting activities (locations of residences and businesses and where people drive), there would not be a net new increase of emissions. It also cannot be determined until buildout of the project whether Oak Knoll residents will, as a result of moving to the project, have shorter commute distances; require fewer vehicle trips; walk, bike, or use public transit more often, instead of driving; or use overall less energy by virtue of the project's characteristics.

New Information / Changed Circumstances

The 1998 EIS/EIR and its Maximum Capacity Alternative did not include a discussion of impacts related to GHG emissions as there were no state, local, or federal regulations or plans addressing GHGs and therefore no GHG significance thresholds present in which to evaluate the prior project. Therefore, the discussion in this section does not discuss the 1998 EIS/EIR.

Impacts and Mitigation Measures

Impact GHG-1: The proposed Project would produce greenhouse gas emissions that exceed both 1,100 metric tons of CO_{2e} per year and 4.6 metric tons of CO_2e per service population annually in Phase 1 only. (Criterion a) (Less than Significant with SCAs).

Construction-related GHG Emissions

The construction of the Project would require the use of construction equipment and trucks to deliver and possibly off haul material. In addition, construction workers likely would travel to and from the site in vehicles. These vehicles and equipment are typically powered by fossil fuels resulting in GHG emissions. Construction of the proposed Project is estimated to occur in three main phases, over a combined period of approximately 6 years, between 2017 through 2023, including overlapping construction periods across phases. Emissions from on-site construction equipment were estimated using the construction schedule provided by the Project applicant and both default and Project-specific information for residential and non-residential land use subtypes, asphalt surfaces, and open space found in CalEEMod to reflect the proposed project's construction activities.

The first construction phase includes removal of existing on site concrete pads and pipelines. Two options are considered for this phase, on-site crushing and off-site hauling. In the on-site crushing scenario, the materials are crushed and re-distributed on-site with no hauling required. In the off-site hauling scenario, the materials are loaded onto haul trucks which appropriately dispose of the materials elsewhere. The Project sponsor will choose either of the scenarios for processing the existing concrete and pipe debris, which will only occur in Phase 1 construction. However, total construction emissions have been analyzed for each scenarios. The details of GHG emissions for each construction phase and scenario estimated by CalEEMod can be found in Appendix I.

The BAAQMD CEQA Guidelines do not provide a construction GHG threshold of significance but do require that construction GHG emission be calculated and disclosed during the CEQA review. Estimates of the proposed Project's total construction GHG emissions are listed in **Table 4.6-3** for disclosure, and not for the purpose of determining significance. Emissions are shown for each construction phase, assuming either the crushing or off-haul scenarios. (Annualized construction emissions combined with operational emissions are evaluated and presented in the following section under *Operational Emissions.*)

The BAAQMD also encourages lead agencies to incorporate best management practices (BMPs) to reduce GHG emissions during construction, as feasible and applicable. Construction-related SCA AIR-1 (construction-related air pollutant controls) identified with respect to Air Quality (see Section 4.2, *Air Quality*) for the criteria pollutants would also reduce GHG emissions and constitute the feasible and applicable best management practices for the project.

TABLE 4.6-3
SUMMARY OF TOTAL CONSTRUCTION GHG EMISSIONS (CO2E MT)
(Assuming On-Site Crushing and Off-Site Haul Scenarios with Phase 1)

Phase	Total Emissions
1	9,628 / 9,500 (on-site crushing / off-site hauling)
2	5,731
3	2,513
Total	**17,872 / 17,744** (on-site crushing / off-site hauling)

NOTE: All emissions estimated using methodologies consistent with CalEEMod version 2013.2.2.

SOURCE: ESA, 2016

Operational-related GHG Emissions

Emission Sources of the Project

The following operational categories from the project will generate GHG emissions:

- **Area** – associated with fossil fuel powered portable equipment especially from landscaping operations and from hearths.
- **Energy** – GHG emissions from energy usage are generated when energy consumed on or off-site is generated by fossil fuel combustion. Emissions associated with building electricity and natural gas usage (non-hearth). Natural gas combustion results in the emissions of three GHGs: CH_4 (the major component of natural gas), N_2O and CO_2 from the combustion of natural gas. Methane is released prior to initiation of combustion of the natural gas (as before a flame on a stove is sparked), and from the small amount of CH_4 that is uncombusted in a natural gas flame. Electricity use can result in GHG production if the electricity is generated by combusting fossil fuels such as natural gas, oil and coal.
- **Mobile** – GHG emissions from mobile sources are generated from vehicle exhaust. Vehicle trip rates were based on the project's land use type and location, as discussed in Section 4.13, *Transportation and Circulation*. For future year scenarios, CalEEMod makes appropriate adjustments to GHG emissions from vehicle trips to account for the implementation of Pavley vehicle standards and Low Carbon Fuel Standards as well for increased population and vehicle use.
- **Solid Waste** – GHG emissions from solid waste are generated when the waste generated by the project is disposed of in a landfill to decompose. GHG emissions occur with the breakdown of decomposing waste material with a portion of landfill gas captured and destroyed to lower CH_4 emissions.
- **Water** – Indirect GHG emissions from water and wastewater are attributed to the energy required to transport water from its source, and the energy required to treat and transport wastewater.

Total Project Emissions at Buildout

Table 4.6-4 presents an estimate of the project's operational GHG emissions at full buildout and occupancy.

The calculations take into account all state and local requirements that are or would be in effect by the time the Project is constructed, anticipating significant new energy efficiency standards that are to be codified in 2019 and any others that will be in effect as of 2024, after construction is completed. Certain improvements include implementation of AB 1493 and Low Carbon Fuel Standards (discussed above under *Regulatory Context for GHG Emissions and Climate Change*), building energy efficiency performance mandated in the California Building Code, and the RPS requirements.

The emissions totals provided in Table 4.6-4 also account for the initial construction-related GHGs (discussed in the preceding section, under *Construction-related GHG Emissions*), amortized over the first 40 year period of the operating life of the Project, as well as the effects of removal of existing vegetation, the planting and maturity of replacement trees, and the overall landscape palette that will increase total vegetation cover and related carbon sequestration benefits.

TABLE 4.6-4
TOTAL OPERATIONS AND ANNUALIZED GHG EMISSIONS FOR THE OAK KNOLL PROJECT (CO2E MT)

Emission Source/Threshold	Total Emissions
Operational Emissions	
Area (Hearths and Landscaping)	86
Energy (Electricity and Natural Gas)	2,557
Mobile On-Road Exhaust *(with SCA TRA-4 TDM, 10% Reduction)*	7,566
Waste Disposed	61
Water Use	101
Total Operational Emissions	**10,371**
Annualized Construction (On-Site Crushing Scenario) [a]	447
Annualized Net Vegetation Emissions	(11)
Total Operational + Annualized Construction/Vegetation GHG Emissions *(without SCA GHG-1 GGRP)*	**10,807**
City of Oakland Land Development Operational-Related Mass Emissions Threshold of 1,100 MT CO_2e Exceeded?	**Yes**
Operational-Related Efficiency (without SCA GHG-1 GGRP) *(Service Population 2,236 Residents + 180 Employees, Total 2,416)*	**4.47**
City of Oakland Land Development Operational-Related Efficiency Threshold of 4.6 MT CO_2e Exceeded?	No
Total Citywide 2013 GHG Emissions	*7,600,000*
Project Percent of Total Citywide Emissions	*0.001%*

[a] Total emissions for the On-Site Crushing scenario is 17,872 MT CO2e, Table 4.6-4. Divided by 40 years for life of the Project. Off-Haul scenario discussed below.

SOURCE: ESA, 2016

Incorporation of Transportation Demand Management and Green Building SCAs. As previously discussed in the *Setting*, the City requires that all applicable SCAs are incorporated as part of the project (as conditions of approval) and are not considered mitigation measures. Therefore, the calculations in Table 4.6-4 account for the reductions mandated by local requirements, including SCA GHG-2 regarding implementation of requirements of the City of Oakland Green Building Ordinance, as well as SCA TRA-4, the Transportation and Parking Demand Management (TDM) Program (Appendix BB to this document) and SCA UTIL-6 ensuring water efficient landscaping during operations.

Pursuant to SCA TRA-4, the Project must have a TDM Program. Key aspects of the TDM Program that reduce GHG emissions include a dedicated shuttle to transport site residents to/from the BART transit system during morning and afternoon peak hours, carpool and ride-matching assistance, on-site car sharing spaces, and an on-site TDM coordinator.

Table 4.6-4 presents the emissions with SCAs TRA-4, SCA GHG-2, in addition to SCA AIR-1 factored in. In particular, the effectiveness of the TDM Program (per SCA TRA-4) is discussed following the table in terms of comparative emissions and impacts *without* incorporation of the TDM Program. Also, because the amortized construction emissions would depend on which Phase 1 construction scenario the Project sponsor selects (on-site crushing or off-haul), the more impactful on-site crushing scenario is assumed in Table 4.6-4 and the comparative emissions and impacts assuming the off-site hauling are also disclosed below.

Annualized Emissions. Summarizing from above (*Construction-related GHG Emissions*), to account for the emissions of construction-generated GHG impacts and one-time removal of existing vegetation and the installation and maturity of replacement vegetation, total construction and vegetation GHG emissions have been calculated and annualized, and then added to the Project's annual operational GHG emissions in Table 4.6-4. Assuming a 40-year development life of the proposed Project, total construction emissions represent approximately 447 MT CO_2e/year, over 40 years. Similarly, the annualized net change in emissions from vegetation changes with the Project would result in approximately -11 MT CO_2e/year, over 40 years.

Effect of Off-Site Hauling Phase 1 Construction Scenario. Considering the off-site hauling of existing concrete and debris scenario for Phase 1 construction, rather than the on-site crushing of those materials, which is slightly more impactful (i.e., greater emissions, see Table 4.2-4 in Section 4.2, *Air Quality*), the annualized construction emissions over 40 years would lower by 3.0 MT CO_2e/year - from 447 to 444 MT CO_2e/year. The total annual emissions would be reduced to **10,602 MT CO_2e/year** and **4.5 MT CO_2e/year per service population** – still under the efficiency threshold.

Effect of the TDM on GHG Emissions. Implementation of the TDM Program would reduce the Project's motor vehicle emissions (mobile on-road exhaust) by approximately 830 MT CO_2e/year or 10 percent less than the 8,396 MT CO_2e/year that would occur without the TDM (see Appendix I for detailed emissions tables). Therefore, without the 10 percent reduction with the TDM Program, the Project would emit total emissions of **11,637 MT CO_2e/year** and **4.81 MT**

CO_2e/year per service population, which would exceed both thresholds, including the efficiency threshold of 4.6 MT CO_2e/year.

Project Emissions by Phase

Pursuant to SCA GHG-1, **Table 4.6-5** summarizes the Project's GHG emissions by each of the three Project phases. Detailed tables are presented as part of Appendix I to this Draft SEIR. These emissions by phase help the City and the Project applicant to tailor the implementation of any GHG reduction measures as they are needed by particular Project phase.

TABLE 4.6-5
OPERATIONS AND ANNUALIZED GHG EMISSIONS BY PROJECT PHASE (CO_2E MT)

	Project Phase and Operational Year		
	Phase 1 (2022)	**Phase 2 (2023)**	**Phase 3 (2024)**
Project Description			
Housing Units	332	263	340
Commercial Development	86,000	0	0
Service Population [a]	975	629	813
Emissions Source (MT CO_2e) [b]			
Total Operational Emissions [c]	6,353	2,543	1,879
Annualized Construction (On-Site Crushing Scenario) [d]	241	143	63
Annualized Net Vegetation Emissions	(11)	0	0
Total Operational + Annualized Construction/Vegetation GHG Emissions *(without SCA GHG-1 GGRP)*	**6,583**	**2,686**	**1,942**
City of Oakland Land Development Operational-Related Mass Emissions Threshold of 1,100 MT CO_2e Exceeded?	**Yes**	**Yes**	**Yes**
Operational-Related Efficiency *(without SCA GHG-1 GGRP)*	**6.8**	4.3	2.4
City of Oakland Land Development Operational-Related Efficiency Threshold of 4.6 MT CO_2e Exceeded?	**Yes**	No	No
MT CO_2e Emissions Reduction Required to Avoid Exceedance?	**2,098**	0	0
MT CO_2e Emissions Reduction Required to Avoid Cumulative Exceedance?	**2098**	**< 2,098**	

[a] Phase 1 service population of 975 residents + no employees. Phase 2 service population of 629 residents + 0 employees. Phase 3 service population of 813 residents + 0 employees.
[b] To conduct this by-phase assessment of GHG emissions, the operational year (buildout) of each phase was specified for input into the CalEEMod. The model assumes greater energy and fuel efficiency for each successive operational year, therefore the initial-phase emissions (isolated here to be operational in 2022 and 2023 for compliance with SCA GHG-1) do not reflect the full benefit of the increasing efficiencies that are reflected in the isolated latter-phase emissions operational in 2024. Consequently, the sum of the emissions for each Project phase is slightly greater (404 MT CO_2e) than the total Project emissions in Table 4.6-4, which is assessed at the overall Project buildout year 2024.
[c] Incorporates TDM Program (SCA TDM-4) and applicable requirements for green building measures (SCA GHG-2).
[d] Incorporates On-site crushing scenario for Phase 1 construction and construction-related air pollutant controls (SCA AIR-1)

SOURCE: ESA, 2016

The by-phase emissions shown in the table incorporate the same assumptions discussed above for the total Project emissions (shown in Table 4.6-4), regarding buildout year of 2024, state and local requirements and future changes in energy efficiency standards, the implementation of SCAs (regarding TDM, Green Building Ordinance, water efficient landscaping, and construction-related air pollution controls, as discussed above), and the Phase 1 on-site crushing scenario. However, unlike the total Project emissions which are assessed at Project build-out year 2024, for purposes of this by-phase assessment, each Project phase is assessed by its specific "build-out" or operational year (the year following the construction of each respective phase): Phase 1 in 2022, Phase 2 in 2023, and Phase 3 in 2024.

Summary of GHG Emissions and Impact

Total Project Emissions at Buildout. As shown in Table 4.6-4, the Project would emit a total **10,807 MT CO_2e/year**, assuming implementation of the TDM Program and on-site crushing scenario for Phase 1 construction, as well as applicable requirements for green building measures (per SCA GHG-2), and construction-related air pollutant controls (per SCA AIR-1). This emissions level exceeds the City's threshold of 1,100 MT CO_2e/year. To determine if the Project exceeds the service population threshold, the Project's total emissions is divided by its service population. The total service population of the Project at buildout is 2,416 residents and employees (see Tables 4.11-4 and 4.11-5 in Section 4.11, *Population and Housing*). The Project would generate approximately **4.47 MT CO_2e/year per service population**, which would not exceed the City's threshold of 4.6 MT CO_2e/year per service population. This would be a less than significant impact.

Emissions by Phase. As previously described, the Project would be constructed in three phases, with operations commencing in sequence for the same three phases. The emissions for each phase are specific to its first year of operation, which is expected to be the highest-emitting year due to the planned improvements to the on-road vehicle fleet. As shown in Table 4.6-5, each phase of the Project would emit annual emissions that would exceed the City's threshold of 1,100 MT CO_2e/year. However, the Project would not exceed the City's threshold of 4.6 MT CO_2e/year per service population for Phase 2 or Phase 3 (at 4.3 and 2.4 MT CO_2e/year/service population, respectively), which would be a less-than-significant impact for Phase 2 and in Phase 3.

During Phase 1, the Project would generate approximately **6.8 MT CO_2e/year per service population**, which, because it also exceeds the City's 1,100 MT CO_2e/year threshold, would be a potentially significant impact during Phase 1 prior to factoring in SCA GHG-1 (Greenhouse Gases Reduction Plan). Also, although Phase 2 alone is below the efficiency threshold, the combined operation of Phases 1and 2 generate combined emissions that would exceed the efficiency threshold, as shown in Table 4.6-4.

Overall, As shown in Table 4.6-4, operational emissions in Phase 1 are notably higher than those in Phase 2 or 3. This is largely due to the differences in land uses. The commercial retail use of the new Village Center, and the new community commercial uses in the relocated and rehabilitated Club Knoll (82,000 square feet total) would all be operational for Phase 1, generating substantially more motor vehicle trips (and associated mobile source GHG emissions) in particular than the other two phases.

Efficiency-based threshold and Mixed Uses

The types of commercial uses envisioned for the Oak Knoll Project would generate a relatively low rate of employees per commercial floor area, making the divisor used in the efficiency threshold (i.e., total service population) lower than that for other uses, such as residential uses, where the service population divisor is residents per household. The Project proposes community-level commercial uses (e.g., grocery store, retail, personal services, etc.) near to and serving the new and existing residential neighborhoods – an mix of land uses that is encouraged to reduce vehicle miles travel and overall vehicle trips, although the total combined emissions exceed the established efficiency-based threshold of 4.6 MT CO_2e.

Further related to the employment characteristic of Phase 1, BAAQMD's efficiency-based threshold developed in 2011 factors the onsite service population (employees and/or residents) of a project into the total annual GHG emissions from that project. The efficiency threshold falls short of accurately representing the potentially net positive GHG emissions effects of smaller retail projects, including when that uses is a substantial component of a larger residential development. First, by looking solely at service population for the commercial uses, the efficiency threshold fails to factor in the relatively high rate of vehicle trip generation and related GHG emissions. Thus, for example, a community-serving retail grocery store has a high volume of daily business (visitors) despite limited floor area and number of employees. The BAAQMD efficiency threshold fails to factor in these key characteristic: the total GHG emission are inherently high (due to trip generation) and the service population is inherently low (limited to number of employees, not visitors). Another particular shortcoming of the efficiency threshold is that it does not accurately capture the potentially net positive GHG effect of a project's site and neighborhood context. Theoretically, if the existing nearby residential was factored as service population, especially those located within a walkable radius of a proposed grocery store (approximately 4-5 blocks or one-quarter mile),

SCA GHG-1 Greenhouse Gas Reduction Plan

As shown in Table 4.6-5, **approximately 2,098 MT CO_2e** must be reduced in Phase 1 for the emissions in that phase to not exceed the 4.6 MT CO_2e efficiency threshold.[10] Moreover, some level of reduction would also be required to address the combined operation of Phases 1 and 2 that would generate emissions that exceed the efficiency threshold. Pursuant to SCA GHG-1, the Project sponsor has prepared a GGRP (**Appendix W** to this Draft SEIR) that identifies that for the time period between the completion of Phase 1 construction and Project buildout, the Project sponsor would mitigate GHG emissions from partial-Project operations to below the efficiency threshold of the 4.6 MT CO_2e efficiency threshold. Specifically, the Project sponsor may purchase sufficient carbon offsets (2,098 MT per year of Phase 1 operations) from 2022 until full buildout to reduce the Phase 1 and cumulative phasing exceedances to below the efficiency threshold.

[10] The Phase 1 emissions of 6,583 MT CO_2e (per Table 4.6-5), minus 2,098 MT CO_2e, equals 4,485 MT CO_2e, which divided by the Phase 1 service population of 975 equals 4.6 MT CO_2e, compared that efficiency threshold of 4.6 MT CO_2e/service population/year

As further presented in the GGRP, although the exceedance decreases during the years between Phase 1 and full buildout, the GGRP assumes that the Project applicant would continue to purchase the same number of offset credits as would be needed during Phase 1. Because this is a temporary exceedance which no longer exists at full buildout, the purchase of carbon offsets is one suitable way to address the exceedance, as is allowed by the SCA GHG-1. Overall, implementation of the carbon offsets would reduce Phase 1 emissions, and the combined Phase 1 and Phase 2 emissions, would reduce the partial phase emissions to levels that are less than significant.

Impact Conclusion: Less than Significant with SCAs.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact, No Mitigation Measures Identified.

Impact GHG-2: The proposed Project would not conflict with an applicable plan, policy or regulation of an appropriate regulatory agency adopted for the purpose of reducing greenhouse gas emissions. (Criterion b) (Less than Significant)

The Plan adopted for the purpose of reduction greenhouse gas emissions that is most relevant to the Project is the City's ECAP, which is based in part on AB 32, and its goal to reduce emissions to 1990 levels by 2020. The goal of the ECAP is also for emissions to continue to decline beyond 2020. This section discusses the Project's compliance with the ECAP's current requirements and long-term goal. This section also examines whether the Project would conflict with the region's Sustainable Community Strategy, Plan Bay Area.

City of Oakland's ECAP

ECAP's Requirements

The ECAP sets a goal for the City of Oakland to reduce its emissions by 36 percent from 2005 levels by 2020. The City has interpreted its ECAP to require each individual project to also reduce its emissions by 36 percent of the emissions it would have had if constructed in 2005, which is defined as the business as usual (BAU) scenario.

Even though the Project does not exceed both of the applicable significance thresholds for GHG emissions, as required per SCA GHG-1 and the ECAP, the Project sponsor is obligated to demonstrate that the Project's total GHG emissions, at full buildout and occupancy, are (1) below at least one of the significance thresholds, and are (2) at least 36 percent below a "2005 Business As Usual" (BAU) scenario if the Project were built under the standards in effect in 2005. This BAU scenario represents the baseline year for the City's ECAP, to which future emission reduction targets were compared. This comparison of the Project's total annual GHG emissions (same as shown in Table 4.6-4 in the Impact GHG-1 analysis above) versus a 2005 BAU scenario is presented in detail in Table 2 of the Project sponsor's GGRP (in Appendix W to this Draft EIR), prepared independently by its qualified consultant, Ramboll Environ. The City and its GHG Consultant has reviewed the GGRP and agree with its conclusions.

As shown in Impact GHG-1 and Table 4.6-4, the Project's total emissions are below the 4.6 MT CO2e/service population/year threshold. As the GGRP shows, the Project with the required TDM measures also meets the ECAP's goal for projects to reduce emissions by 36 percent from a 2005 BAU scenario. As discussed above for *Emissions by Project* in Impact GHG-1, as part of the proposed GGRP, the Project sponsor would purchase sufficient offset credits to reduce the Project's Phase 1 emissions, and the combined Phase 1 and Phase 2 emission, to below the efficiency threshold. This will also reduce the overall Project emission even more than the 36 percent reduction of emissions as compared to 2005 BAU emissions.

Project features that would decrease GHG emissions by decreasing the need for vehicle trips include streets that safely accommodate pedestrians and cyclists (see Appendix F, Oak Knoll Complete Streets Guide), locating residences near neighborhood-serving retail and recreation areas, and locating the project in an area relatively well-served by mass transit, including AC Transit and BART.

Because the Project will meet the ECAP's reduction target and does not conflict with applicable ECAP policies, it does not conflict with the ECAP.

ECAP's Post-2020 Goal

Since the City aims to reach its 36 percent reduction in GHG emissions by 2020, which is four years from preparation of this EIR, and full project buildout is anticipated to occur by 2024, an assessment of the project's consistency with the ECAP's longer term GHG reduction goal is appropriate. The ECAP states that its goal is to set the City of Oakland on a path to reduce GHG emissions over 80 percent from 2005 levels by 2050.[11] As acknowledged by the ECAP, the majority of the actions needed to continue reducing emissions, such as better fuel efficiency for vehicles and requirements for producers of energy to reduce reliance on carbon, as well the regulation of stationary source emissions, are outside Oakland's jurisdictional authority, and within the jurisdiction of either the state or federal government. In addition, as the ECAP states, reaching the 2050 goal will require "unforeseen changes (e.g., technological advancements, energy price changes, economic growth rates, updated climate models, funding availability)." To the extent changes in regulation or technology are foreseeable, they are discussed below. Although an updated ECAP may be prepared by the City that will identify new interim GHG reduction goals and additional strategies to meet those goals, no such update has begun and it is not appropriate to speculate on specific measures that may be in any such update.

Overall, the Project is compatible with the ECAP's goal to put the City on a path to reduce GHG emissions after 2020. The project will continue to improve its emission performance based on foreseeable state programs (discussed below) that will be implemented in the future which will affect the project's GHG emissions.

[11] This reduction target exceeds the Governor's long-term GHG emission reduction policy for the state, as articulated in Executive Order S-3-05, which is to achieve an 80% reduction from 1990 levels by 2050.

Compliance with State Programs

As discussed earlier in the subsection concerning the GHG regulatory framework in California, Senate Bill X1 2 was signed by Governor Edmund G. Brown in April 2011, mandating a 33 percent RPS for all retail sellers of electricity, all publicly-owned and all investor-owned electric utility companies.

In October 2015, Governor Brown signed Senate Bill 350, which mandates a 50 percent RPS for retail sellers and publicly owned electric utilities by 2030, along with a doubling of the building energy efficiency standards and enhanced opportunities for electric vehicles and mass transit. PG&E, the investor-owned utility that supplies electricity and natural gas throughout Oakland and the Bay area, including to the Project, will be subject to compliance with these standards, and over time, the carbon intensity of the electrical energy delivered to Oakland and the project site will be reduced accordingly. ARB also will be demanding better fuel efficiency from vehicles through its LCFS. As vehicles become more efficient, the emissions associated with the project's vehicle trips will decrease.

Further, the California Public Utilities Commission (CPUC) has set a goal that by 2020, all new residential construction in California will be of Zero Net Energy (ZNE) homes. "ZNE" is defined as producing as much energy as what is consumed over the course of the year. This is anticipated to be codified in the 2019 Title 24 building energy efficiency standards. The current CPUC goal for commercial buildings is that they are ZNE by 2030. The Project will comply with the Title 24 building energy efficiency standards in place at the time of construction. To the extent that homes built after 2016 are designed to meet future, more energy-efficient Title 24 standards, the emissions would be lower than shown in Table 4.6-4 and Table 4.6-5. In addition, SB 350 seeks to increase energy efficiency in buildings by 50 percent by 2030, and gives California's energy agencies the authority to review and revise the state's energy efficiency programs to marshal the funds and regulatory actions necessary to reach this target. It is anticipated that the programs adopted by the state's energy agencies would incentivize energy efficiency upgrades in homes that are not already ZNE.

In addition, pursuant to AB 32, the California Air Resources Board created a Scoping Plan with programs to be implemented to reduce the state's greenhouse gas emissions to 1990 levels by 2020. Except for the state's green building requirements, discussed above, none of the programs apply directly to the project. Nevertheless, the programs to reduce emissions from the energy, transportation, water, and waste management sectors will indirectly reduce the Project's operational emissions. For example, as the state's water conservation programs go into effect, the energy associated with water conveyance will decrease, decreasing the GHG emissions associated with the Project's use of water. The California Air Resources Board is in the process of updating the Scoping Plan so that its recommended actions put the state on target to reduce GHG emissions 40% from 1990 levels by 2030. Like the current actions, the future actions likely will be aimed at state-regulated industries and emission sources, although those reductions will indirectly reduce the GHG emissions associated with Project operations.

Plan Bay Area

Pursuant to California Senate Bill 375, ABAG and the MTC adopted Plan Bay Area to establish targets and strategies intended to meet the region's needs for housing at all income levels, while reducing GHGs associated with private passenger and light duty truck traffic. A key strategy is to facilitate growth in Priority Development Areas within urbanized centers where there are more mobility options available to reduce driving by cars and light trucks. Plan Bay Area includes a target to reduce per capita vehicular-related GHGs by at least 15 percent by 2035 compared to 2005 baseline levels. Although the proposed project is not within a Priority Development Area as identified in Plan Bay Area, it is consistent with the City's General Plan land use policies, which are reflected in the Plan Bay Area's growth projections for the Oakland Hills area. Moreover, with the GGRP, the Project could achieve a reduction in per capita vehicular emissions of 30 percent from 2005 levels by 2024, and thus substantially exceeds the GHG reduction target established by Plan Bay Area. The project may further reduce GHG emissions from passenger vehicles and light-duty trucks by providing electrical charging infrastructure within the dwelling units and at the commercial parking lot. In addition, proposed homes located near neighborhood-serving retail, implementation of the TDM, potential electric chargers, and the Complete Streets program provide options to future residents to further reduce GHG emissions from transportation (ABAG/MTC, 2013).

Summary

As discussed above, the Project would not impair attainment of near-term and long-term plans, policies and regulations created to achieve GHG reductions in Oakland and the Bay Area. There would be a less than significant impact involving a conflict with a plan, policy, or regulation adopted to reduce GHGs. The Project will incorporate **SCA AIR-1**, **SCA TRA-4, SCA GHG-1, SCA GHG-2,** and **SCA UTIL-6**, which directly support the Project's alignment with the goals, policies and regulations in these plans aimed at reducing GHGs.

Impact Conclusion: Less than Significant with SCAs

Comparison to 1998 EIS/EIR Findings: No New Significant Impact, No Mitigation Measure Identified.

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4.7 Hazards and Hazardous Materials

4.7.1 Introduction

This section assesses the potential for the Project to result in significant adverse impacts related to "hazards" and "hazardous materials," both of which are defined in the next section. To determine whether the proposed Project would result in any new hazards and hazardous materials impacts, or increases in the severity of impacts previously disclosed in the 1998 EIS/EIR, this analysis considers the impacts that would result from construction and operation activities that would take place within the Project area, and compares these impacts to those identified in the previous EIS/EIR, and mitigation measures in that document.

Hazards related to fire are discussed in this section; but this section does not discuss potential impacts related to geologic hazards. Impacts from geologic hazards are discussed in Section 4.5, *Geology, Soils*," and impacts on air quality and water quality are discussed in Section 4.2, *Air Quality*, and Section 4.8, *Hydrology and Water Quality*.

4.7.2 Setting

Definitions

For the purpose of this section, "hazards" are related to exposure to hazardous materials or hazardous wastes, risks associated with interference with airport or airstrip operations, interference with emergency or evacuation routes, and wildfires.

A "hazardous material" is defined here to mean "any material that, because of quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment" (see California Health and Safety Code, Chapter 6.95, Section 25501(p)). As used here,"hazardous material" includes both "hazardous substances" and "hazardous wastes," terms that are defined in other state and federal laws. Under federal and state laws, any material, including wastes, may be considered hazardous if the material is specifically listed as hazardous in a statute or regulation, or if it is sufficiently toxic (causes adverse human health effects), ignitable (has the ability to burn), corrosive (causes severe burns or damage to materials), or reactive (causes explosions or generates toxic gases).

In some cases, past industrial or commercial activities on a site have resulted in spills or leaks of hazardous materials to the ground, resulting in soil and/or groundwater contamination. Hazardous materials may also be present in building materials and released during building demolition activities. If improperly handled, hazardous materials and wastes can cause public health hazards when released to the soil, groundwater, or air.

A "hazardous waste," for the purpose of this SEIR, is any hazardous material that is abandoned, discarded, or recycled, as defined in the Health and Safety Code (Chapter 6.5, Sections 25117 and 25124). Hazardous wastes present the same range of potential exposures as

hazardous substances. The storage, transportation, and disposal of hazardous wastes, as well as the potential releases of hazardous wastes to the environment, are closely regulated through many state and federal laws.

Hazards, for the purpose of this section is related to exposure to hazardous materials or waste, risks associated with interference with airport or airstrip operations, interference with emergency or evacuation routes, and wildfires.

Potential Receptors/Exposure

If improperly handled, hazardous materials can cause public health threats and environmental damage when released to the soil, groundwater, or air. The three basic exposure pathways through which an individual can be exposed to a hazardous material are inhalation, ingestion of contaminated soil, air, water, or food, and bodily contact (also referred to as dermal exposure). Exposure can come as a result of an accidental release of hazardous materials during transportation, storage, or handling. Disturbance of contaminated subsurface soil during construction can also cause exposures to workers, the public or the environment through excavation, grading, stockpiling, loading, or transportation of soils.

The severity of potential exposures to hazardous materials is dependent on several factors, the primary factor being the potential pathway(s) for human exposure. As noted, exposure pathways include external exposure, inhalation, and ingestion of contaminated soil, air, water, or food. Depending on the magnitude, frequency, and duration of exposure, hazardous substances can cause a variety of health effects, from short term acute symptoms to long-term chronic effects. Potential health effects from exposure can be evaluated in a health risk assessment.

The principle elements of health risk assessments typically include:

- Evaluation of the fate and transport processes for hazardous materials at a given site
- Identification of potential exposure pathways
- Identification of potential exposure scenarios
- Calculation of representative chemical concentrations
- Estimation of potential chemical uptake

Soil and Groundwater Contamination

A wide range of industrial, commercial, and governmental activities can result in spills, leaks, or purposeful disposal of hazardous materials resulting in soil and/or groundwater contamination (both of which can also cause contamination in subsurface air pockets known as “soil gas” or “soil vapor”). Hazardous materials may also be present in building materials that can be released to the environment during maintenance and/or demolition activities (e.g., asbestos and lead-based paint).

In California, certain regulatory databases listing hazardous materials sites provided by numerous state and local agencies are consolidated in the “Cortese List” pursuant to Government Code Section 65962.5. The databases with information about resources that meet the criteria to be on

the Cortese List are located on the California Environmental Protection Agency's (Cal EPA) website (http://www.calepa.ca.gov/SiteCleanup/CorteseList/) and are listed here:

- List of Hazardous Waste and Substances sites from Department of Toxic Substances Control (DTSC) EnviroStor database;
- List of Leaking Underground Storage Tank Sites by County and Fiscal Year from the State Water Resources Control Board (SWRCB) GeoTracker database;
- List of solid waste disposal sites identified by SWRCB with waste constituents above hazardous waste levels outside the waste management unit;
- List of "active" Cease and Desist Order (CDO) and Cleanup and Abatement Order (CAO) sites from the SWRCB;[1] and
- List of hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code, identified by DTSC and listed on their EnviroStor database.

Notably, not all sites listed in EnviroStor and GeoTracker meet the criteria to be on the Cortese List (see Government Code section 65962.5 for the exact criteria). Pursuant to Section 15300.2 of the CEQA Guidelines, a categorical exemption shall not be used for a project located on a site included on the Cortese List.

The SWRCB GeoTracker database includes leaking underground storage tanks (LUSTs), permitted underground storage tanks (USTs), and Spills, Leaks, Investigations, and Cleanup Database (SLIC) sites. The DTSC EnviroStor database includes federal and state response sites, voluntary, school, and military cleanups and corrective actions, and permitted sites. The five databases cited above identify sites with suspected and confirmed releases of hazardous materials to the subsurface soil and/or groundwater. The reporting and statuses of these sites change as identification, monitoring and clean-up of hazardous sites progress. Typically, sites are closed once it has been demonstrated that existing site uses combined with the levels of identified contamination present no significant risk to human health or the environment. These databases are updated periodically and would need to be revisited prior to construction of the Project.

Within the Plan Area and vicinity, there are three LUST sites and one listed Military Cleanup site (Oakland Naval Hospital) currently identified on the State Water Resources Control Board GeoTracker database (SWRCB, 2016). DTSC's EnviroStor database shows the Oakland Naval Hospital as a "military evaluation" site that is "inactive – action required" (DTSC, 2016). The information from both databases is summarized in **Table 4.7-1** below. The databases do not identify other active sites that could have the potential to affect the Plan Area through migration onto the Plan Area. There is also one known permitted UST site within the Plan Area and four known permitted UST sites located upgradient or adjacent to the Plan Area. However, the permitted UST sites are not known to have contamination issues.

[1] This list contains many Cease and Desist Orders and Cleanup and Abatement Orders that do not concern the discharge of wastes that are hazardous materials, and thus would not be considered part of the Cortese List. http://www.calepa.ca.gov/SiteCleanup/CorteseList/

TABLE 4.7-1
REGULATORY SITES LISTED IN THE PROJECT SITE AND VICINITY

Site Name/ Address	Regulatory List	Site Summary
Regulatory Sites Listed within the Project Site		
Oakland Naval Hospital – Suncal 8750 Mountain Blvd	Voluntary Cleanup Program	Potential for soil contamination. Potential contaminants of concern include metals (lead), polychlorinated biphenyls, waste potentially containing dioxins, organochlorine pesticides, petroleum, polynuclear aromatic hydrocarbons. DTSC is working with SunCal in continuing the Remedial Investigation for lead-impacted soils adjacent to structures painted with lead-based paint. Under investigation.
Oakland Naval Hospital 8750 Mountain Blvd	LUST Cleanup Site	Gasoline (soil) cleanup case completed and closed as of July 19, 1994.
Regulatory Sites Listed within the Vicinity of the Project Site		
Exxon #7-8907 8008 Mountain Blvd	LUST Cleanup Site	Cleanup case completed and closed as of January 8, 1996.
Sequoyah Country Club 4550 Heafey Rd	LUST Cleanup Site	Gasoline (soil) cleanup case completed and closed as of July 7, 1994.

SOURCE: EnviroStor and GeoTracker, 2016

Contamination from Leaking Underground and Aboveground Storage Tanks

A UST system is a storage tank and any underground piping connected to the tank that has at least 10 percent of its combined volume underground. Storage tanks not fitting that definition are generally referred to as above ground storage tanks or ASTs.

Until the mid-1980s, most USTs were made of single-walled bare steel, which were found to corrode over time resulting in leakage. Faulty installation or maintenance procedures also lead to UST leakage, in addition to potential releases associated with spills during the filling process. Since the mid-1980s, revised UST regulations have significantly reduced the frequency of leakage from new UST systems and the consequential soil and groundwater contamination. However, there are some older UST systems that remain in service and many sites contaminated by leaking USTs that are still under investigation and clean-up. USTs installed prior to the mid-1980's that have leaked as well as improperly installed USTs have resulted in fuel spills can present contamination issues in the Plan Area. In addition, it is not uncommon for older USTs to have been abandoned in place with no documentation of location or abandonment technique. As shown on Table 4.7-1 below, there are three known UST sites located within the Plan Area that had identified past release issues (SWRCB, 2016). These cases currently show that they are closed indicating that there is no remaining threat to human health or the environment. The military cleanup site is also listed as a closed case on the Geotracker database (see also discussion of cleanup activities for the site below).

Contamination from Spills, Leaks, and Other Releases at the Project Site

Spills and leaks of hazardous materials can contaminate soil and groundwater when proper precautions are not in place. Various businesses and industries transport, use, and dispose of hazardous materials and those activities may result in improper or accidental releases into the

environment. Chemicals can include but are not limited to heavy metals, solvents, and flammable materials. Non-permitted discharges of hazardous materials releases are generally overseen by the DTSC and the Regional Water Quality Control Boards, as well as the United States Environmental Protection Agency (USEPA) and certain local government agencies (i.e., county health departments and fire departments).

Within the Project site, the predominant former land use was a Naval hospital, and the investigation and cleanup of that facility has involved oversight by USEPA, DTSC, and the San Francisco Bay Region Regional Water Quality Control Board (SFRWQCB).

The former Oakland Naval Hospital, also known as the Naval Medical Center Oakland (NMCO), was commissioned as a hospital in July 1942, was listed for closure in 1993, and officially closed on September 30, 1996. Pursuant to the Navy's Base Realignment and Closure (BRAC) process in 1994, followed by an update in 1996, the Navy completed an Environmental Baseline Study (EBS) and an Environmental Baseline Cleanup Plan (BCP) to identify existing environmental conditions at the NMCO property (which encompasses the Project site).

Specifically, the Navy intended the BCP to assess all known and suspected areas where hazardous materials had been handled, stored, disposed of, or released within the boundaries of the site. As part of the EBS, the Navy investigated several underground and above-ground storage tanks for potential releases of petroleum hydrocarbons and removed several tanks; investigated and conducted soil excavation to address lead in soil from historical use of lead-based paint; evaluated the presence of asbestos-containing materials; conducted investigations to identify potential impacts to soil from pesticide application and from storage of equipment containing polychlorinated biphenyls (PCBs); and evaluated areas previously used for storage of radiological materials. With oversight provided by the San Francisco Regional Water Quality Control Board. 18 of the 20 USTs believed to be at the site were found and removed (two were never found), and regulatory closure was granted based on the Water Board's "low risk soil only" policy, indicating the Water Board's determination that there was no further, substantial threat to human health or the environment.

Based on the results of the evaluation and remediation it conducted pursuant to the BCP, the Navy concluded that all remedial action necessary to protect human health and the environment with respect to any hazardous substance remaining on the property had been taken before the date of transfer of the NMCO property. The Navy prepared a Final Finding of Suitability to Transfer (FOST) in 1999 (U.S. Navy, 1999), the U.S. Environmental Protection Agency subsequently confirmed the FOST in 1999. The Navy transferred the NMCO site to the City of Oakland, and the City subsequently transferred a majority portion the property to a private entity that then sold that portion to Oak Knoll Acquisition Venture, LCC, a real property developer.

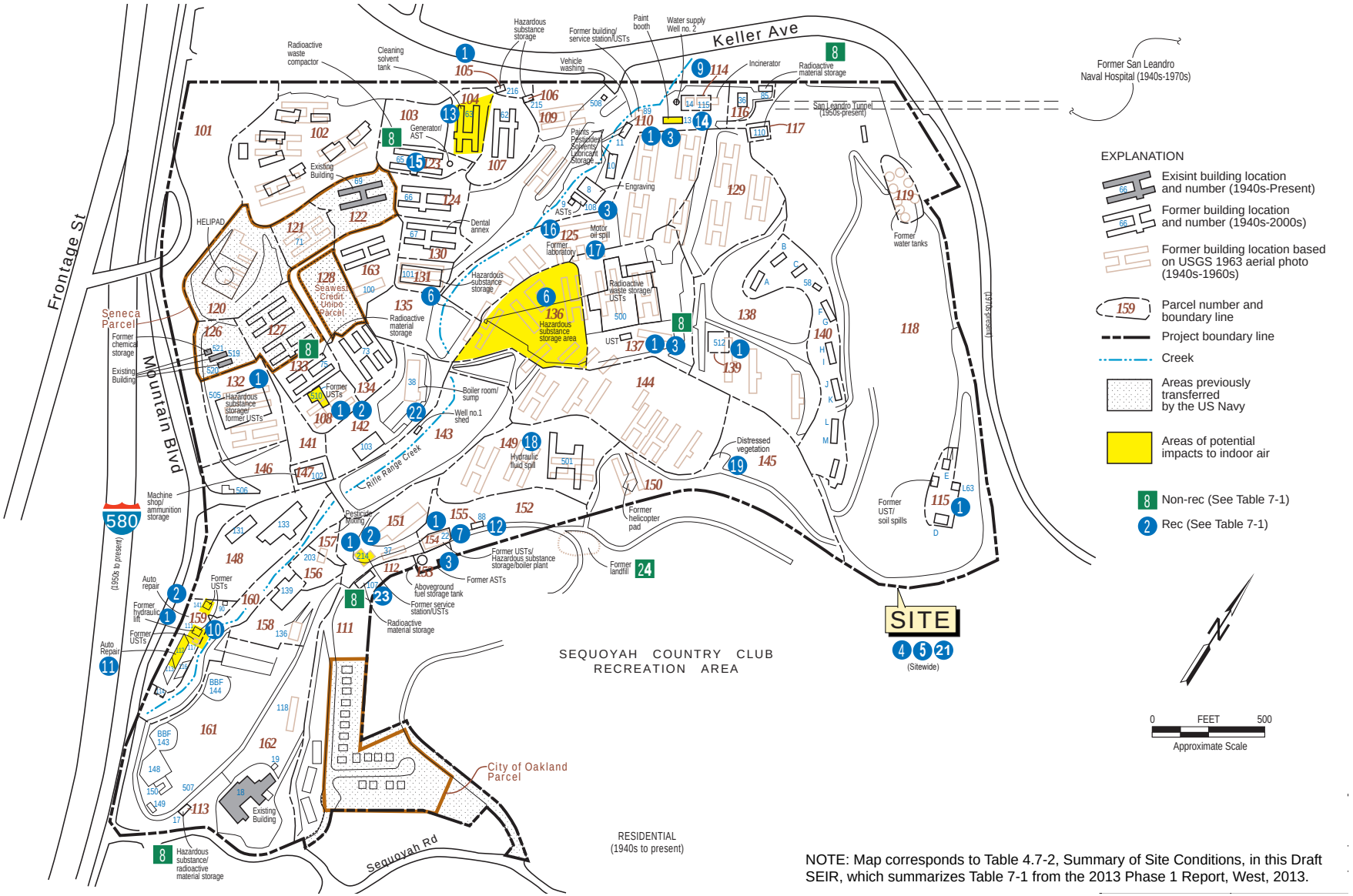
Subsequent to the Navy's FOST, WEST Environmental Services & Technology conducted Phase I Environmental Site Assessments (Phase I ESAs) of the former hospital facility in 2006, 2013, and again in 2014 (WEST, 2006, 2013, 2014). Phase I ESAs are prepared according to standards originally issued by the American Society for Testing and Materials (ASTM) and subsequently utilized by EPA (in Title 40, Part 312 of the Code of Federal Regulations, (CFR)). The objective of a Phase I ESA is to identify "Recognized Environmental Conditions" (RECs) and document

the process by which they are identified. Phase I ESAs consist primarily of a literature and records review, interviews of property managers and appropriate regulatory agencies, site reconnaissance of exterior portions of the NMCO property and surrounding area

The Phase I ESA process does not involve physical testing of soil, groundwater, or soil gas at a subject property or identify new information regarding the presence of on-site hazardous substance on the property. As part of the review supporting the Navy documents in accordance with 2006 American Society for Testing and Materials (ASTM) standards, the Phase I identified certain "data gaps" relevant to site conditions. Where data were identified, the Phase I recommended further investigation. The Phase I also recommended physical sampling (with laboratory analyses of the samples) to assess whether an identified REC represents an actual, substantial release of hazardous materials, a *de minimis* issue, or a situation where there has been no release. The sampling and laboratory analysis are referred to as Phase II ESA work, and at larger or more complex sites that work is commonly done in multiple phases.

A subsequent Phase I Environmental Site Assessment was conducted in 2013, also by WEST Consultants (WEST, 2013) (included in **Appendix X** to this Draft SEIR). WEST's 2013 Phase I ESA listed 24 "Site Conditions" by topic and location that were then categorized relative to the REC definition as "known," "suspect," "*de minimis*" or "no" (WEST 2013, Table 7-1). WEST identified 22 of the 24 Conditions as either "known" or "suspect" RECs and recommended Phase II ESA work. The known and suspected items included petroleum compounds associated with USTs, ASTs, boilers, generators, and vehicle maintenance; paint, pesticides, laboratory chemicals, and solvents associated with hospital and vehicle operations; sewer and storm drain discharges; lead-based paint used on various structures; and two former irrigation wells. Two of the Conditions (8 and 24) did not rise to even the *de minimis* level.

After an initial round of Phase II testing in early 2014, WEST issued an updated Phase I ESA (WEST, 2014) (also included in **Appendix X** to this SEIR), including a revised Table 7-1 listing the same 24 Conditions in the same numbered sequence used in the 2013 Phase I ESA, but updating the conclusions based on the Phase II testing. A summary version of Table 7-1 is shown as **Table 4.7-2** below, preceded by its corresponding map of previous uses in **Figure 4.7-1**, immediately below. The 2014 sampling resolved the issues associated with a former incinerator (Condition 9), and partially resolved issues associated with the ASTs and a boiler (Conditions 3 and 7). The 2014 Phase I ESA retains 9 Conditions as "suspect" RECs based on the lack of soil gas testing for volatile chemicals that could migrate into indoor air if a building were to be located above the identified area (Conditions 2, 6, 10, 11, 13-16, and 21). Six Conditions (1, 3, 7, 17, 19, and 23) are listed as RECs suitable for resolution via a soil management plan (see below for additional discussion of soil management plans). Five Conditions are listed as known or suspect RECs based on a lack of sufficient soil testing data (Conditions 18 and 20 are "known" RECs and Conditions 4, 5 and 16 are "suspect" RECs). Condition 4 relates to lead-based paint in soil near demolished buildings, an issue DTSC raised with the Navy as early as 2000 (and one identified for oversight via DTSC's California Land Reuse and Revitalization Act (CLRRA) program (see additional discussion below under *Regulatory Setting – State [*Soil and Groundwater Contamination). Condition 12 is an area of PCB contamination that has been addressed already by DTSC and the Navy. Condition 22 relates to irrigation wells that could not be located during WEST's site reconnaissance.



NOTE: Map corresponds to Table 4.7-2, Summary of Site Conditions, in this Draft SEIR, which summarizes Table 7-1 from the 2013 Phase 1 Report, West, 2013.

SOURCE: WEST, 2013

Oak Knoll Project . 120645

Figure 4.7-1

Previous Site Use

TABLE 4.7-2
SUMMARY OF SITE CONDITIONS

Map ID (Figure 4.7-1)	Location	Findings				Conclusions			
						Environmental Condition			
						Yes		No	
		Known or Suspect Environmental Conditions	Regulatory Closure (FOST)	Controlled REC	Historical REC	Known	Suspect	De minimus	No
1	Former USTs (Parcels 108, 110, 115, 132, 137, 139, 151, 154, 159)	Testing in the 1990s revealed petroleum hydrocarbons (TPH) and volatile organic compounds (VOCs) in the soil above ESLs near the location of the former UST on Parcel 108, which represents a current recognized environmental condition.	x		x	x			
2	Former USTs (Parcels 108, 151, 159)	The Regional Water Quality Control Board closed the gasoline USTs on these parcels and indicated that no further action related to the underground storage tank release is required. No testing of current soil gas conditions near the former USTs has been done. Given the lack of data, the potential for impacts to indoor air from the presence of VOCs in soil gas associated with the former gasoline USTs cannot be ruled out and represents a suspect recognized environmental condition.	x		x		x		
3	Former ASTs (Parcels 110, 137, 159)	*De minimus* (condition that generally does not present a threat to human health or the environment) potential for the release of petroleum hydrocarbons to soil from the former ASTs on Parcel 110.	x					x	
		No potential releases of petroleum hydrocarbons to the soil from the former ASTs on Parcel 137.	x						x
		PAHs detected above applicable screening levels in the soil near the former ASTs on Parcel 153 and represent recognized environmental condition.	x		x	x			
4	Lead-Based Paint	Laboratory analysis of soil in the 1990s showed lead above DTSC's residential CHHSL, and because not additional testing has been done, lead in soil represents both a suspect and known recognized environmental condition.	x			x	x		
5	Pesticides	The FOST stated that pesticides were used at the site, but did not state where. Although laboratory testing to date did not detect pesticides above residential screening levels, that testing covered only Parcel 157. Given the lack of information about the location of pesticide use and lack of soil data, there is a potential for the presence of pesticides in soil.	x				x		

TABLE 4.7-2
SUMMARY OF SITE CONDITIONS

Map ID (Figure 4.7-1)	Location	Findings: Known or Suspect Environmental Conditions	Findings: Regulatory Closure (FOST)	Findings: Controlled REC	Findings: Historical REC	Conclusions: Environmental Condition: Yes: Known	Conclusions: Environmental Condition: Yes: Suspect	Conclusions: Environmental Condition: No: De minimus	Conclusions: Environmental Condition: No: No
Table continued									
6	Hazardous Substance and Waste Storage (Parcels 106, 113, 126, 131, 132, 137, 154)	There is no data about soil gas conditions and past disposal practices of the household type cleaning chemicals and consumer products containing hazardous waste used by the Navy on the site. Thus, the potential for the presence of hazardous substances in soils gas that could migrate to indoor air cannot be ruled out, creating a suspect recognized environmental condition.	x				x		
7	Boiler Treatment Chemicals (Parcel 154)	2014 soil samples revealed residual water treatment chemicals at concentrations below residential screening levels.	x		x			x	
		2014 soil samples detected lead above residential screening levels, which indicates the potential to encounter soil with metals during site development. This potential hazard will be addressed through the CLRRA process.				x			
8	Radioactive Material Storage (Parcels 112, 113, 116, 117, 123, 133, 137)	Based on the closure of the radioactive material storage areas by the Department of the Navy with concurrence from DTSC prior to property transfer, the former storage of radioactive materials does not represent a recognized environmental condition.	x						x
9	Former Incinerator (Parcel 114)	Based on the 2014 soil data, potential releases of incinerator waste represents a *de minimis* condition and not a recognized environmental condition.	x					x	
10	Former Hydraulic Lift (Parcel 159)	The hydraulic lift and approximately 80 cubic yards of soil around the lift were removed as part of the closure of the former Naval Hospital. Although the regulatory agencies have indicated that no further action is necessary to address releases to the soil related to the hydraulic lift, no testing has been done to determine the potential for VOCs in soil gas to migrate to indoor air. Given the lack of data, the residual presence of VOCs in soil near the former hydraulic lift cannot be ruled out and represents a suspect recognized environmental condition.	x				x		
11	Former Automobile Repair (Parcel 159)	Lead and THP as motor oil above applicable screening levels were detected in soil samples in this area, and represent a recognized environmental condition.	x			x			

TABLE 4.7-2
SUMMARY OF SITE CONDITIONS

Map ID (Figure 4.7-1)	Location	Findings: Known or Suspect Environmental Conditions	Findings: Regulatory Closure (FOST)	Findings: Controlled REC	Findings: Historical REC	Conclusions: Environmental Condition: Yes: Known	Conclusions: Environmental Condition: Yes: Suspect	Conclusions: Environmental Condition: No: De minimus	Conclusions: Environmental Condition: No: No
Table continued									
		No soil gas data has been collected. Given the lack of data, the potential for releases of VOCs in automobile repair solvents to the soil gas in this area and potential for migration of VOCs in soil gas to indoor air of future buildings cannot be ruled out and represents a suspect recognized environmental condition.	x				x		
12	Oil-Filled Transformers (Parcel 155)	Based on the presence of PCBs in soil in this area above current human-health protective levels, the release from the former transformer represents a current recognized environmental condition.	x			**x**			
13	Cleaning Solvent Tank (Parcel 104)	The FOST stated that the site is suitable for reuse for residences, but no current soil sampling in this area has been done. Based on the lack of current soils and soil gas data, and the lack of historical information about use of the cleaning solvent tank, the potential for releases of acids and VOCs to soil and potential for migration of VOCs in soils gas to indoor air cannot be ruled out, and represents a suspect recognized environmental condition.	x				x		
14	Former Paint Booth and Storage for Paint, Pesticide, Solvent, and Lubricant (Parcel 110)	Although the FOST states that this area is suitable for residential use, it appears that it had a building with paint booth and storage for paints, pesticides, solvents, and lubricants. Given the lack of soil data and soil gas data, the potential for releases to soils and soil gas of VOCs from paints and solvents cannot be ruled out and represents a suspect recognized environmental condition.	x				x		
15	Diesel Backup Generator (Parcel 123)	A back-up diesel generator and associated diesel AST operated on this parcel, and solvents may have been used to clean equipment as part of generator maintenance. Given the lack of soil and soil gas data, the potential for releases to soil and soil gas of petroleum products and VOCs cannot be ruled out and represents a suspect recognized environmental condition.	x				x		

TABLE 4.7-2
SUMMARY OF SITE CONDITIONS

Map ID (Figure 4.7-1)	Location	Findings: Known or Suspect Environmental Conditions	Findings: Regulatory Closure (FOST)	Findings: Controlled REC	Findings: Historical REC	Conclusions: Environmental Condition: Yes: Known	Conclusions: Environmental Condition: Yes: Suspect	Conclusions: Environmental Condition: No: De minimus	Conclusions: Environmental Condition: No: No
Table continued									
16	Former Laboratory Facilities (Parcel 125)	Information about the petroleum product use, storage and disposal from the former laboratory operations is not ascertainable, and data has not been collected about current soil or soil gas conditions. Given the lack of data, the potential for TPH and VOCs in the soil cannot be ruled out and represents a suspect recognized environmental condition.	x				x		
17	Motor Oil Spill (Parcel 125)	Testing of soil near the site of a 1992 oil spill revealed TPH and PAH BaP above environmental screening levels (ESLs). Arsenic also was detected above the background arsenic levels. This recognized environmental condition would be addressed through the CLRRA process.	x		x	**x**			
18	Hydraulic Fluid Release (Parcel 149)	Approximately 5 gallons of hydraulic fluid were spilled on this parcel in 1991. Although washed, there is no data about current soil conditions, and therefore it is assumed that TPH as hydraulic fluid remains in the soil.	x			**x**			
19	Distressed Vegetation (Parcel 145)	Testing done in 2014 indicates PAHs and lead above the ESLs and arsenic slightly above background levels. TPH was below the ESL and lead was not detected. Based on the data, there is a potential to encounter sol with PAHs and metals during site development. This recognized environmental condition will be addressed through the CLRRA process.	x			**x**			
20	Rifle Range/Power House Creek	Laboratory analysis of creek sediment samples showed PCBs above the residential CHHSL, dieldrin above the ESL, and arsenic, coper, lead, mercury, nickel, and zinc above either 1996 or 2005 screening criteria. In addition, TPH as motor oil exceeded the 2005 screening criteria. Thus soil in this area represents a recognized environmental condition to be addressed through the CLRRA process and creek restoration.	x			**x**			
21	Sanitary Sewers	In 1994, 32 soil samples were collected at locations adjacent to sanitary sewers. The analysis did not detect VOCs or SVOCs above regulatory screening criteria. In addition, metals, including beryllium, mandganese, nickel, and zinc were below their 1996 and 2005 screening criteria. TPH	x				x		

TABLE 4.7-2
SUMMARY OF SITE CONDITIONS

Map ID (Figure 4.7-1)	Location	Findings: Known or Suspect Environmental Conditions	Findings: Regulatory Closure (FOST)	Findings: Controlled REC	Findings: Historical REC	Conclusions: Environmental Condition: Yes: Known	Conclusions: Environmental Condition: Yes: Suspect	Conclusions: Environmental Condition: No: De minimus	Conclusions: Environmental Condition: No: No
Table continued									
		as motor oil was detected above the ESL. Soil gas samples were not collected. Based on the data and lack of soil gas samples, potential releases from soil near the sanitary sewers cannot be ruled out and represent a suspect recognized environmental condition.							
22	Water Supply Wells No. 1 and No. 2 (Parcels 110, 143)	There were two water supply wells for irrigation on the site that have been removed. Sampling in 1995 from prior to removal found lead, pesticides, and TPH as motor oil above ESLs. No testing of the groundwater has been done. Given the lack of data, the potential for a preferential pathway for releases to groundwater cannot be ruled out and represent a suspect recognized environmental condition.	x				x		
23	Discarded Drums (Parcel 112)	In 2014, soil sampling revealed TPH, and PCBs above the ESLs, and lead above the residential ESL. These results represent a current recognized environmental condition. Due to the potential to encounter soil with TPH, PCBs, and lead during site development, actions should be taken to mitigate conditions. Such actions could be done through the CLRRA process.	x			**x**			
24	Former Medical Debris Landfill (Offsite, adjacent to Parcel 152)	Non-biohazardous medical debris was discovered east of Parcel 152, removed, and a completion report was approved by the Alameda County Health Department. Thus, this debris no longer represents a current recognized environmental condition.	x		x				x

SOURCE: WEST, 2014.

Hazardous Building Materials Associated with Demolition

Older buildings may have been constructed or maintained with building materials that include hazardous materials such as lead-based paint, asbestos, and polychlorinated biphenyls (PCBs). If disturbed without appropriate precautions and controls, these building materials could present a potential hazard to workers or the public. Prior to the USEPA ban in 1978, lead-based paint was commonly used on interior and exterior surfaces of buildings. Through such disturbances as sanding and scraping activities, renovation work, or gradual wear and tear, old peeling paint, or

paint dust particulates have been found to contaminate surface and near surface soils or cause lead dust to migrate and affect indoor air quality. Exposure to residual lead can cause severe adverse health effects especially in children.

Asbestos is a naturally-occurring fibrous material that was extensively used as a fireproofing and insulating agent in building construction materials before such uses were banned by the USEPA in the 1970s. Asbestos was commonly used for insulation of heating ducts as well as ceiling and floor tiles to name a few typical types of materials. Similar to lead-based paint, contained within the building materials asbestos fibers present no significant health risk, but once these tiny fibers are disturbed they become airborne and create potential exposure pathways. The fibers are very small and cannot be seen with the naked eye. Once they are inhaled they can become lodged into the lung potentially causing lung disease or other pulmonary complications.

PCBs are organic oils that were formerly used primarily as insulators in many types of electrical equipment including transformers and capacitors. After PCBs were determined to be a carcinogen in the mid to late 1970s, the USEPA banned PCB use in most new equipment and began a program to phase out certain existing PCB-containing equipment. Fluorescent lighting ballasts manufactured after January 1, 1978, do not contain PCBs and are required to have a label clearly stating that PCBs are not present in the unit. Additional information about these materials is provided in the Regulatory Framework Section below.

As noted above, lead-based paint, asbestos, and PCBs associated with the NMCO have been assessed through the Navy's EBS/BCP process and the Phase I ESAs prepared by WEST. Some abatement/remediation work associated with those chemicals has also been accomplished through the Navy's BCP and subsequent demolition of structures. The completion of the assessment and remediation process is discussed below in the *Impacts and Mitigation Measures* section, under -2.

Radon

Radon is a naturally-occurring odorless, tasteless, and invisible gas produced from the decay of uranium in soil and water (USEPA, 2013). Structures placed on native soils with elevated levels of radon can be impacted by the intrusion of radon gas into breathing spaces of the overlying structures, which can cause lung cancer. Alameda County is listed as a Zone 2 county with a predicted average indoor radon screening level between 2 and 4 picocuries per liter. This is considered a moderate level by the USEPA. The USEPA recommends remedial action for areas with levels above 4 picocuries per liter. Based on the USEPA information, the Plan Area is not considered to have radon above the recommended health risk level.

Naturally Occurring Asbestos

Asbestos is a naturally occurring fibrous group of minerals. Chrysotile, which is found in the serpentine group[2], is the most common asbestos mineral in California. Small amounts of

[2] Serpentine is a naturally occurring group of minerals that can be formed when ultramafic rocks are metamorphosed during uplift to the earth's surface. Serpentinite is a rock consisting of one or more serpentine minerals. This rock type is commonly associated with ultramafic rock along earthquake faults.

chrysotile asbestos, a fibrous form of serpentine minerals, are common in serpentinite. When disturbed, the asbestos fibers can become airborne and present a public health risk when inhaled. The California Geological Survey has mapped California for the occurrence of ultramafic rocks, which have the highest potential for serpentine. A review of the California Department of Conservation, California Division of Mines and Geology (CDMG) map shows that the Project site is not near mapped locations of serpentinized ultramafic rocks (CDMG, 2000). The map of historic locations of known asbestos mines in Alameda County shows the nearest former mine sites to the north, Leona Quarry, which has long been closed and redeveloped (USGS, 2014). Due to the Project's location outside known areas of serpentinized ultramafic rock and historic asbestos mines, the potential for encountering naturally occurring asbestos during construction is considered very low and the public safety requirements to minimize the risk of naturally occurring asbestos would not apply to the Project site.

Airports

Aviation safety hazards can result if projects are sited in the vicinity of airports. The nearest public airport to the Plan Area is Oakland International Airport, located approximately 7 miles south of the Plan Area. There are no private airstrips in the vicinity.

Airports and Air Hazards

Airport Influence Areas are used in land use planning to identify areas commonly overflown by aircraft as they approach and depart an airport, or as they fly within established airport traffic patterns. The Project site is located approximately 7 miles northeast of Oakland International Airport, the nearest airport. Due to the Project's location outside airport influence areas, the public safety requirements to minimize the risk related to airport proximity would not apply within the Project vicinity.

Schools, Daycare Facilities, Nursing Homes, and Religious Institutions

The young and elderly can be more sensitive to hazardous waste than healthy adults, and therefore are considered sensitive receptors. A number of public and private schools and daycare facilities are located in proximity to the Project. Specifically, five schools and one daycare center are located within 0.2 miles of the Project site, as shown in **Table 4.7-3**. Seneca, located adjacent to the Project Site, has submitted an application for a school, and this Draft SEIR conservatively treats Seneca as a school for the impact analysis. For the analyses concerning effects, such as hazards and hazardous materials, on sensitive receptors, this Draft SEIR conservatively considers the Seneca school as an existing sensitive receptor. In addition three nursing homes are located within 0.4 miles of the Project site, as shown in Table 4.7-3. Religious institutions have also been listed in Table 4.7-3 because they often run schools and daycare facilities. Although not all of the religious institutions listed may have schools or daycare facilities, to be conservative, this Draft SEIR assumes that they do.

TABLE 4.7-3
SCHOOLS, DAYCARE CENTERS, NURSING HOMES, AND RELIGIOUS INSTITUTIONS IN THE VICINITY[1] OF THE PROJECT SITE

Receptor / Address	Type / Public or Private	Distance from Project Site (at closest point)
Daycare Centers:		
May May's Family Day Care / 8008 Earl St	Private	0.2 miles
Joious Beginnings Learning Center / 190 Elysian Fields Dr	Private	0.5 miles
Fine Arts Family Day Care / 7620 Hansom Dr	Private	0.4 miles
Nursing Homes and Care Centers:		
Bethany Home Care / 9450 Mountain Blvd	Private	0.2 miles
Heavenly Home Care / 8997 McGurrin Rd	Private	0.2 miles
Sunny Care Home / 3520 Calafia Ave	Private	0.4 miles
Schools:		
Color Me Children Preschool / 8115 Fontaine St	Private	<0.1 miles
Bay Area Technology School / 8251 Fontaine St	Charter	0.1 miles
King Estates Middle School / 8745 Fontaine St	Closed 2008	0.1 miles
Charles P Howard Elementary School / 8755 Fontaine St	Public	0.2 miles
Kids Konnect Preschool / 8800 Fontaine St	Private	0.2 miles
Pumpkin Seed Childcare / 7817 Greenly Dr	Private	0.4 miles
Bishop O'Dowd High School / 9500 Stearns Ave	Public	0.5 miles
Northern Light School / 3710 Dorisa Ave	Private	0.3 miles
Seneca Center for Children and Families / within NCMO Site [2]	Private	<0.1 miles
Religious Institutions:		
St. Cuthbert's Episcopal Church / 7932 Mountain Blvd	Private	0.3
Sequoyah Community Church / 4292 Keller Ave	Private	<0.1 miles
Berith Christian Fellowship Offices / 4400 Keller Ave	Private	<0.1 miles
House of Truth / 430 Canyon Oaks Dr	Private	<0.1 miles
Kaleo Christian Fellowship / 7700 Mountain Blvd	Private	0.5
Living Faith Christian Church / 9530 Mountain Blvd	Private	0.2
Saint Paschal Baylon Catholic Church / 3700 Dorisa Ave	Private	0.3
United Lutheran Church of Oakland / 8800 Fontaine St	Private	0.2

1 Within 0.5 miles
2 School uses are proposed, but conservatively considered as existing for this Draft EIR analysis.

SOURCE: DTSC, EnviroStor, 2015

Wildland Fires

The Project site is surrounded by urban lands and vegetated open space areas that can get very dry during the summer months. Factors that contribute to the risk of fire include dense and fire-prone vegetation, poor access to fire-fighting equipment because of slopes or inadequate roads, lack of adequate water pressure and service in fire-prone locations, and seasonal atmospheric conditions that result in warm, dry fire seasons with strong afternoon winds.

The California Department of Forestry and Fire Protection (CAL FIRE) is required by law to map areas of significant fire hazard based on fuels, terrain, weather, and other relevant factors (PRC 4201-4204 and Govt. Code 51175-89). Factors that increase an area's susceptibility to fire hazards include slope, vegetation type and condition, and atmospheric conditions. On the CAL FIRE Alameda County Fire Hazard Severity Zone Map, the site is identified as a Very High Fire Hazard Severity Zone (Federal Responsibility), and is surrounded by land designated as Very High Fire Hazard Severity Zone (Local Responsibility Area) (CAL FIRE, 2008).

Regulatory Setting

There are a number of federal, State and local regulations that focus on reducing the risks from chemical hazards and restoring sites impacted by hazardous materials to productive use, some of which include:

- California Accidental Release Prevention (CalARP) Program
- U.S. Occupational Safety and Health Administration (OSHA) Process Safety Management (PSM) Rule
- US EPA Accidental Release Prevention/Risk Management Plan (RMP) Rule
- California OSHA (Cal OSHA) Injury and Illness Prevention Program
- California Land Reuse and Revitalization Act (CLRRA)

These and other regulations and existing compliance programs and plans relevant to the Project are described in more detail below.

Federal

Hazardous Materials Management

The primary federal agencies with responsibility for hazardous materials management include the USEPA, U.S. Department of Labor Occupational Safety and Health Administration (OSHA), and the U.S. Department of Transportation (DOT). Federal laws, regulations, and responsible agencies are summarized in **Table 4.7-4** and are discussed in detail in this section.

State and local agencies often have either parallel or more stringent regulations than federal agencies. In most cases, state law mirrors or overlaps federal law and enforcement of these laws is the responsibility of the state or of a local agency to which enforcement powers are delegated. For these reasons, the requirements of the law and its enforcement are discussed under either the state or local agency section.

TABLE 4.7-4
FEDERAL AND STATE LAWS AND REGULATIONS RELATED TO HAZARDOUS MATERIALS MANAGEMENT

Classification	Law or Responsible Federal Agency	Description
Hazardous Materials Incidents	Comprehensive Environmental Response Compensation and Liability Act (CERCLA or Superfund) and National Priorities List (NPL)	CERCLA provides broad federal authority (primarily delegated to USEPA) to respond to releases of hazardous substances and issue regulations consistent with that objective. Pursuant to its CERCLA authority, USEPA has compiled an extensive list of hazardous substances and a list of over 1,200 sites for priority cleanup. The list of contaminated sites is referred to as the NPL.
	Proposed National Priorities List (PNPL)	Sites considered for NPL listing.
	Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS)	A database containing information on potentially hazardous sites that have been reported to the USEPA. CERCLIS contains sites which are either proposed to or on the NPL and sites which are in the screening and assessment phase for possible inclusion on the NPL.
	CERCLIS No Further Remedial Action Planned (CERC-NFRAP)	CERC-NFRAP are archived sites which indicate an assessment of the site has been completed and that the EPA has determined no further steps will be taken to list the site on NPL.
	California Hazardous Materials Incident Report System (CHMIRS)	Spills and other incidents gathered from the California Office of Emergency Services.
	Formerly Used Defense Sites (FUDS)	Includes locations of Formerly Used Defense Sites - properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.
	Proposition 65 Records (Notify 65)	This database, maintained by the State Water Resources Control Board (SWRCB), contains facility notifications about any release that could impact drinking water and thereby expose the public to a potential health risk.
Hazardous Materials Management	Community Right-to-Know Act of 1986 (also known as Title III of the Superfund Amendments and Reauthorization Act (SARA))	Imposes reporting and emergency response requirements to ensure that reportable quantities of hazardous materials are properly handled, used, stored, and disposed of and to prevent or mitigate injury to human health or the environment in the event that such materials are accidentally released.
Hazardous Waste Handling	Resource Conservation and Recovery Act of 1976 (RCRA)	Under RCRA, the EPA regulates the generation, transportation, treatment, storage, and disposal of hazardous waste from “cradle to grave.”
	Hazardous and Solid Waste Act	Amended RCRA in 1984, affirming and extending the “cradle to grave” system of regulating hazardous wastes. The amendments specifically prohibit the use of certain techniques for the disposal of some hazardous wastes.
	Hazardous Wastes & Substances Sites List (Cortese)	Historical compilation of sites listed in the LUST, SWF/LF and Cal SITES databases. No longer maintained as an active database.
Hazardous Materials Transportation	U.S. Department of Transportation (DOT)	Has the regulatory responsibility for the safe transportation of hazardous materials. The DOT regulations govern all means of transportation except packages shipped by mail (49 CRF).
	U.S. Postal Service (USPS)	USPS regulations govern the transportation of hazardous materials shipped by mail.
Occupational Safety	Occupational Safety and Health Act of 1970	Fed/OSHA sets standards for safe workplaces and work practices, including the reporting of accidents and occupational injuries (29 CFR).
Structural and Building Components (Lead-based paint, PCBs, and asbestos)	Toxic Substances Control Act (TSCA)	Regulates the use and management of PCBs in electrical equipment, and sets forth detailed safeguards to be followed during the disposal of such items.
	USEPA	The EPA monitors and regulates hazardous materials used structural and building components and effects on human health.

State

In January 1996, the California Environmental Protection Agency (Cal EPA) adopted regulations implementing a Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program). The program has six elements: hazardous waste generators and hazardous waste on-site treatment; underground storage tanks; aboveground storage tanks; hazardous materials release response plans and inventories; risk management and prevention programs; and Unified Fire Code hazardous materials management plans and inventories. The plan is implemented at the local level. The Certified Unified Program Agency (CUPA) is the local agency that is responsible for the implementation of the Unified Program. In Oakland, the Alameda County Department of Environmental Health (ACDEH) and the Oakland Fire Department are the designated CUPA for all businesses.

Soil and Groundwater Contamination

In California, the investigation and remediation of soil and groundwater contaminated by hazardous materials is overseen (at the state level) by the DTSC and the Regional Water Quality Control Boards. DTSC typically conducts such oversight pursuant to Chapters 6.8 or Chapter 6.82 of the Health and Safety Code. The Regional Boards typically conduct such oversight pursuant to applicable provisions of the Water Code or Chapter 6.82 of the Health and Safety Code. Chapter 6.82 of the Health and Safety Code, the CLRRA statute, is available to parties that did not cause or contribute to the historic release of hazardous substances, and it is used by parties seeking to restore in-fill development sites to productive use. The discussion below focuses on Chapter 6.82 because the project sponsor enrolled the Project site in the CLRRA program in early 2016.

The CLRRA process begins with the submission of an application providing background information needed to confirm the applicant's eligibility. Eligible applicants then enter into an oversight agreement with the relevant state agency. For the Project Site, DTSC is the state agency that will oversee the process. Once an oversight agreement is in place, the next step in the process is submission of a site assessment plan for agency review and approval. The results of the site assessment process are then submitted, and the oversight agency determines whether a "response" plan (i.e., a cleanup plan) is needed to make the site suitable for the proposed use or uses. That determination is typically made by comparing site assessment data with either "screening" values (published by DTSC, SFRWQCB or USEPA) or a site specific health risk assessment.

Once the site assessment process is completed to the oversight agency's satisfaction, a CLRRA site is determined to be in one of three categories: (1) conditions allow unrestricted land use and the oversight agency issues a written "no further action" determination; (2) conditions do not allow for unrestricted use, but are suitable in the oversight agency's opinion for the anticipated land uses provided an appropriate land use control (i.e., deed restriction) is recorded; or (3) a "response" action is needed (i.e., soil, soil gas, and/or groundwater need remediation pursuant to a written "response" plan). As noted above, the 2014 Phase I ESA recommends both additional site assessment and management of residual hazardous materials pursuant to a soil management plan, so the Project site is expected to fall within the third category.

A soil management plan as recommended in the 2014 Phase I ESA is one kind of "response" plan. Soil management plans provide detailed written protocols for assessing, testing, and handling soils impacted, or thought to be impacted, by hazardous materials. They typically specify worker health and safety protocols, analytical testing procedures, confirmation sampling procedures, and other measures to ensure that if hazardous materials are encountered during site development activities, the impacted area is addressed in a manner designed to protect both construction workers and the maintenance workers and site occupants that arrive after the initial construction phase is complete.

For sites falling into either the second or third category, the land use control (category 2 sites) and the response plan (category 3 sites) must satisfy the criteria set forth in the CLRRA statute (e.g., Section 25395.96) including but not limited to a public review and comment process. For category 3 sites, once the response plan has been fully implemented to the oversight agency's satisfaction, the agency issues a certificate of completion, which if needed (in the agency's judgment) can be conditioned upon execution of a plan for the long term operation and maintenance of remedial systems that are intended to operate over a period of time.

Hazardous Materials Management

The California Hazardous Materials Release Response Plans and Inventory Law of 1985 (Business Plan Act) requires that any business that handles hazardous materials prepare a business plan, which must include the following:

- Details, including floor plans, of the facility and business conducted at the site;
- An inventory of hazardous materials that are handled or stored on site;
- An emergency response plan; and
- A safety and emergency response training program for new employees with annual refresher courses.

Hazardous Waste Handling

The DTSC regulates the generation, transportation, treatment, storage, and disposal of hazardous waste. State and federal laws require detailed planning to ensure that hazardous wastes are properly handled, used, stored, and disposed of, and, in the event that such materials are accidentally released, to prevent or to mitigate injury to health or the environment. Laws and regulations require hazardous materials users to store these materials appropriately and to train employees to manage them safely.

Under the federal Resource Conservation and Recovery Act of 1976 (RCRA) described in Table 4.7-4, below, individual states may implement their own hazardous waste programs in lieu of RCRA, as long as the state program is at least as stringent as federal RCRA requirements. In California, the DTSC regulates the generation, transportation, treatment, storage, and disposal of hazardous waste. The hazardous waste regulations establish criteria for identifying, packaging, and labeling hazardous wastes; prescribe management of hazardous waste; establish permit requirements for hazardous waste treatment, storage, disposal, and transportation; and identify hazardous wastes that cannot be disposed of in landfills.

Hazardous Materials Transportation

The State of California has adopted DOT regulations for the intrastate movement of hazardous materials. State regulations are contained in Title 26 of the California Code of Regulations (CCR). In addition, the State of California regulates the transportation of hazardous waste originating in the state and passing through the state (26 CCR). Both regulatory programs apply in California. The two state agencies that have primary responsibility for enforcing federal and state regulations and responding to hazardous materials transportation emergencies are the California Highway Patrol (CHP) and the California Department of Transportation (Caltrans).

Occupational Safety

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

Cal/OSHA regulations (8 CCR) concerning the use of hazardous materials in the workplace require employee safety training, safety equipment, accident and illness prevention programs, hazardous substance exposure warnings, and emergency action and fire prevention plan preparation. Cal/OSHA enforces hazard communication program regulations, which contain training and information requirements, including procedures for identifying and labeling hazardous substances, and communicating hazard information relating to hazardous substances and their handling. The hazard communication program also requires that Materials Safety Data Sheets (MSDS) be available to employees, and that employee information and training programs be documented. These regulations also require preparation of emergency action plans (escape and evacuation procedures, rescue and medical duties, alarm systems, and training in emergency evacuation).

State laws, like federal laws, include special provisions for hazard communication to employees in research laboratories, including training in chemical work practices. Specific, more detailed training and monitoring is required for the use of carcinogens, ethylene oxide, lead, asbestos, and certain other chemicals listed in 29 CFR. Emergency equipment and supplies, such as fire extinguishers, safety showers, and eye washes, must also be provided and maintained in accessible places.

Cal/OSHA (8 CCR), like Fed/OSHA (29 CFR), includes extensive, detailed requirements for worker protection applicable to any activity that could disturb asbestos-containing materials, including maintenance, renovation, and demolition. These regulations are also designed to ensure that persons working near the maintenance, renovation, or demolition activity are not exposed to asbestos.

Emergency Response

California has developed an emergency response plan to coordinate emergency services provided by federal, state, and local government and private agencies. Responding to hazardous materials incidents is one part of this plan. The plan is administered by the State Office of Emergency Services (OES), which coordinates the responses of other agencies, including Cal EPA, CHP, CDFW, the

San Francisco Bay RWQCB, and the Oakland Fire Department (OFD). The OFD provides first response capabilities, if needed, for hazardous materials emergencies within the Plan Area.

Structural and Building Components

Other than Club Knoll and its garage, there are no remaining structures on the Project site. The Project proposes to relocate and rehabilitate Club Knoll and demolish the garage. Given the older age of the structure, some of its major architectural components may contain asbestos, PCBs, or lead and lead-based paint.

Asbestos

State laws and regulations prohibit emissions of asbestos from asbestos-related manufacturing, demolition, or construction activities; require medical examinations and monitoring of employees engaged in activities that could disturb asbestos; specify precautions and safe work practices that must be followed to minimize the potential for release of asbestos fibers; and require notice to federal and local governmental agencies prior to beginning renovation or demolition that could disturb asbestos. Asbestos represents a human health risk when asbestos fibers become airborne (friable) and are inhaled into the lungs.

The Bay Area Air Quality Management District (BAAQMD) is vested by the California legislature with authority to regulate airborne pollutants, including asbestos, through both inspection and law enforcement, and is to be notified ten days in advance of any proposed demolition or abatement work. BAAQMD regulates asbestos through Regulation 11, Rule 2, which has requirements "to control emissions of asbestos to the atmosphere during demolition, renovation, milling and manufacturing and establish appropriate waste disposal procedures." (BAAQMD, Rule 11-2-101.) Cal/OSHA regulates asbestos removal to ensure the health and safety of workers removing asbestos containing materials and also must be notified of asbestos abatement activities.

Polychlorinated Biphenyls (PCBs)

As previously discussed, PCBs are organic oils that were formerly placed in many types of electrical equipment and in fluorescent lighting ballasts. PCBs are highly persistent in the environment and are toxic. In 1979, the USEPA banned the use of PCBs in most new electrical equipment and began a program to phase out certain existing PCB-containing equipment. The use and management of PCBs in electrical equipment is regulated pursuant to the Toxic Substances Control Act (40 CFR). Fluorescent lighting ballasts that contain PCBs, regardless of size and quantity, are regulated as hazardous waste and must be transported and disposed of as hazardous waste.

Lead and Lead-Based Paint

Under CCR, Title 22, California considers soil with total concentrations of lead in excess of 1,000 parts per million (ppm), and/or a soluble[3] concentration in excess of 5 ppm to qualify for handling as hazardous waste. Both the federal and California OSHAs regulate worker exposure during construction activities that involve lead-based paint. The Interim Final Rule found in 29 CFR Part 1926.62 covers construction work where employees may be exposed to lead during such

[3] Capable of being dissolved, especially in water.

activities as demolition, removal, surface preparation for re-painting, renovation, clean up and routine maintenance. The OSHA-specified method of compliance includes respiratory protection, protective clothing, housekeeping, hygiene facilities, medical surveillance, training, etc.

Local

Soil and Groundwater Contamination

In Alameda County, remediation of contaminated sites is performed under the oversight of the DTSC (discussed above), the San Francisco Bay RWQCB (also discussed above), and the ACDEH. The ACDEH implements a local oversight program under contract with the SWRCB to provide regulatory oversight of the investigation and cleanup of soil and groundwater contamination from leaking petroleum USTs and aboveground storage tanks. At sites where contamination is suspected or known to have occurred, the project sponsor is required to perform a site investigation and prepare a remediation plan, if necessary. For typical development projects impacted by a tank release overseen by ACDEH, actual site remediation is completed either before or during the construction phase of the Project.

Alameda County Hazardous Waste Management Program

Assembly Bill (AB) 2948 requires counties and cities either to adopt a county Hazardous Waste Management Plan as part of their general plan, or enact an ordinance requiring that all applicable zoning subdivision, conditional use permit, and variance decisions be consistent with the county hazardous waste management plan. Once each County had its Hazardous Waste Management Program approved by the State, each city had 180 days to either 1) adopt a City Hazardous Waste Management Plan containing specified elements consistent with the approved County Hazardous Waste Management Program, 2) incorporate the applicable portions of the approved Program, by reference, into the City's General Plan, or 3) enact an ordinance which requires that all applicable zoning, subdivision, conditional use permits, and variance decisions be consistent with the specified portions of the Program. Alameda County has adopted a Hazardous Waste Management Program that addresses procedures for hazardous materials incidents.

Under the Unified Hazardous Waste and Hazardous Materials Management Regulatory Program, the ACDEH is certified by the DTSC to implement the following programs:

- Hazardous Materials Management Plan and Inventory (HMMP) and the Hazardous Materials Business Plan (HMBP);
- Risk Management Program (RMP);
- UST program;
- Spill Prevention, Control and Countermeasure (SPCC) Plan for aboveground storage tanks;
- Hazardous waste generators; and
- On-site hazardous waste treatment (tiered permit).

Local Plans and Policies

Discussion of the Project's overall consistency with the Oakland General Plan is provided in Section 4.9, *Land Use, Plans and Policies*, of this SEIR. General Plan policies that are also significance criteria or contain a regulatory threshold, which the Project must meet, are addressed in this section.

City of Oakland General Plan

The Safety Element of the City of Oakland General Plan contain the following policies pertaining to hazards and hazardous materials with potential relevance to the proposed Project:

- ***Flammable Vegetation Control, Policy C0-10.1:*** Subject to the availability of City resources and at the discretion of the City Council and applicable City departments, control flammable vegetation on public and private open space lands in the Oakland Hills to reduce wildfire hazards.

- ***Fire Hazards, Policy FI-3*****:** Prioritize the reduction of the wildfire hazard, with an emphasis on prevention.

- ***Hazardous Materials, Policy HM-1*****:** Minimize the potential risks to human and environmental health and safety associated with the past and present use, handling, storage and disposal of hazardous materials.

  Action HM-1.2: Continue to enforce provisions under the zoning ordinance regulating the location of facilities which use or store hazardous materials.

  Action HM-1.4: Continue to participate in the Alameda County Waste Management Authority and, as a participant, continue to implement policies under the county's hazardous-waste management plan to minimize the generation of hazardous wastes.

  Action HM-1.6: Through the Urban Land Redevelopment program, and along with other participating agencies, continue to assist developers in the environmental clean-up of contaminated properties.

  Action HM-1.7: Create and maintain a database with detailed site information on all brownfields and contaminated sites in the city.

- ***Hazardous Materials, Policy HM-3*****:** Seek to prevent industrial and transportation accidents involving hazardous materials, and enhance the city's capacity to respond to such incidents.

  Action HM-3.1: Continue to enforce regulations limiting truck travel through certain areas of the city to designated routes, and consider establishing timebased restrictions on truck travel on certain routes to reduce the risk and potential impact of accidents during peak traffic hours.

  Action HM-3.4: Continue to rely on, and update, the city's hazardous materials area plan to respond to emergencies related to hazardous materials.

Oakland Municipal Code

To protect sensitive receptors from public health effects from a release of hazardous substances, the Oakland Municipal Code, Title 8 Section 42.105 allows the City, at its discretion, to require

facilities that handle hazardous substances within 1,000 feet of a residence, school, hospital, or other sensitive receptor to prepare a Hazardous Materials Assessment Report and Remediation Plan (HMARRP).

The HMARRP must include public participation in the planning process, along with the following requirements:

- identify hazardous materials used and stored at the property and the suitability of the site;
- analyze off-site consequences that could occur as a result of a release of hazardous substances (including fire);
- include a health risk assessment; and
- identify remedial measures to reduce or eliminate on-site and off-site hazards.

City of Oakland Standard Conditions of Approval and Uniformly Applied Development Standards Imposed as Standard Conditions of Approval

The Standard Conditions of Approval (SCAs) relevant to the Project's hazards and hazardous materials impacts are presented below. If the Project is approved by the City, all applicable SCAs would be adopted as conditions of approval and required, as applicable, to be implemented during project construction and operation to address impacts related to hazards and hazardous materials. The SCAs are incorporated and required as part of the Project, so they are not listed as mitigation measures.

- **SCA HAZ-1: Hazardous Materials Related to Construction.** *During construction.* The project applicant shall ensure that Best Management Practices (BMPs) are implemented by the contractor during construction to minimize potential negative effects on groundwater, soils, and human health. These shall include, at a minimum, the following:

    a. Follow manufacture's recommendations for use, storage, and disposal of chemical products used in construction;

    b. Avoid overtopping construction equipment fuel gas tanks;

    c. During routine maintenance of construction equipment, properly contain and remove grease and oils;

    d. Properly dispose of discarded containers of fuels and other chemicals;

    e. Implement lead-safe work practices and comply with all local, regional, state, and federal requirements concerning lead (for more information refer to the Alameda County Lead Poisoning Prevention Program); and

    f. If soil, groundwater, or other environmental medium with suspected contamination is encountered unexpectedly during construction activities (e.g., identified by odor or visual staining, or if any underground storage tanks, abandoned drums or other hazardous materials or wastes are encountered), the project applicant shall cease work in the vicinity of the suspect material, the area shall be secured as necessary, and the applicant shall take all appropriate measures to protect human health and the environment. Appropriate measures shall include notifying the City and applicable

regulatory agency(ies) and implementation of the actions described in the City's Standard Conditions of Approval, as necessary, to identify the nature and extent of contamination. Work shall not resume in the area(s) affected until the measures have been implemented under the oversight of the City or regulatory agency, as appropriate.

When Required: During construction

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

- **SCA HAZ-2: Site Contamination**

  a. ***Environmental Site Assessment Required.*** *Prior to approval of construction-related permit.* The project applicant shall submit a Phase I Environmental Site Assessment report, and Phase II Environmental Site Assessment report if warranted by the Phase I report, for the project site for review and approval by the City. The report(s) shall be prepared by a qualified environmental assessment professional and include recommendations for remedial action, as appropriate, for hazardous materials. The project applicant shall implement the approved recommendations and submit to the City evidence of approval for any proposed remedial action and required clearances by the applicable local, state, or federal regulatory agency.

  When Required: Prior to approval of construction-related permit

  Initial Approval: Oakland Fire Department

  Monitoring/Inspection: Oakland Fire Department

  b. ***Health and Safety Plan Required.*** *Prior to approval of construction-related permit.* The project applicant shall submit a Health and Safety Plan for the review and approval by the City in order to protect project construction workers from risks associated with hazardous materials. The project applicant shall implement the approved Plan.

  When Required: Prior to approval of construction-related permit

  Initial Approval: Bureau of Building

  Monitoring/Inspection: Bureau of Building

  c. ***Best Management Practices (BMPs) Required for Contaminated Sites.*** *During construction.* The project applicant shall ensure that Best Management Practices (BMPs) are implemented by the contractor during construction to minimize potential soil and groundwater hazards. These shall include the following:

     i. Soil generated by construction activities shall be stockpiled on-site in a secure and safe manner. All contaminated soils determined to be hazardous or non-hazardous waste must be adequately profiled (sampled) prior to acceptable reuse or disposal at an appropriate off-site facility. Specific sampling and handling and transport procedures for reuse or disposal shall be in accordance with applicable local, state, and federal requirements.

ii. Groundwater pumped from the subsurface shall be contained on-site in a secure and safe manner, prior to treatment and disposal, to ensure environmental and health issues are resolved pursuant to applicable laws and policies. Engineering controls shall be utilized, which include impermeable barriers to prohibit groundwater and vapor intrusion into the building.

When Required: During construction

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

- **SCA HAZ-3: Hazardous Materials Business Plan**. *Prior to final building permit*. The project applicant shall submit a Hazardous Materials Business Plan for review and approval by the City, and shall implement the approved Plan. The approved Plan shall be kept on file with the City and the project applicant shall update the Plan as applicable. The purpose of the Hazardous Materials Business Plan is to ensure that employees are adequately trained to handle hazardous materials and provides information to the Fire Department should emergency response be required. Hazardous materials shall be handled in accordance with all applicable local, state, and federal requirements. The Hazardous Materials Business Plan shall include the following:

  a. The types of hazardous materials or chemicals stored and/or used on-site, such as petroleum fuel products, lubricants, solvents, and cleaning fluids.

  b. The location of such hazardous materials.

  c. An emergency response plan including employee training information.

  d. A plan that describes the manner in which these materials are handled, transported, and disposed.

  When Required: Prior to building permit final

  Initial Approval: Oakland Fire Department

  Monitoring/Inspection: Oakland Fire Department

- **SCA HAZ-4: Fire Safety Phasing Plan.** *Prior to approval of construction-related permit.* The project applicant shall submit a Fire Safety Phasing Plan for City review and approval, and shall implement the approved Plan. The Fire Safety Phasing Plan shall include all of the fire safety features incorporated into each phase of the project and the schedule for implementation of the features.

  When Required: Prior to approval of construction-related permit

  Initial Approval: Oakland Fire Department

  Monitoring/Inspection: Bureau of Building

- **SCA HAZ-5: Wildfire Prevention Area – Vegetation Management**

  a. ***Vegetation Management Plan Required.*** *Prior to approval of construction-related permit.* The project applicant shall submit a Vegetation Management Plan for City review and approval, and shall implement the approved Plan prior to, during, and

after construction of the project. The Vegetation Management Plan may be combined with the Landscape Plan otherwise required by the Conditions of Approval. The Vegetation Management Plan shall include, at a minimum, the following measures:

i. Removal of dead vegetation overhanging roof and chimney areas;

ii. Removal of leaves and needles from roofs;

iii. Planting and placement of fire-resistant plants around the house and phasing out flammable vegetation;

iv. Trimming back vegetation around windows;

v. Removal of flammable vegetation on hillside slopes greater than 20%;

vi. Pruning the lower branches of tall trees;

vii. Clearing out ground-level brush and debris; and

viii. Stacking woodpiles away from structures.

When Required: Prior to approval of construction-related permit

Initial Approval: Oakland Fire Department

Monitoring/Inspection: Oakland Fire Department

b. ***Fire Safety During Construction.*** *During construction.* The project applicant shall require the construction contractor to implement spark arrestors on all construction vehicles and equipment to minimize accidental ignition of dry construction debris and surrounding dry vegetation.

When Required: During construction

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

4.7.3 Discussion of Impacts

Significance Criteria

The City of Oakland has established thresholds of significance for CEQA impacts (City of Oakland, 2013). The proposed Project would cause significant adverse impacts related to hazards and hazardous materials if it would:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;

c) Create a significant hazard to the public through the storage or use of acutely hazardous materials near sensitive receptors [**NOTE:** Per the BAAQMD CEQA Guidelines, evaluate whether the project would result in persons being within the Emergency Response Planning Guidelines (ERPG) exposure level 2 for acutely hazardous air emissions either by siting a new source or a new sensitive receptor. For this threshold, sensitive receptors include residential uses, schools, parks, daycare centers, nursing homes, and medical centers];

d) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;

e) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code section 65962.5 (i.e., the "Cortese List") and, as a result, would create a significant hazard to the public or the environment;

f) Result in less than two emergency access routes for streets exceeding 600 feet in length unless otherwise determined to be acceptable by the Fire Chief, or his/her designee, in specific instances due to climatic, geographic, topographic, or other conditions;

g) Be 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, and would result in a significant safety hazard for people residing or working in the project area;

h) Be located within the vicinity of a private airstrip, and would result in a significant safety hazard for people residing or working in the project area;

i) Fundamentally impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or

j) 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.

Approach to Analysis

The following analysis considers existing and proposed site uses and regulatory requirements when evaluating the Project's potential impacts. Considering some of the general proposed site uses such as residential and commercial, some assumptions have been made based on professional judgment on the typical uses and practices of handling, storing, and disposing of hazardous materials.

Exposure of the public to air emission hazards associated with construction and operation of the Project is addressed in Section 4.3, *Air Quality*.

As discussed above, the Navy completed an Environmental Baseline Study (EBS) and an Environmental Baseline Cleanup Plan (BCP) to identify existing environmental conditions at the NMCO property (which encompasses the Project site). Based on the results of the evaluation and remediation it conducted pursuant to the BCP, the Navy concluded that all remedial action necessary to protect human health and the environment with respect to any hazardous substance remaining on the property had been taken before the date of transfer of the NMCO property. The Navy prepared a Final Finding of Suitability to Transfer (FOST) in 1999 (U.S. Navy, 1999), the U.S. Environmental Protection Agency subsequently confirmed the FOST in 1999. DTSC, however, has expressed concerns about residual lead contamination, and the most recent Phase I

ESA prepared by WEST recommends both additional site characterization testing and implementation of a soil management plan to address lead and other residual contamination that may be encountered during the redevelopment build out process. (WEST, 2014). In part, WEST's recommendations reflect changes in regulatory guidance since the DoN issued its FOST. For example, the Phase I report concludes that soil gas sampling should be conducted to confirm the absence of volatile organic vapors in the subsurface (WEST, 2014). As a result the following analysis assumes that additional contamination may still be present beneath areas of the Project site and that absent additional remediation residual contamination could present potential impacts to future land uses.

No mitigation measures addressing hazards and hazardous materials that would be applicable to the proposed Project were adopted as part of the 1998 EIS/EIR.

Impacts Not Further Evaluated

Airport Facilities or Land Use Plan Area (Criteria g and h)

Review and comparison of the setting circumstances and Project characteristics with the significance criteria clearly show that no impacts would be associated with criteria "g" or "h". The Project site is not located within 2.0 miles of an airport or private airstrip and is not located within an airport land use plan area. Therefore, the proposed Project would have no impact on airport facilities or land uses, as identified for the Maximum Capacity Alternative located at the same location.

New Information / Changed Circumstances

There is no information of substantial importance or substantial change in circumstances regarding hazards or hazardous materials that would result in a new significant effect not previously identified for the Maximum Capacity Alternative in the 1998 EIS/EIR. The 1998 EIS/EIR identified the potential for certain hazardous materials from previous uses to remain at the site, and for remediation to extend beyond the date of transfer by the Navy. Data collected since that time has confirmed that there are areas where residual contamination warrants further investigation and may warrant remediation (WEST, 2014). As discussed above, that investigation and remediation is proceeding under DTSC oversight pursuant to the CLRRA program. The Project analysis below considers the potential effects of the proposed Project.

Impacts and Mitigation Measures

Impact HAZ-1: The Project would include the routine transport, use and disposal of hazardous materials during construction and operation, but would not create a significant hazard to the public or the environment. (Criterion a) ***(Less than Significant with SCAs)***

1998 EIS/EIR.

The 1998 EIS/EIR indicated that the quantity of hazardous materials used, stored, and disposed of under the Maximum Capacity Alternative would likely be less than that used during the Navy's

previous use of the property. The 1998 EIS/EIR findings were based on the findings of the 1996 Base Realignment and Closure BCP and the assessment that the total quantity of hazardous wastes generated and stored on the property would drop significantly with the Maximum Capacity Alternative. The analysis concluded that there would be relatively low quantities of hazardous materials used and generated and that the routine management of materials would be "tightly controlled under existing regulations." As a result, the quantity of materials anticipated to be handled would not result in releases that could expose the public or the environmental to hazardous levels of substances. The impact was considered "nonsignificant" (i.e., less than significant).

Proposed Project.

Construction

Like the Maximum Capacity Alternative analyzed in the 1998 EIS/EIR, development associated with the proposed Project would include construction activities that employ hazardous materials such as fuels, oils and lubricants, paints and thinners, solvents, and other chemicals. Construction activities could generate chemical wastes that, if not properly managed, could flow into the storm drainage system or nearby surface water bodies and adversely affect water quality. In addition, Project construction also includes corrective/remedial grading that involves the removal of existing, defunct infrastructure, some of which may contain hazardous materials, as well as the relocating of Club Knoll and demolition of its garage, which also may contain hazardous materials due to their age. Where feasible, these existing materials will be crushed on site with a portable crusher located near the center of the site (likely on the site of the former hospital) and reused as fill material. Where that is not feasible, these materials will be off-hauled following the appropriate regulations and disposed of at an appropriate location.

Impacts would occur if construction-related activities were to result in hazards or the release of hazardous materials and could be considered potentially significant. However, implementation with the City's **SCA HAZ-1 (Hazardous Materials Related to Construction),** would require BMPs be implemented by the contractor during construction to minimize potential negative effects on groundwater, soils, and human health. Further, as part of the CLRRA process, the corrective/remediation grading work will be required to be done in compliance with a soil management plan that would provide detailed written protocols for handling soils impacted, or thought to be impacted, by hazardous materials. Grading for the Project may involve areas where existing contamination may exist. Also, implementation of the City's **SCA HAZ-2 (Site Contamination)** would ensure compliance with recommendations from the Phase 1 report prepared for the Project. Adherence to SCA HAZ-1 and SCA HAZ-2, as well as compliance with the CLRRA process would minimize the potential to release hazardous materials and the impact would be less than significant.

Operation

Similar to the Maximum Capacity Alternative, the proposed Project includes residential and commercial retail uses that would utilize hazardous materials typical to these uses but in amounts that would not pose significant hazards to the public or the environment, especially since the

management of all hazardous materials would be subject to the same regulations considered in the 1998 EIS/EIR. Businesses associated with commercial/retail and building support activities would use hazardous chemicals common in other commercial/retail and support settings. These chemicals could include familiar materials such as toners, paints, lubricants, and kitchen and restroom cleaners as well as relatively small quantities of fuels, oils, and other petroleum-based products. Small quantities of hazardous materials are also associated with residential land uses, including cleaning products, fuels, oils, pesticides, and lubricants. Activities such as automobile or building maintenance, as well as landscaping, can become sources of releases of hazardous materials. Because general commercial/retail and household hazardous materials are typically handled and transported in small quantities, and because the health effects associated with them are generally not as serious as industrial uses, operation of a majority of new uses at the Project site would not cause an adverse effect on the environment with respect to the routine transport, use, or disposal of general office and household hazardous materials.

State and federal laws require businesses that handle hazardous materials to ensure that the hazardous materials on the Project site are properly handled, used, stored, and disposed of, and in the event that such materials are accidentally released, to prevent or reduce injury to health and the environment. The Oakland Fire Department implements the Business Plan Act for hazardous material handling locally and also enforces certain fire code regulations pertaining to hazardous materials storage. Occupational safety standards exist in federal and state laws to minimize worker safety risks from both physical and chemical hazards in the workplace. The California Division of Occupational Safety and Health Administration (OSHA) is responsible for developing and enforcing workplace safety standards and assuring worker safety in the handling and use of hazardous materials.

As required by the Alameda County Department of Environmental Health (ACDEH), the CUPA, any businesses that would store hazardous materials and/or waste at its business site would be required to submit business information and hazardous materials inventory forms that are contained in the Hazardous Materials Business Plan. This requirement is also provided in the City's **SCA HAZ-3 (Hazardous Materials Business Plan)**, which also further requirements for all hazardous materials to be stored and handled according to manufacturer's directions and local, state and federal regulations. The Plan also requires appropriate training of employees in the use, storage, and disposal of any hazardous materials and wastes. **SCA HAZ-4 (Fire Safety Phasing Plan)** will also require a plan specifying all safety features associated with the Project. With adherence to existing regulatory requirements and SCAs, impacts related to the routine transport, use or disposal of hazardous materials during operation would be less than significant.

Impact Conclusion: Less than Significant with SCAs.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact; No New Mitigation Measures Identified.

Impact HAZ-2: The Project would not create a significant hazard to the public or environment through an upset or accident involving the release of hazardous materials. (Criterion b) ***(Less than Significant with SCAs)***

1998 EIS/EIR.

The 1998 EIS/EIR indicated that the Maximum Capacity Alternative would result in "nonsignificant" (i.e., less than significant) impacts due to release of hazardous materials, specifically asbestos, petroleum hydrocarbons (PCBs), storage tanks, lead-based paint, medical materials and waste. ("No impact" was identified for pesticides and radon.) The finding of less than significant impacts was based on, among other things, the assumed compliance with all applicable laws, standards, and regulations pertinent to hazardous materials use, storage and handling. According to the 1998 EIS/EIR, since demolition activities would occur following disposal, buildings at NMCO containing ACM may present minor future human health risks because of the potential for release of asbestos fibers during abatement or demolition. However, any impact would be less than significant because of "the relatively low quantities of such materials and waste generated from the Project would not result in releases that could expose the public or the environment to hazardous levels of substances."

Proposed Project.

The Oak Knoll Project is not anticipated to involve substantial changes to the Maximum Capacity Alternative that would result in new significant impacts relative to Criterion b. Construction activities, including the relocation of Club Knoll and demolition of the Club Knoll garage, would utilize or involve hazardous materials typical to redevelopment projects of this scale and would not pose significant hazards related to upset and accident conditions with implementation of required BMPs as also discussed and considered in the 1998 EIS/EIR.

Construction

As discussed in Impact HAZ-1 above, temporary construction activities associated with development of the Project would involve limited quantities of gasoline, diesel fuel, hydraulic fluid, solvents, oils, and paints. These materials would be transported along the roadways, temporarily stored and used on-site. Containment and spill cleanup is encompassed in the Storm Water Pollution Prevention Plan (SWPPP) discussed in Section 4.9, *Hydrology and Water Quality*. SWPPPs are designed to prevent hazardous materials from spreading off the property if they are accidentally released. Hazardous materials being generated during construction would be disposed of as described in the required SWPPP. Therefore, and as a condition of construction, compliance with existing regulations (the SWPPP requirements of the construction NPDES, as required by **SCA HYD-2 (State Construction General Permit)**, and the City's **SCA HAZ-1 (Hazardous Materials Related to Construction)** and **SCA HAZ-4 (Fire Safety Phasing Plan)** would address potential upsets and accidents, limiting the potential impacts during construction to less than significant. In addition, the Project would be required to comply with BAAQMD's Regulation 11, Rule 2, which contains procedures that control emissions of asbestos to the atmosphere during demolition, renovation, milling and manufacturing and establish appropriate waste disposal procedures, as well as Occupational Safety and Health Administration regulations and the National Emissions Standards for Hazardous Air Pollutants. Compliance with these regulations would minimize the risk of an accidental release of asbestos.

Operation

As noted above, proposed commercial and residential land uses would include the use of hazardous materials. These chemicals could include familiar materials such as toners, paints, lubricants, and kitchen and restroom cleaners as well as relatively small quantities of fuels, oils, and other petroleum-based products. If not handled appropriately, upset and accident conditions could result in releases of hazardous materials or wastes that result in adverse effects to residents, workers, the public or the environment. As described in Impact HAZ-1 above, any businesses that would store hazardous materials and/or waste at its business site would be required to submit a Hazardous Materials Business Plan in accordance with the Alameda County Hazardous Waste Management Plan. Both the federal and State governments require all businesses that handle more than a specified amount of hazardous materials to submit an annual business plan to the local CUPA. With adherence to these existing regulatory requirements, the potential to adversely affect workers, residents, visitors, or the environment would be reduced to less than significant levels. During operation, local, state and federal laws require businesses that handle hazardous materials to ensure that the hazardous materials are handled, used, stored, and disposed of in a manner that minimizes the risk of upset and accident conditions and provides for appropriate notification and containment in the event that such materials are released. The Oakland Fire Department implements the Business Plan Act for hazardous material handling locally and also enforces certain fire code regulations pertaining to hazardous materials storage. Occupational safety standards exist in federal and state laws to minimize worker safety risks from both physical and chemical hazards in the workplace. The California Division of Occupational Safety and Health Administration is responsible for developing and enforcing workplace safety standards and assuring worker safety in the handling and use of hazardous materials. Overall, the impact would be less than significant.

Impact Conclusion: Less than Significant with SCA.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact; No New Mitigation Measures Identifed.

Impact HAZ-3: The Project would not result in the new storage or use of acutely hazardous materials near sensitive receptors, and would not as a result create a significant hazard to the public. (Criterion c) (*Less than Significant with SCAs*)

1998 EIS/EIR.

The 1998 EIS/EIR did not discuss the potential for the Maximum Capacity Alternative to result in storage or use of acutely hazardous materials in close proximity to sensitive receptors such as an existing or proposed school. However, it did conclude that the Maximum Capacity Alternative would not result in a significant impact regarding hazardous materials and waste, as discussed above under criteria Impacts HAZ-1 and HAZ-2.

Proposed Project.

The Project site is located within close proximity (0.1 to 0.5 miles) to numerous daycare facilities, home care facilities, religious properties that may include schools, and nursing facilities as shown in Table 4.7-3.

Construction

The temporary construction activities associated with development of the Project would involve limited quantities of gasoline, diesel fuel, hydraulic fluid, solvents, oils, and paints, which would be transported on roadways and near the public, as discussed above. Implementation of **SCA HAZ-1 (Hazardous Materials Related to Construction)**, BAAQMD's Regulation 11 Rule 2, Occupational Safety and Health Administration regulations and the National Emissions Standards for Hazardous Air Pollutants would address potential upsets and accidents limiting the potential impacts to sensitive receptors and the public during construction to less than significant.

Operations

Like the Maximum Capacity Alternative, the proposed Project also includes construction of residential facilities which will house residents considered sensitive receptors. The proposed residential, commercial retail, and recreational uses of the Project would not handle or emit significant quantities of hazardous materials, as discussed in Impact HAZ-1. Further, the Project will implement **SCA HAZ-3 (Hazardous Materials Business Plan)**. Given the characteristics of the proposed land uses and associated hazardous materials use, storage and disposal, the potential impact is less than significant, as was identified for the Maximum Capacity Alternative in the 1998 EIS/EIR.

Impact Conclusion: Less than Significant with SCA.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact, No New Mitigation Measures Identified.

Impact HAZ-4: The Project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. (Criterion d) (*Less than Significant with SCAs*)

1998 EIS/EIR.

The 1998 EIS/EIR did not discuss the potential for the Maximum Capacity Alternative to result in hazardous emissions or materials in proximity to an existing or proposed school. However, it did conclude that the Maximum Capacity Alternative would not result in a significant impact regarding hazardous materials and waste, as discussed above under criteria "a" and "b" in Impacts HAZ-1 and HAZ-2, respectively.

Proposed Project.

Construction

As discussed for Impact HAZ-3 regarding risk in proximity to sensitive receptors, the temporary construction activities associated with development of the Project would involve limited quantities of gasoline, diesel fuel, hydraulic fluid, solvents, oils, paints, contaminated soil, and hazardous wastes from demolition, which would be transported on roadways and near the public, as discussed above. Implementation of **SCA HAZ-1 (Hazardous Materials Related to**

Construction), BAAQMD's Regulation 11 Rule 2, Occupational Safety and Health Administration regulations and the National Emissions Standards for Hazardous Air Pollutants would address potential upsets and accidents limiting the potential impacts to sensitive receptors and the public during construction to less than significant. Implementation of **SCA HAZ-2 (Site Contamination)** would also apply to the Project and ensure the incorporation of measures identified in the Phase 1 for the Project. Further, as noted in Chapter 4.2, *Air Quality*, the Health Risk Assessment concluded that toxic air emissions from construction activities would be less than significant and none of the schools or potential schools located within one quarter mile of the site, including sensitive receptors at the proposed Seneca School adjacent to the Project Site (and that are conservatively considered to be existing for this hazards and hazardous materials analysis, as specified in the *Environmental Setting*, and Table 4.7-3), would be exposed to hazardous emissions or a release of acutely hazardous material during project construction.

Operations

As noted above, there are schools and religious institutions that may contain schools located within one-quarter mile of the Project site (see Table 4.7-3). There are five schools located within one-quarter mile. The land uses proposed with the Project include residential, commercial retail, and recreational uses, which would not generally involve handling or emit large quantities of hazardous materials to pose substantial risk. Also, for this topic, the Project will also implement **SCA HAZ-3 (Hazardous Materials Business Plan).** Given the characteristics of the proposed land uses and associated hazardous materials use, storage and disposal, the potential impact is less than significant, as was identified for the Maximum Capacity Alternative in similar analysis in the 1998 EIS/EIR.

Impact Conclusion: Less than Significant with SCA.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact, No New Mitigation Measures Identified.

Impact HAZ-5: The Project would be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and could but would not result in a safety hazard to the public or environment. (Criterion e) (*Less than Significant with SCA*)

1998 EIS/EIR.

The 1998 EIS/EIR did not discuss or indicate whether the Maximum Capacity Alternative would pose hazards to the public or the environment due to the Project site being included on a hazardous materials site list compiled by Government Code Section 65962.5.

Proposed Project.

Construction

The Project site is listed in DTSC's EnviroStor database as being subject to a voluntary cleanup under the CLRRA program, and in the SWRCB's GeoTracker database as a closed site, meaning

that it has been cleaned up to the satisfaction of the Regional Water Quality Control Board for the San Francisco Bay Region. Neither listing on its own, nor the two combined, establishes that the Project site meets the criteria to be on the Cortese List. However, given the potential for hazardous materials to be encountered during grading and infrastructure installation, the following presents an analysis of potential hazardous materials to be present on the Project site. As discussed previously, the Project site has been the subject of numerous investigations and remedial activities including the removal of petroleum, lead, and other hazardous materials (WEST, 2014). WEST recommends additional site assessment and a soil management plan to address various RECs identified in the 2014 Phase I ESA, which is why DTSC has accepted oversight over the additional investigation and remediation for lead and other RECs. Accordingly, the Project is assumed to have a potentially significant impact relative to Criterion e. This is a new impact not previously identified in the 1998 EIS/EIR.

ACMs, Lead, and PCBs/Pesticides

Previous investigations at the Project site evaluated the presence of asbestos-containing materials, (ACMs), polychlorinated biphenyls (PCBs), pesticides, and lead in existing structures and onsite soils. The Navy previously removed all detected friable[4] and damaged ACMs from buildings (WEST, 2006), and ACMs are not identified as a known or suspected REC in the most recent Phase I ESA (WEST, 2014).

Lead in shallow soils (most likely resulting from lead-based paint scraped from structures or released during demolition of those structures) has been documented at levels above residential screening values (WEST, 2014). Further assessment is ongoing under DTSC's CLRRA program, and a DTSC-approved CLRRA response plan is expected to undergo public comment and implementation in 2017 as part of early phase site preparation/grading. As indicated above, the 1998 EIS/EIR determined that the potential risk from ACMs during demolition would not pose a significant impact because any demolition or renovation activities would comply with Occupational Safety and Health Administration regulations and the National Emissions Standards for Hazardous Air Pollutants which are intended to minimize the potential for asbestos fiber releases and associated health risks.

The Navy has also removed all known PCB transformers at the Project site (WEST, 2006). Soil sampling data indicated one location (Parcel 155) where PCBs were higher than DTSC's residential screening level, but DTSC concurred with the Navy's conclusion that no further action was necessary in this location (WEST 2014, Table 7-1, Condition 12). DTSC has not required additional PCB testing as part of the CLRRA site assessment process. Sampling for pesticides has been focused in the area where the Navy reportedly stored and mixed pesticides The available data indicate levels below DTSC's residential screening values, and DTSC has not required additional pesticide testing as part of the CLRRA site assessment process.

[4] Friable asbestos containing materials are those that can become easily broken into small fragments and airborne. The airborne particulate asbestos fibers represent the most risk to human health

Petroleum-related and other Chemicals

In addition, the Navy's investigations of onsite pesticides concluded that there was no impact to the public or environment (WEST, 2006). The 1998 EIS/EIR concluded that because of the likely relatively small size of any unidentified PCBs or PCB release sites that may remain, the impact of any necessary remediation would be less than significant.

Chemicals associated with petroleum fuels (e.g., total petroleum hydrocarbons as gasoline and benzene) have been document at various locations associated with USTs and ASTs that were removed by the Navy and issued closure by the SFRWQCB. In certain locations the data indicate levels in excess of applicable screening value, and in other locations the data are below screening values. Motor oils and polycyclic aromatic hydrocarbons (PAHs) have also been detected at levels above screening values (WEST, 2014, Table 7-1, Conditions 1-3, 11, 14, 17, 19-21, 23). In light of these data, WEST has recommended additional Phase II ESA testing (WEST, 2014), and that recommendation is being addressed in the CLRRA site assessment process. In light of the data that already exists, and as noted above, there is the potential for hazardous materials requiring remediation to exist on the Project site. The Project would therefore result in a potentially significant impact regarding the accidental release of materials and public exposure to such materials. While site conditions have not changed, under current City methodology, this impact is considered less than significant with adherence to City SCAs intended to reduced environmental effects under CEQA. Consistent with the recommendations identified in the Phase I Environmental Site Assessment (WEST, 2006) and the updated Phase I (WEST, 2013). The Project will implement City **SCA HAZ-1 (Hazardous Materials Related to Construction)** and **SCA HAZ-2 (Site Contamination)**.

The following Project specific SCA Implementation Measures from WEST (2006 and 2016) shall be implemented by the Project sponsor or other appropriate party under DTSC's oversight via the CLRRA process. These SCA Implementation Measures represent Project-specific requirements necessary to further implement SCA HAZ-2 (Site Contamination) during and after construction:

> **SCA Implementation Measure HAZ-2.1:** To further implement SCA HAZ-2, prior to issuance of demolition, grading, or building permits, the project sponsor shall submit the results of any CLRRA site assessment work required by DTSC. The Fire Prevention Bureau's Hazardous Materials Division shall review and provide a determination on the completeness of the reports for the City's purposes.
>
> **SCA Implementation Measure HAZ-2.2:** To further implement SCA HAZ-2, if DTSC determines that remediation pursuant to a CLRRA response plan is required, the project sponsor must:
>
> a) Summit documentation confirming that any remaining environmental assessment and remediation required by DTSC will be performed under the oversight of DTSC or other regulatory agencies, and will be conducted by qualified professionals with experience in soil and groundwater contamination remediation.
>
> b) The project sponsor shall submit a Soil Management Plan that has been reviewed and approved by DTSC or other appropriate regulatory agency. That plan shall outline required procedures for handling and disposing impacted soil. All disposal and

transportation of contaminated soil shall be done in accordance with applicable state and federal laws and regulations. All contaminated soil determined to be hazardous or non-hazardous waste must be adequately profiled for acceptable disposal before it can be removed from the site. The project sponsor shall ensure that impacted soil is handled in accordance with the approved Soil Management Plan.

c) If groundwater contamination is discovered at level in excess of applicable regulatory thresholds used by DTSC or other appropriate regulatory agency, ensure that groundwater pumped from the subsurface shall be contained onsite prior to treatment and disposal to ensure environmental and, if any, health issues are resolved pursuant to oversight agencies.

d) If soil vapor contamination is discovered at levels that DTSC determines require remediation, and the source of the vapor is not removed pursuant to DTSC supervision, engineering controls shall be utilized, which include impermeable barriers to mitigate vapor intrusion into the building.

e) The project sponsor shall provide written verification that the appropriate State, Federal or County authorities, including but not limited to DTSC and the Alameda County Public Health Department, have granted all required clearances and confirmed that all applicable standards, regulations, and conditions are in compliance, for all existing contamination at the site.

f) The project sponsor shall provide evidence from the City's Fire Department, Office of Emergency Services, indicating compliance with the City of Oakland Hazardous Material Assessment and Reporting Program, pursuant to City Ordinance No. 12323.

g) Prior to issuance of any demolition permits for buildings containing lead-based paint, the project sponsor shall demonstrate to the satisfaction of the Office of Fire Department, Office of Emergency Services, that the site has been investigated for the presence of lead and lead will be handled and disposed of safely during demolition.

SCA Implementation Measure HAZ-2.3: To further implement SCA HAZ-2, pursuant to the Soils Management Plan required in SCA Implementation Measure HAZ-2.2b, the contractor shall cease any earthwork activities upon discovery of any suspect soils (e.g., petroleum odor and/or discoloration) during construction. The contractor shall notify DTSC and retain a qualified environmental firm to collect soil samples to confirm the level of contamination that may be present. If contamination is found to be present, any further proposed groundbreaking activities within areas of identified or suspected contamination shall be conducted according to a site specific health and safety plan, prepared by a licensed professional. The contractor shall follow all procedural direction given by DTSC to ensure that suspect soils are isolated, protected from runoff, and disposed of in accordance with transportation laws and the requirements of the licensed receiving facility.

SCA Implementation Measure HAZ-2.4: To further implement SCA HAZ-2, if the assessment required by DTSC under CLRRA finds presence of lead-based paint at levels not suitable for residential use in proposed residential areas or for commercial use in other areas, the project sponsor shall develop and implement a lead-based paint response plan under CLRRA. The plan shall be submitted to the City for review to determine if it includes the following information to the City's satisfaction:

a) Develop a removal specification approved by a Certified Lead Project Designer.

b) Ensure that all removal workers are properly trained.

c) Contain all work areas to prohibit off-site migration of paint chip debris.

d) Remove all peeling and stratified lead-based paint from the Club Knoll building and any other existing non-building surfaces to the degree necessary to safely and properly complete relocation or demolition activities, according to recommendations of the survey. The relocation contractor shall be responsible for the proper containment and disposal of intact lead-based paint on all equipment to be cut and/or removed during relocation or demolition.

e) Provide on-site personnel and area air monitoring during all removal activities to ensure that workers and the environment are adequately protected by the control measures used.

f) Clean up and/or vacuum paint chips with a high efficiency particulate air (HEPA) filter.

g) Collect, segregate, and profile waste for disposal determination.

h) Properly dispose of all waste.

With the implementation of SCAs HAZ-1 and HAZ-2, and SCA Implementation Measures HAZ-2.1 through HAZ-2.4, the potential impact is less than significant, as was identified for the Maximum Capacity Alternative in similar analysis in the 1998 EIS/EIR.

Impact Conclusion: Less than Significant with SCAs.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact, No New Mitigation Measures Identified.

Impact HAZ-6: The Project would include more than two emergency access routes for streets exceeding 600 feet in length. (Criterion f) (*Less than Significant*)

1998 EIS/EIR.

The 1998 EIS/EIR did not discuss whether the Maximum Capacity Alternative would comply with the City's standard to have more than two emergency access routes for streets longer than 600 feet in length. The analysis did address that the project would be reviewed by the City to confirm that it had adequate on-site access, and to review the emergency access routes proposed on the northeast hillside area of the site in particular.

Proposed Project.

The primary internal access points along the perimeter of the project site include:

- Mountain Boulevard/Main Street
- Mountain Boulevard/Creekside Parkway
- Mountain Boulevard/Creekside Loop

- Keller Avenue/Williams Street/Creekside Parkway
- Keller Avenue/Uplands Primary

In addition, two emergency vehicle access (EVA) routes are proposed including:

- Uplands Primary street to Sequoyah Road/Emergency Access Driveway
- Creekside Village Primary street to Uplands Secondary.

The proposed street network is shown in **Figure 3-8**, Proposed Street Network. All internal streets exceeding 600 feet in length also provide at least two access routes. Specifically, an emergency vehicle-only route to off site is proposed in the southern area of the project site via Sequoyah Road. The Project also proposes three cul-de-sacs in the southern area of the project site; however each cul-de-sac segment is less than 600 feet in length. Temporary construction closures could impede emergency response and create hazardous conditions for the public. However, construction activities would implement traffic control plans to ensure at least two emergency access routes are available for streets exceeding 600 feet in length. Potential risks during construction would be less than significant given incorporation of the Standard Conditions of Approval and other existing regulatory requirements.

The Project would include construction of a new street system that would provide access to the Project site and enhance emergency access throughout the surrounding areas, including providing public access to the Seneca and Credit Union out-parcels at all times (see *Access to Out-Parcels*, discussed under 3.4.2 in Chapter 3 [Project Description]). That street system would be built to all current City design standards.

Impact Conclusion: Less than Significant.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact, No New Mitigation Measures Required.

Impact HAZ-7: The Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. (Criterion i) (*Less than Significant*)

1998 EIS/EIR.

The 1998 EIS/EIR did not discuss whether the Maximum Capacity Alternative would result in a significant impact to an adopted emergence response or evacuation plan. No impact was identified.

Proposed Project.

The Project and its construction would occur completely within a developed area and would not impair the implementation of any public emergency evacuation plan. Project construction could temporarily interfere with local access. The road network in the Project site vicinity provides

redundancy and multiple options for rerouting. Proposed improvements would not permanently close or reroute any of the existing roadways and would not interfere with roads, access, and egress of future occupants.

Keller Avenue and Mountain Boulevard are designated emergency evacuation routes and provide direct access to the Project site. As shown in the Project's street network in Figure 3-8, each of three proposed access points to the Project are from these roadways: (1) Mountain Boulevard and Creekside Parkway; (2) Mountain Boulevard and Loop; and (3) Keller Avenue and Creekside Parkway. A secondary entry would be at Mountain Boulevard and Main Street, serving the Village Center. Additionally, there is project access from Keller Avenue on the eastern edge of the site via a right-in right-out street. Vehicular access to the site at these locations would be unrestricted. All streets would be dedicated public rights-of-way.

Further, the Project site would also have one EVA to offsite, as specified above in Impact HAZ-6. Plans for the proposed Project would be subject to review and approval by the Oakland Fire Department to ensure adequate emergency access routes to all areas of the Project site and the Seneca and Credit Union out-parcels. Therefore, the Project would not interfere with an emergency response or evacuation plan and the potential impact is less than significant.

Impact Conclusion: Less than Significant.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact, No New Mitigation Measures Required.

Impact HAZ-8: The Project would not 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. (Criterion j) (*Less than Significant with SCA*)

1998 EIS/EIR.

The 1998 EIS/EIR did not evaluate whether the Maximum Capacity Alternative would result in a significant impact due to exposing people or structures to risk of wildland fires. No impact was identified.

Proposed Project.

The Project site is located within a fire threatened community according to the Association of Bay Area Governments (ABAG), which compiles information from the California Department of Forestry (CDF, 2003). The Project does not propose the addition of wildlands to the community.

As discussed in detail in Section 4.3, *Biological Resources*, the Project would involve the removal and replacement of existing trees and vegetation, much of which is overgrown and creating potential fire fuel. Specifically, the Project would involve the removal of approximately 696 eucalyptus trees that are highly susceptible to fire hazards (and that would not be replaced, consistent with the City's Tree Ordinance [Oakland Municipal Code, Title 12, Chapter 12.36])

(WRA, 2015c). Proposed tree removal also would remove approximately 1,158 trees that are considered to be of poor suitability (invasive, declining, diseased, possessing structural defects, etc.) that do not require replacement. The Oak Knoll Open Space and Mitigation Areas (Figure 3.10 in Chapter 3, Project Description), the proposed Tree Removal Plan (Figure 3-18 within Chapter 3, Project Description), and the Preliminary Tree Mitigation Map (Figure 4.3-7 in Section 4.3, *Biological Resources*, together convey proposed vegetation removal and a conceptual replanting program that implements informal tree plantings within ridge and open space areas of the site as well as development landscaping along Project streets, residential areas, pedestrian ways, and throughout the proposed network of landscaped parks and open spaces throughout the site.

Tree removal and replacement would be conducted pursuant to the City of Oakland Tree Ordinance (Oakland Municipal Code, Title 12, Chapter 12.36). The extensive tree removal (particularly of high-fuel eucalyptus) proposed for the site, and the permitted replanting that would be reviewed and approved by the City's Tree Division, pursuant to the tree ordinance, will include a variety of low-fuel trees and plant species that will reduce the exposure to risk of wildland fires onsite as well as in adjacent areas.

In addition, Project residents would be required to comply with watering and routine maintenance that also effectively reduce the risk of wildland fire required by **SCA HAZ-5 (Wildfire Prevention Area – Vegetation Management**), as well as **SCA HAZ-4 (Fire Safety Phasing Plan)**.To further implement SCA HAZ-4 (Fire Safety Phasing Plan), the following is required:

> **SCA Implementation Measure HAZ-4.1**: To further implement SCA HAZ-4, Fire Safety: The project sponsor and construction contractor shall ensure that during Project construction, all construction vehicles and equipment will be fitted with spark arrestors to minimize accidental ignition of dry construction debris and surrounding dry vegetation.
>
> **Impact Conclusion:** Less than Significant with SCA.
>
> **Comparison to 1998 EIS/EIR Findings:** No New Significant Impact, No New Mitigation Measure Identified.

Impact HAZ-9: The Project would not have a considerable contribution to any cumulative impacts related to hazards and hazardous materials, considering the combined effect of the Project, and past, present, approved, pending, and reasonably foreseeable future projects in the area and citywide. *(Less than Significant with SCAs)*

Geographic Context

The geographic area considered for cumulative hazards and hazardous materials includes areas immediately surrounding the Project site and along the adjacent I-580 corridor. The Oak Knoll Project site is separated from development to the west by I-580; otherwise, existing residential development surrounds the Project site, separated by Keller Avenue on the north and east, open space buffer in the southeast area, and with minimal separation in the southwest area. Keller

Avenue and Mountain Boulevard are designated emergency evaluation routes and thus are also part of the geographic context for cumulative effects.

Hazardous materials impacts are generally site specific, and little potential exists for hazardous materials impacts from the Project site to combine with impacts from other development sites in a cumulatively considerable manner, absent unusual circumstances such as a simultaneous accidental release during the transportation of hazardous materials during remediation or the combined accidental release of hazardous materials into the environment. This section analyzes the potential for such cumulative impacts.

Cumulative development includes all development considered in the June 2015 Alameda County Transportation Commission (ACTA) Travel Demand Model, as described in Section 4.0 of this Draft SEIR, under *Cumulative Context,* where other nearby specific developments are also named in this SEIR for informational purposes.

Impacts

1998 EIS/EIR.

The 1998 EIS/EIR analysis did not discuss or describe potential cumulative impacts related to hazards. As stated above, however, the 1998 EIS/EIR analysis concluded that the Maximum Capacity Alternative would result in "nonsignificant" (i.e., less than significant) impacts, specifically regarding asbestos, petroleum hydrocarbons (PCBs), storage tanks, lead-based paint, medical materials and waste. ("No impact" was identified for pesticides and radon.) The 1998 EIS/EIR findings were based on the findings and requirements of the 1996 BCP and the requirement that in the event that unforeseen hazardous substances are encountered, the Navy shall conduct any additional remedial actions for any hazardous substance existing on the Project site found necessary after the date of the transfer. The finding of less-than-significant impacts was also based on the assumed compliance with all applicable laws, standards, and regulations pertinent to hazardous materials use, storage and handling.

Proposed Project.

Cumulative hazardous materials effects could occur if activities at the project site and other past, present, proposed, and reasonably foreseeable future development, together, could significantly increase risks in the regional vicinity of the project site. However, most routine hazardous materials activities at the project site would likely involve relatively small quantities of hazardous materials both in interior and exterior settings. Any health or safety effects of routine hazardous materials use would be limited to the specific individuals using the materials and anyone in the immediate vicinity of the use. Further, the uses and activities in the general vicinity of the Project site are largely similar residential uses, and no interaction would necessarily occur between these routine activities and similar activities at different sites to the extent that significant cumulative effects would occur to which the Project would have a considerable contribution.

Cumulative health and safety impacts could occur if Project-related outdoor or offsite hazards were to interact or combine with those of other cumulative development, including reasonably

foreseeable development. This could only occur through the following mechanisms: air emissions; transport of hazardous materials and waste to or from the development sites; inadvertent release of hazardous materials to the sanitary sewer, storm drain, or non-hazardous waste landfill; and potential accidents that require hazardous materials emergency response capabilities. As discussed in the project analysis in this section, the Project would implement all the relevant SCAs that will reduce potential project-level effect of the Project to result in safety hazards to the public or the environment. These include **SCA HAZ-1 (Hazardous Materials Related to Construction), SCA HAZ-2 (Site Contamination), SCA HAZ-3 (Hazardous Materials Business Plan), SCA HAZ-4 (Fire Safety Phasing Plan),** and **SCA HAZ-5 (Wildfire Prevention Area)**, as well as **SCA HYD-2 (State Construction General Permit)** to address the potential to impact water quality relative to hazardous materials. In addition, all cumulative developments would also comply with implementation measures to further certain SCAs. These include and **SCA Implementation Measures HAZ-2.1 through HAZ-2.4** to further SCA HAZ-2; in addition to **SCA Implementation Measure HAZ-4.1** to further SCA HAZ-4. The project sponsor and construction contractor shall ensure that during Project, the potential impact is less than significant, as was identified for the Maximum Capacity To the extent that other cumulative development would have similar site-specific conditions as those affecting the Project site, those developments have, are, or will be required to implement similar SCAs.

Cumulative increases in the transportation of hazardous materials and wastes associated with cumulative development would not pose a significant impact because the probability of accidents associated with the cumulative development in proximity of the Project site is relatively low, and the use of legally required packaging minimizes the consequences of potential accidents. In addition, the proposed Project, as well as other past, present, proposed, and reasonably foreseeable future projects, would be required to adhere to existing regulatory requirements for the appropriate handling, storage, and disposal of hazardous materials that are designed to minimize exposure and protect human health and the environment. All projects in the area would be required to comply with the same laws and regulations as the Project. This includes federal and state regulatory requirements for transporting (Cal EPA and Caltrans) hazardous materials or cargo (including fuel and other materials used in all motor vehicles) on public roads or disposing of hazardous materials (Cal EPA, DTSC, ACEHD). Therefore, this cumulative impact would be less than significant.

Impact Conclusion: Less than Significant with SCAs.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact, No Mitigation Measures Required.

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4.8 Hydrology and Water Quality

4.8.1 Introduction

To determine whether the proposed Project would result in any new impacts to hydrology or water quality, or increases in the severity of impacts previously discussed in the 1998 EIS/EIR, this analysis considers the impacts related to hydrology or water quality that would result from the proposed Project, and compares these impacts to those identified in the 1998 EIS/EIR, and to the applicability of mitigation measures in that document.

4.8.2 Regional and Local Setting

Precipitation

The climate of the San Francisco Bay Area is characterized as Mediterranean with cool, wet winters and relatively warm, dry summers. Annual rainfall in this region is variable depending on the year, but averages approximately 25 inches per year with the majority of rainfall occurring between October and April. Analysis of long-term precipitation records indicates that wetter and drier cycles, lasting several years each, are common in the region. According to rainfall data that has been collected since 1948 at the Upper San Leandro Filter Plant (USFLP) gage site, within two miles of Oak Knoll, the maximum annual rainfall recorded at USFLP is 49.3 inches in water year 1998 with a maximum daily rainfall of 5.1 inches on October 14, 1962 (ESA/PWA, 2016a).

Floods in the San Francisco Bay Area generally result from intense rainstorms following prolonged rainfall that has saturated the ground. Peak flows are usually of short duration.

Regional Drainage Patterns

The Project site is located within the San Francisco Bay Hydrologic Region. San Francisco Bay provides a topographic separation between the northern and southern coastal mountain ranges. The San Francisco Bay estuarine system receives fresh water from numerous drainages, including the waters of the Sacramento and San Joaquin Rivers, which then drain into the Pacific Ocean at the Golden Gate. Flow in the East Bay area generally flows from east to west, originating in the undeveloped foothills as natural streams, passing through developed urban areas via improved channels, and discharging into sloughs that eventually flow into San Francisco Bay.

Local Drainage Patterns

The Project site lies at the toe of the Oakland hills and generally slopes southwest. The site elevations range between 250 and 600 feet above mean sea level. Much of the site consists of hilly terrain with oak, eucalyptus, Monterey pine, riparian, and annual grassland habitats. The center of the site adjacent to Mountain Boulevard is relatively flat and is intersected by the partially-culverted Rifle Range Creek that flows across the Project site from north to southwest. The upper elevations, located along Keller Avenue and Briar Cliff Road on the eastern edge of the site, are steep and hilly.

Runoff from the Project site is currently conveyed as overland flow in either paved street sections, underground storm drain systems, or in engineered ditches. All onsite flow, however, is ultimately discharged into Rifle Range Creek which is the regional conveyance channel that flows through the Project area.

Upstream of the Project site, north of Keller Drive, Rifle Range Creek flows through the East Bay Regional Park District's Leona Detention Basin owned and maintained by the Alameda County Flood Control and Water Conservation District (ACFCWCD). Peak flows are attenuated within an upstream 4.5 acre detention basin, thus reducing the peak flow rate that currently occurs through the site.

Range Creek through the Project site is primarily a natural open channel, but also consists of approximately 870 feet of culverted conveyance and approximately 90 feet of bridges. The Creek has an average slope of 2.8 percent through the Project area. (BKF, 2015)

Surface Water

As mentioned above, the major surface water body in the Project area is Rifle Range Creek which runs through the Project site, as shown in **Figure 4.8-1**. Rifle Range Creek is a tributary to Arroyo Viejo which flows west through Oakland and eventually empties into San Leandro Bay located by the Oakland Airport. San Leandro Bay is then connected to San Francisco Bay. Rifle Range Creek is the largest and northernmost of three tributaries to Arroyo Viejo that originate in the Oakland hills. At the point where it leaves the Project site, the creek drains a watershed area of approximately 920 acres (including the Project area). The headwaters and upper watershed are located in the Leona Canyon Open Space Preserve where the aforementioned detention basin is located. (ESA/PWA, 2016a)

Before it reaches the Project site, Rifle Range Creek flows in an enclosed culvert for approximately 1000 feet from the detention basin to an outfall just south of Keller Avenue. From there, the creek flows southward across the Project site through a series of open channel and approximately 870 feet of culverted sections, including several road crossings. Surface drainage from the majority of the project site is delivered to the creek channel by an underground storm drain system with outfalls occurring at various intervals along the channel. There are also two tributary channels that enter the creek from the east; both are culverted on the Project site except for a channel fragment near the confluence with Rifle Range Creek. The open channel of the northern tributary ("Hospital Creek") is approximately 299 feet long, starting from a storm drain outfall at the southern edge of the main hospital parking lot, and appears to drain the former hospital area. The open channel portion of the southern tributary ("Powerhouse Creek") is approximately 201feet long, starting from a storm drain outfall at the southern edge of the main hospital parking lot. (ESA/PWA, 2016a)

SOURCE: ESA, 2016

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Figure 4.8-1
Existing Rifle Range Creek

Water Quality

The Project site lies in a predominantly urbanized area approximately five miles from San Francisco Bay. The Arroyo Viejo watershed which includes Rifle Range Creek as well as other tributaries is in an urbanized area containing both residential and commercial development. Surface water within the watershed reaches the Bay through a combination of open creek (daylighted) and culverted underground sections described above. Water quality of the Arroyo Viejo watershed has been compromised over many years of urban development. The Rifle Range Creek benefits from the Leona detention basin's ability to trap sediment from the upper watershed area (BKF, 2015). Nonetheless, as is typical of many East Bay creeks, there is evidence of active erosion in the creek channel and along the banks that affect water quality and lead to further unstable conditions in some areas. Road crossings, storm drain outfalls and other infrastructure interfaces in close proximity to the creek channel have also contributed urban pollutants such as metals, petroleum hydrocarbons, pesticides, herbicides, and trash.

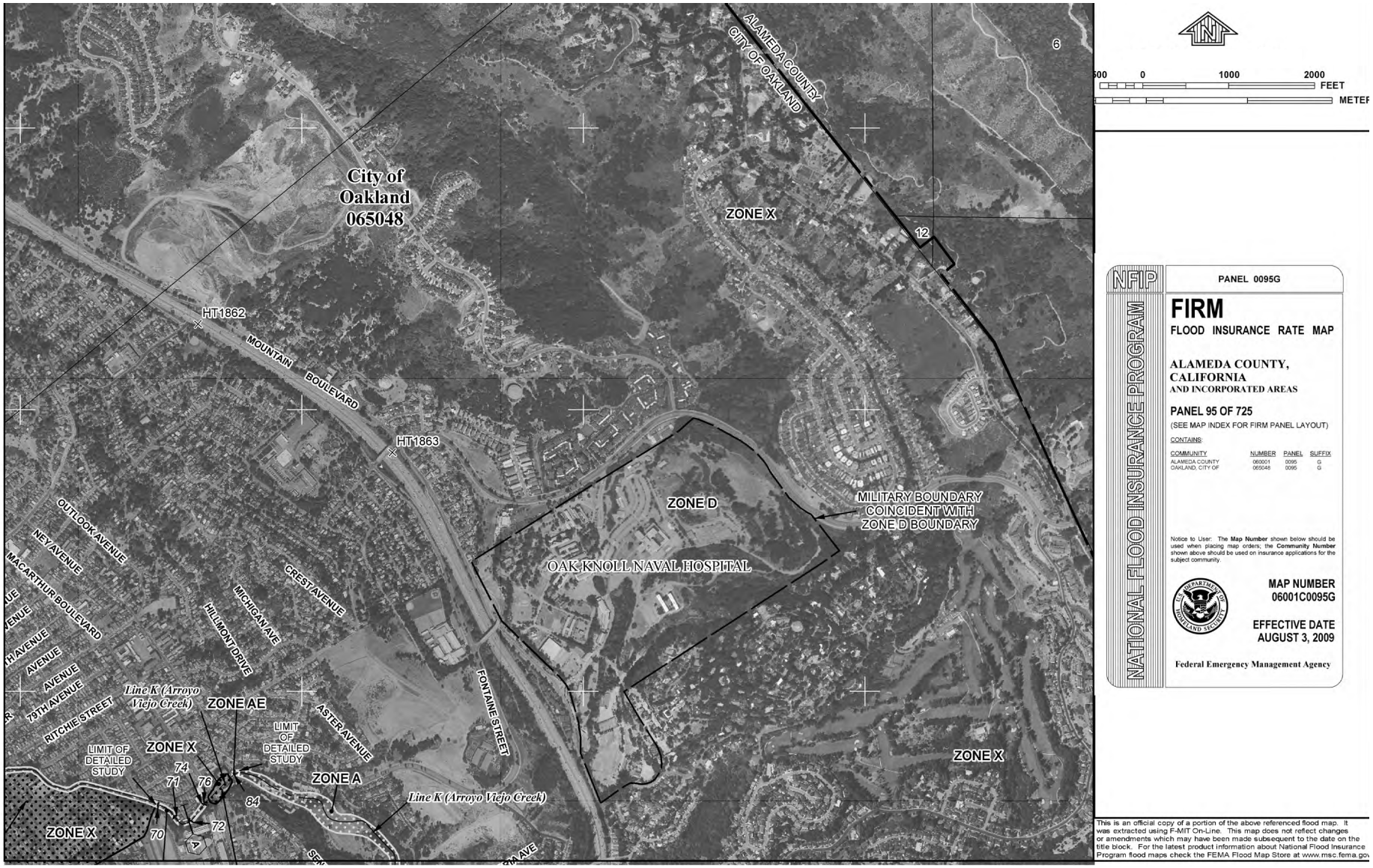
Flooding

Flooding is inundation of normally dry land as a result of rapid accumulation of stormwater runoff or rise in the level of surface waters. Flooding becomes a hazard when the flow of water exposes people or structures to a significant risk of loss, injury, or death. Flooding generally occurs due to excess runoff due to heavy snowmelt or rainfall, but it can also result from the interaction with natural hazards, such as tsunamis, seiches, or failure of dams.

The Federal Emergency Management Agency (FEMA), through its Flood Insurance Rate Map (FIRM) program, designates areas where flooding could occur during a one percent annual chance (100-year) or a 0.2 percent annual chance (500-year) flood events. The Project site has not been included in previous FEMA flood hazard assessments, and the local FEMA 100-year floodplain map does not include the Oak Knoll site (BKF, 2015). The FIRM maps the Project site as Zone D which is used for areas where there are possible but undetermined flood hazards, as no analysis of flood hazards has been conducted. The designation of Zone D is also used when a community incorporates portions of another community's area, in this case a federal facility, where no map has been prepared. Current FEMA flood maps show no adjacent areas upstream or downstream of the Project as Flood Hazard Zone A, which is the designation given to areas subject to flooding during a 100-year event (BKF, 2015). Flood analysis conducted by the Project's hydrologist indicates that 100-year flood flows will be confined to the Rifle Range Creek channel on the Project site, as shown in **Figure 4.8-2**, and the portions of the Project site that would be developed are not in a 100-year flood hazard area.

Groundwater

A groundwater basin is a hydrogeologic unit containing several connected and interrelated aquifers or one large aquifer (RWQCB, 2011). The Project site lies in the East Bay Plain groundwater basin (Basin No. 2-9.01) that extends from Richmond to Hayward. The basin is a northwest-trending alluvial plain bounded on the west by San Francisco Bay, on the north by San Pablo Bay, on the east by Franciscan basement rock, and on the south by the Niles Cone Groundwater Basin. The



SOURCE: FEMA, 2009; BKF, 2015

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Figure 4.8-2
FEMA FIRM Map

alluvial materials that extend westward from the East Bay hills to San Francisco Bay constitute the deep water-bearing strata for the groundwater basin. The basin is identified as a potential water source for agricultural, industrial, and municipal use (RWQCB, 2011). Groundwater in the Project site occurs at relatively shallow depths but there are no water supply wells in the Project site. The depth to groundwater measured in geotechnical borings advanced between 1957 and 1983 near the former Hospital building at the Site has ranged between 5-feet and 43 feet below ground surface (WEST, 2013). Groundwater flow direction has been estimated to the south-southeast following surface topography (WEST, 2013). Groundwater may be present within the unconsolidated alluvium and underlying bedrock, which are considered one hydrogeological unit.

Regulatory Setting

The regulatory requirements for the Project include:

- The Federal Clean Water Act, as enforced by the Environmental Protection Agency (US EPA);
- The California Porter-Cologne Water Quality Control Act and related California Administrative Code sections administered by the California State Water Resources Control Board and the San Francisco Bay Regional Water Quality Control Board; and,
- Permitting requirements, which must be fulfilled prior to development, are enforced by the City of Oakland.

The applicable plans, policies, and regulations are discussed below.

Federal Surface Water Quality Requirements

Federal

Clean Water Act (CWA)

The CWA established the basic structure for regulating discharges of pollutants into the waters of the U.S. and gave the USEPA the authority to implement pollution control programs such as setting wastewater standards for industry. The CWA sets water quality standards for all contaminants in surface waters. The statute employs a variety of regulatory and nonregulatory tools to reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff. The U.S. Army Corps of Engineers (USACE) has jurisdiction over all waters of the U.S. including, but not limited to, perennial and intermittent streams, lakes, and ponds, as well as wetlands in marshes, wet meadows, and side hill seeps. Under Section 401 of the CWA, every applicant for a federal permit or license for any activity that may result in a discharge to a water body must obtain State Water Quality Certification that the proposed activity will comply with state water quality standards.

The National Pollutant Discharge Elimination System (NPDES) permit program under the CWA controls water pollution by regulating point and nonpoint sources that discharge pollutants into "waters of the U.S." California has an approved state NPDES program. The USEPA has delegated authority for NPDES permitting to the California State Water Resources Control Board (SWRCB),

which has nine regional boards. The San Francisco Bay RWQCB regulates water quality in the Project area.

Section 303(d) of the CWA requires that each state identify water bodies or segments of water bodies that are "impaired" (i.e., not meeting one or more of the water quality standards established by the state). These waters are identified in the Section 303(d) list as waters that are polluted and need further attention to support their beneficial uses. Once the water body or segment is listed, the state is required to establish Total Maximum Daily Load (TMDL) for the pollutant causing the conditions of impairment. TMDL is the maximum amount of a pollutant that a water body can receive and still meet water quality standards. Generally, TMDL is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources. The intent of the Section 303(d) list is to identify water bodies that require future development of a TMDL to maintain water quality.

In accordance with Section 303(d), the San Francisco Bay RWQCB has identified impaired water bodies within its jurisdiction, along with the pollutant or stressor responsible for impairing the water quality (RWQCB, 2010). In the San Francisco Bay region, the RWQCB has listed San Francisco Bay as an impaired water body.

State

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act, Division 7 of the California Water Code, requires the SWRCB to adopt water quality control plans. The purpose of the plans is to establish water quality objectives for specific water bodies. The act also authorizes the NPDES program under the CWA, which establishes water quality requirements for discharges to waters of the state. Most of the implementation of SWRCB's responsibilities is delegated to nine regional boards. The San Francisco Bay RWQCB has established the regional basin plan and the permit requirements for stormwater runoff for the Project site (see *Regional Water Quality Control Board* section below).

California Toxics Rule

Under the California Toxics Rule, the USEPA has proposed water quality criteria for priority toxic pollutants for inland surface waters, enclosed bays, and estuaries. These federally promulgated criteria create water quality standards for California waters. The California Toxic Rule satisfies CWA requirements and protects public health and the environment. The USEPA and the SWRCB have the authority to enforce these standards to prevent discharge of toxic pollutants directly into the inland surface waters or San Francisco Bay.

Regional

Regional Water Quality Control Board

The San Francisco Bay RWQCB is responsible for the protection of beneficial uses and the water quality of water resources within the San Francisco Bay region. The San Francisco Bay RWQCB

administers the NPDES stormwater permitting program and regulates stormwater in the San Francisco Bay region. The City of Oakland is a permittee under the NPDES Municipal Stormwater Permit for the Alameda Countywide Clean Water Program (see below for detailed discussion). Project applicants are required to apply for a NPDES General Permit for discharges associated with project construction activities of greater than one acre.

Construction General Permit

Stormwater discharges from construction activities on one acre or more are regulated by the RWQCB and are subject to the permitting requirements of the NPDES General Permit for Discharges of Stormwater Runoff Associated with Construction Activity (General Construction Permit, 99-08-DWQ). All dischargers are required to obtain coverage under the Construction General Permit Order 2009-0009-DWQ adopted on September 2, 2009. The RWQCB established the General Construction Permit program to reduce surface water impacts from construction activities. Construction associated with the Project would be required to comply with the current NPDES permit requirements to control stormwater discharges from the construction site. The General Construction Permit requires the preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP) for construction activities. The SWPPP must be prepared before the construction begins, and in certain cases, before demolition begins. The SWPPP must include specifications for BMPs that would need to be implemented during project construction. BMPs are measures that are undertaken to control degradation of surface water by preventing soil erosion or the discharge of pollutants from the construction area. The SWPPP must describe measures to prevent or control runoff after construction is complete and identify procedures for inspecting and maintaining facilities or other project elements. Required elements of a SWPPP include:

1. Site description addressing the elements and characteristics specific to the site
2. Descriptions of BMPs for erosion and sediment controls;
3. BMPs for construction waste handling and disposal;
4. Implementation of approved local plans;
5. Proposed post-construction controls; and
6. Non-stormwater management.

Examples of typical construction BMPs include scheduling or limiting activities to certain times of year, installing sediment barriers such as silt fence and fiber rolls, maintaining equipment and vehicles used for construction, tracking controls such as stabilizing entrances to the construction site, and developing and implementing a spill prevention and cleanup plan. Non-stormwater management measures include installing specific discharge controls during certain activities, such as paving operations, vehicle and equipment washing and fueling.

Regional Water Quality Control Plan

The San Francisco Bay RWQCB prepared the *San Francisco Bay Basin Water Quality Control Plan* (Basin Plan) for San Francisco Bay (RWQCB, 2011). The Basin Plan contains descriptions of the legal, technical, and programmatic bases of water quality regulation in the region and describes beneficial uses of major surface waters and their tributaries. The Basin Plan lists the following beneficial uses for the South Basin of San Francisco Bay:

- Ocean, Commercial, and Sport Fishing
- Estuarine Habitat
- Industrial Service Supply
- Fish Migration
- Navigation
- Preservation of Rare and Endangered Species
- Water Contact Recreation
- Noncontact Recreation
- Shellfish Harvesting
- Wildlife Habitat

For the Project, the RWQCB is responsible for regulating construction activities to ensure the protection of the above beneficial uses.

Alameda County Regulations

The ACFCWCD and the City of Oakland PWA share responsibility for maintaining drainage facilities in Oakland. The Project site lies within the jurisdiction of Zone 12 of the ACFCWCD (ACFCWCD, 2010). All development associated with the Project would be required to comply with the requirements of these agencies, which are described below.

Alameda Countywide Clean Water Program (ACCWP)

The ACCWP includes 17 member agencies that work together to protect creeks, wetlands, and San Francisco Bay. The City of Oakland and ACFCWCD are two of the agencies that participate in the ACCWP. The member agencies have developed performance standards to clarify the requirements of the stormwater pollution prevention program, adopted stormwater management ordinances, conducted extensive education and training programs, and reduced stormwater pollutants from industrial areas and construction sites. On the Project site, the ACCWP administers the stormwater program to meet CWA requirements by controlling pollution in the local storm drain sewer systems.

The ACCWP is part of the Municipal Regional Stormwater NPDES Permit (MRP also known as MS4) that was adopted by the RWQCB on November 19, 2015. The new NPDES permit (Order R2-2015-0049 Permit No. CAS612008) issued by the RWQCB is designed to enable the ACCWP agencies to meet CWA requirements. The permit addresses the following major program areas: regulatory compliance, focused watershed management, public information/participation, municipal maintenance activities, new development and construction controls, illicit discharge controls, industrial and commercial discharge controls, monitoring and special studies, control of specific pollutants of concern, and performance standards. The permit also includes performance standards for new development and construction activities also referred to as Provision C.3 requirements. The C.3 requirements include measures for Permittees to use in planning appropriate source controls in site designs to include stormwater treatment measures in development projects to address both soluble and insoluble stormwater runoff pollutant discharges. An additional goal is to prevent increases in runoff flows primarily accomplished through implementation of low impact

development (LID) techniques and "green" infrastructure (pavers, rain gardens, landscaping, and trees) to slow stormwater runoff, remove pollutants, and improve water quality.

A significant redevelopment project is defined as a project on a previously developed site that results in addition or replacement of total of 43,560 square feet (one acre) or more of impervious surface. According to the C.3 provision in the ACCWP NPDES permit, the Project qualifies as a"significant redevelopment project" because it would replace more than an acre of impervious surface. The Project shall comply with the provisions of the ACCWP NPDES Permit.

Oakland has jurisdiction over and/or maintenance responsibility for its municipal separate storm drain systems and/or watercourses in the City. Construction activities associated with the Project would be subject to the NPDES permit requirements for stormwater management and discharges.

Local

City of Oakland General Plan

The following objectives, policies, and actions from City of Oakland's General Plan are applicable to the Project:

- ***Open Space, Conservation and recreation (OSCAR), Chapter 3-Conservation, Water Resources, Objective CO-5: Water Quality*:** To minimize the adverse effects of urbanization on Oakland's groundwater, creeks, lakes, and nearshore waters.

- ***Safety Element, Chapter 6-Geologic Hazards, Policy GE-2:*** Continue to enforce ordinances and implement programs that seek specifically to reduce the landslide and erosion hazards.

  Action GE-2.2: Continue to enforce the grading, erosion and sedimentation ordinance by requiring, under certain conditions, grading permits and plans to control erosion and sedimentation.

  Action GE-2.3: Continue to enforce provisions under the creek protection, stormwater management and discharge control ordinance designed to control erosion and sedimentation.

  Action GE-2.5: Enact regulations requiring new development projects to employ site-design and source-control techniques to manage peak stormwater runoff flows and impacts from increased runoff volumes.

- ***Safety Element, Chapter 6-Flooding Hazards, Policy FL-1*:** Enforce and update local ordinance, and comply with regional orders that would reduce the risk of storm-induced flooding.

  Action FL-1.1: Amend, as necessary, the city's regulations concerning new construction and major improvements to existing structures within flood zones in order to maintain compliance with federal requirements and, thus, remain a participant in the National Federal Insurance Program.

  Action FL-1.3: Comply with all applicable performance standards pursuant to the 2003 Alameda countywide National Pollutant Discharge Elimination System

municipal stormwater permit that seek to manage increases in stormwater runoff flows from new-development and redevelopment construction projects.

Action FL-1.4: Continue to enforce the grading, erosion, and sedimentation ordinance by prohibiting the discharge of concentrated stormwater flows by other than approved methods.

- ***Safety Element, Chapter 6-Flooding Hazards, Policy FL-2*:** Continue or strengthen city programs that seek to minimize the storm-induced flooding hazard.

  Action FL-2.1: Continue to repair and make structural improvements to storm drains to enable them to perform to their design capacity in handling water flows.

- ***Safety Element, Chapter 6-Flooding Hazards, Policy FL-4*:** Minimize further the relatively low risks from non-storm-related forms of flooding.

  Action FL-4.4: Stay informed of emerging scientific information on the subject of rising sea levels, especially on actions that local jurisdictions can take to prevent or mitigate this hazard.

Oakland's Energy and Climate Action Plan

The City of Oakland has developed an Oakland Energy and Climate Action Plan (ECAP) is described in detail in Section 4.6, *Greenhouse Gases and Climate Change,* of this chapter. In addition to GHG emissions, the ECAP recognizes that climate change will likely include sea level rise and flooding impacts. Furthermore the ECAP notes that climate change vulnerability is a function of exposure to climate impacts, sensitivity to those impacts and the capacity to adapt and recover. The ECAP includes several adaption and resilience strategies that the City shall pursue, for example, its continued participation in local and regional efforts to assess potential seal level rise and implanting future recommended adaptation strategies, as well as conducting studies and partnerships to develop a regional climate adaptation strategy with partners such as BCDC, the Pacific Institute and UC Berkeley.

The ECAP also recommends a Three Year Priority Implementation Plan; a prioritized subset of actions recommended for implementation in the next three years. The following Priority Actions (PAs) of the ECAP direct the City to take actions that would affect private development in the City and that pertain to stormwater and hydrology:

- ***PA 15. Create an Oakland Specific Water Efficient Landscaping Ordinance (WELO).*** The City will create an Oakland-specific WELO providing citywide standards for public space that ensure stormwater retention and water conservation features are incorporated into landscaping. The Oakland-specific WELO will be designed to implement California's new model WELO and align with Bay Friendly Landscaping Guidelines.

City of Oakland Municipal Code

The City of Oakland implements the following regulations to protect water quality and water resources:

- ***Creek Protection, Stormwater Management, and Discharge Control Ordinance (Chapter 13.16 of the Oakland Municipal Code).*** This ordinance prohibits activities that would result in the discharge of pollutants to Oakland's waterways or in damage to creeks, creek functions, or habitat. The ordinance requires the use of standard BMPs to prevent pollution or erosion to creeks and/or storm drains. Additionally, a creek protection permit is required for any construction work on creekside properties. The ordinance establishes comprehensive guidelines for the regulation of discharges to the city's storm drain system and the protection of surface water quality. The ordinance identifies BMPs and other protective measures for development projects. Under the ordinance, the City of Oakland Public Works Agency issues permits for storm drainage facilities that would be connected to existing city drainage facilities. In 1997, the ordinance was amended to include the requirement for a creek protection permit for any construction or related activity on creekside property. The ordinance includes enforcement provisions to provide more effective methods to deter and reduce the discharge of pollutants to the storm drain system, local creeks, and San Francisco Bay. The provisions also list clear guidelines for creekside residents to protect the creek and habitat.

- ***Grading Ordinance (Chapter 15.04.660).*** The Grading Ordinance requires a permit for grading activities on private or public property for projects that exceed certain criteria, such as amount of proposed excavation and degree of site slope. During project construction, the volume of the excavated fill material could exceed 50 cubic yards and could result in a 20 percent slope onsite, or the depth of excavation could exceed five feet at any location. Therefore, the project sponsor would be required to apply for the grading permit and prepare a grading plan, erosion and sedimentation control plan, and drainage plan.

City of Oakland Standard Conditions of Approval and Uniformly Applied Development Standards Imposed as Standard Conditions of Approval

- **SCA HYD-1: Erosion and Sedimentation Control Plan for Construction**

  a. ***Erosion and Sedimentation Control Plan Required.*** *Prior to approval of construction-related permit.* The project applicant shall submit an Erosion and Sedimentation Control Plan to the City for review and approval. The Erosion and Sedimentation Control Plan shall include all necessary measures to be taken to prevent excessive stormwater runoff or carrying by stormwater runoff of solid materials on to lands of adjacent property owners, public streets, or to creeks as a result of conditions created by grading and/or construction operations. The Plan shall include, but not be limited to, such measures as short-term erosion control planting, waterproof slope covering, check dams, interceptor ditches, benches, storm drains, dissipation structures, diversion dikes, retarding berms and barriers, devices to trap, store and filter out sediment, and stormwater retention basins. Off-site work by the project applicant may be necessary. The project applicant shall obtain permission or easements necessary for off-site work. There shall be a clear notation that the plan is subject to changes as changing conditions occur. Calculations of anticipated stormwater runoff and sediment volumes shall be included, if required by the City. The Plan shall specify that, after construction is complete, the project applicant shall ensure that the storm drain system shall be inspected and that the project applicant shall clear the system of any debris or sediment.

  When Required: Prior to approval of construction-related permit

  Initial Approval: Bureau of Building

Monitoring/Inspection: N/A

b. ***Erosion and Sedimentation Control During Construction.*** *During construction.* The project applicant shall implement the approved Erosion and Sedimentation Control Plan. No grading shall occur during the wet weather season (October 15 through April 15) unless specifically authorized in writing by the Bureau of Building.

When Required: During construction

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

- **SCA HYD-2: State Construction General Permit.** *Prior to approval of construction-related permit.* The project applicant shall comply with the requirements of the Construction General Permit issued by the State Water Resources Control Board (SWRCB). The project applicant shall submit a Notice of Intent (NOI), Stormwater Pollution Prevention Plan (SWPPP), and other required Permit Registration Documents to SWRCB. The project applicant shall submit evidence of compliance with Permit requirements to the City.

  When Required: Prior to approval of construction-related permit

  Initial Approval: State Water Resources Control Board; evidence of compliance submitted to Bureau of Building

- **SCA HYD-3: Drainage Plan for Post-Construction Stormwater Runoff on Hillside Properties.** *Prior to approval of construction-related permit.* The project applicant shall submit and implement a Drainage Plan to be reviewed and approved by the City. The Drainage Plan shall include measures to reduce the volume and velocity of post-construction stormwater runoff to the maximum extent practicable. Stormwater runoff shall not be augmented to adjacent properties, creeks, or storm drains. The Drainage Plan shall be included with the project drawings submitted to the City for site improvements.

  When Required: Prior to approval of construction-related permit

  Initial Approval: Bureau of Building

  Monitoring/Inspection: Bureau of Building

- **SCA HYD-4: Site Design Measures to Reduce Stormwater Runoff.** *Ongoing.* Pursuant to Provision C.3 of the Municipal Regional Stormwater Permit issued under the National Pollutant Discharge Elimination System (NPDES), the project applicant is encouraged to incorporate appropriate site design measures into the project to reduce the amount of stormwater runoff. These measures may include, but are not limited to, the following:

  a. Minimize impervious surfaces, especially directly connected impervious surfaces and surface parking areas;

  b. Utilize permeable paving in place of impervious paving where appropriate;

  c. Cluster structures;

  d. Direct roof runoff to vegetated areas;

e. Preserve quality open space; and

f. Establish vegetated buffer areas.

When Required: Ongoing

Initial Approval: N/A

Monitoring/Inspection: N/A

- **SCA HYD-5: Source Control Measures to Limit Stormwater Pollution.** *Ongoing.* Pursuant to Provision C.3 of the Municipal Regional Stormwater Permit issued under the National Pollutant Discharge Elimination System (NPDES), the project applicant is encouraged to incorporate appropriate source control measures to limit pollution in stormwater runoff. These measures may include, but are not limited to, the following:

  a. Stencil storm drain inlets "No Dumping – Drains to Bay;"

  b. Minimize the use of pesticides and fertilizers;

  c. Cover outdoor material storage areas, loading docks, repair/maintenance bays and fueling areas;

  d. Cover trash, food waste, and compactor enclosures; and

  e. Plumb the following discharges to the sanitary sewer system, subject to City approval:

     i. Discharges from indoor floor mats, equipment, hood filter, wash racks, and, covered outdoor wash racks for restaurants;

     ii. Dumpster drips from covered trash, food waste, and compactor enclosures;

     iii. Discharges from outdoor covered wash areas for vehicles, equipment, and accessories;

     iv. Swimming pool water, if discharge to on-site vegetated areas is not feasible; and

     v. Fire sprinkler teat water, if discharge to on-site vegetated areas is not feasible.

  When Required: Ongoing

  Initial Approval: N/A

  Monitoring/Inspection: N/A

- **SCA HYD-6: NPDES C.3 Stormwater Requirements for Regulated Projects**

  a. ***Post-Construction Stormwater Management Plan Required.*** *Prior to approval of construction-related permit.* The project applicant shall comply with the requirements of Provision C.3 of the Municipal Regional Stormwater Permit issued under the National Pollutant Discharge Elimination System (NPDES). The project applicant shall submit a Post-Construction Stormwater Management Plan to the City for review and approval with the project drawings submitted for site improvements,

and shall implement the approved Plan during construction. The Post-Construction Stormwater Management Plan shall include and identify the following:

i. Location and size of new and replaced impervious surface;

ii. Directional surface flow of stormwater runoff;

iii. Location of proposed on-site storm drain lines;

iv. Site design measures to reduce the amount of impervious surface area;

v. Source control measures to limit stormwater pollution;

vi. Stormwater treatment measures to remove pollutants from stormwater runoff, including the method used to hydraulically size the treatment measures; and

vii. Hydromodification management measures, if required by Provision C.3, so that post-project stormwater runoff flow and duration match pre-project runoff.

When Required: Prior to approval of construction-related permit

Initial Approval: Bureau of Planning; Bureau of Building

Monitoring/Inspection: Bureau of Building

b. ***Maintenance Agreement Required.*** *Prior to building permit final.* The project applicant shall enter into a maintenance agreement with the City, based on the Standard City of Oakland Stormwater Treatment Measures Maintenance Agreement, in accordance with Provision C.3, which provides, in part, for the following:

i. The project applicant accepting responsibility for the adequate installation/construction, operation, maintenance, inspection, and reporting of any on-site stormwater treatment measures being incorporated into the project until the responsibility is legally transferred to another entity; and

ii. Legal access to the on-site stormwater treatment measures for representatives of the City, the local vector control district, and staff of the Regional Water Quality Control Board, San Francisco Region, for the purpose of verifying the implementation, operation, and maintenance of the on-site stormwater treatment measures and to take corrective action if necessary.

The maintenance agreement shall be recorded at the County Recorder's Office at the applicant's expense.

When Required: Prior to building permit final

Initial Approval: Bureau of Building

Monitoring/Inspection: Bureau of Building

- **SCA HYD-7: Architectural Copper.** *During construction; ongoing.* The project applicant shall implement Best Management Practices (BMPs) concerning the installation, treatment, and maintenance of exterior architectural copper during and after construction of the project in order to reduce potential water quality impacts in accordance with Provision C.3 of the Municipal Regional Stormwater Permit issued under the National Pollutant Discharge

Elimination System (NPDES). The required BMPs include, but are not limited to, the following:

a. If possible, use copper materials that have been pre-patinated at the factory;

b. If patination is done on-site, ensure rinse water is not discharged to the storm drain system by protecting storm drain inlets and implementing one or more of the following:

c. Discharge rinse water to landscaped area;

d. Collect rinse water in a tank and discharge to the sanitary sewer, with approval by the City; or haul off-site for proper disposal;

e. During maintenance activities, protect storm drain inlets to prevent wash water discharge into storm drains; and

f. Consider coating the copper with an impervious coating that prevents further corrosion.

When Required: During construction; ongoing

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

- **SCA HYD-8: Vegetation Management on Creekside Properties.** *Ongoing.* The project applicant shall comply with the following requirements when managing vegetation prior to, during, and after construction of the project:

  a. Identify and leave "islands" of vegetation in order to prevent erosion and landslides and protect habitat;

  b. Trim tree branches from the ground up (limbing up) and leave tree canopy intact;

  c. Leave stumps and roots from cut down trees to prevent erosion;

  d. Plant fire-appropriate, drought-tolerant, preferably native vegetation;

  e. Provide erosion and sediment control protection if cutting vegetation on a steep slope;

  f. Fence off sensitive plant habitats and creek areas if implementing goat grazing for vegetation management;

  g. Obtain a Tree Permit before removing a Protected Tree (any tree 9 inches dbh or greater and any oak tree 4 inches dbh or greater, except eucalyptus and Monterey pine);

  h. Do not clear-cut vegetation. This can lead to erosion and severe water quality problems and destroy important habitat;

  i. Do not remove vegetation within 20 feet of the top of the creek bank. If the top of bank cannot be identified, do not cut within 50 feet of the centerline of the creek or as wide a buffer as possible between the creek centerline and the development;

  j. Do not trim/prune branches that are larger than 4 inches in diameter;

k. Do not remove tree canopy;

l. Do not dump cut vegetation in the creek;

m. Do not cut tall shrubbery to less than 3 feet high; and

n. Do not cut short vegetation (e.g., grasses, ground-cover) to less than 6 inches high.

When Required: Ongoing

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

The following applicable Standard Conditions of Approval that address hydrology and water quality are stated in full in Section 4.3, *Biological Resources*:

- **SCA BIO-3: Creek Protection Plan.**

  a. Creek Protection Plan Required.
  b. Construction BMPs.
  c. Post-Construction BMPs.
  d. Creek Landscaping.
  e. Creek Protection Plan Implementation.

- **SCA BIO-4: Creek Dewatering/Diversion.**

The following applicable Standard Conditions of Approval that address hazards and hazardous materials are stated in full in Section 4.7, *Hazards and Hazardous Materials*:

- **SCA HAZ-1: Hazardous Materials Related to Construction.**
- **SCA HAZ-2: Site Contamination.**

The following applicable Standard Conditions of Approval that address hydrology and water quality are stated in full in Section 4.14, *Utilities and Service Systems*:

- **SCA UTIL-6: Water Efficient Landscapes (WELO).**

4.8.3 Discussion of Impacts

Significance Criteria

The City of Oakland has established thresholds of significance for CEQA impacts (City of Oakland, 2013). Per the City's thresholds, the proposed Project would cause significant adverse hydrology or water quality impact if it would:

a) Violate any water quality standards or waste discharge requirements;

b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or proposed uses for which permits have been granted);

c) Result in substantial erosion or siltation on- or off-site that would affect the quality of receiving waters;

d) Result in substantial flooding on- or off-site;

e) Create or contribute substantial runoff which would exceed the capacity of existing or planned stormwater drainage systems;

f) Create or contribute substantial runoff which would be an additional source of polluted runoff;

g) Otherwise substantially degrade water quality;

h) 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, that would impede or redirect flood flows;

i) Place within a 100-year flood hazard area structures which would impede or redirect flood flows;

j) Expose people or structures to a substantial risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam;

k) Expose people or structures to a substantial risk of loss, injury, or death as a result of inundation by seiche, tsunami, or mudflow;

l) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course, or increasing the rate or amount of flow, of a creek, river, or stream in a manner that would result in substantial erosion, siltation, or flooding, both on- or offsite; or

m) Fundamentally conflict with the City of Oakland Creek Protection Ordinance (OMC Chapter 13.16) intended to protect hydrologic resources.

Regarding Criterion "m", the City has determined that, although there are no specific, numeric/quantitative criteria to assess impacts, factors to be considered in determining significance include whether there is substantial degradation of water quality through (a) discharging a substantial amount of pollutants into a creek, (b) significantly modifying the natural flow of the water or capacity, (c) depositing substantial amounts of new material into a creek or causing substantial bank erosion or instability, or (d) substantially endangering public or private property or threatening public health or safety.

Impacts Not Further Evaluated

Review and comparison of the Project's environmental impacts related to hydrology and water quality with the significance criteria stated above, shows, as discussed below, that no impacts would be associated with criteria "h" through "k".

The Project would not place housing within a 100-year flood hazard area as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map that would impede or redirect flood flows (Criterion h).

The portion of the Project site where residences would be constructed is not located within a 100-year or a 500-year flood area according to a flood hazard delineation map prepared for the Project site (the site has not been mapped by FEMA), and flood flows are currently contained within the existing channel (BKF, 2015 and ESA/PWA, 2016a). Therefore, there would be no impact.

The Project would not place within a 100-year flood hazard area structures that would impede or redirect flood flows (Criterion i).

According to the 1998 EIS/EIR, none of the NMCO property was within the 100-year floodplain and therefore any associated effects were considered "nonsignificant" (i.e., less than significant). When the 1998 EIS/EIR was prepared, the FEMA 100-year floodplain had not been mapped on the project site, and therefore the statement in the 1998 EIS/EIR regarding the 100-year floodplain must have been based on a site-specific survey.

As stated above for criterion "h", the portion of the Project site where structures would be constructed still does not contain any identified 100-year or 500-year flood zones according to a flood hazard delineation map prepared for the Project site (BKF, 2015 and ESA/PWA, 2016a). Therefore, there would be no impact.

The Project would not 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 (Criterion j).

As stated above for criteria "h" and "i", the Project would not include any component that would be within a 100-year flood hazard area. Also, the site is not located within a dam inundation area. The Project site is downstream of the Leona Canyon Detention Basin, however, the characteristics of this detention basin do not lend itself to catastrophic failure. Specifically, the detention basin is dug into the ground; it was created by placing fill across the floodplain to impound water (ESA/PWA, 2016a). As a result, there would be no risk of flooding at the Project site associated with failure of a structure, including a levee or dam. Therefore, there would be no impact.

The potential for the Project to result in substantial flooding on- or off-site (criterion "d"), unrelated to catastrophic failure creating significant risk of loss, injury or death, is addressed in the impact analysis (see Impact HYD-4 [Flooding]).

The Project would not expose people or structures to a substantial risk of loss, injury, or death as a result of inundation by seiche, tsunami, or mudflow (Criterion k).

The Project site is located in an upland location and is not adjacent to any enclosed or semi-enclosed water body and is more than five miles from the San Francisco Bay. As a result there would be no impact related to seiches or tsunamis. A seiche is a standing wave in an enclosed or partially enclosed body of water; a tsunami is a series of waves in a water body caused by the

displacement of a large volume of water, generally in an ocean or a large lake. Mudflows are debris flows characterized by high water content typically associated with very steep slopes, areas at the bottom of canyons, burned areas that have lost vegetation, and most often occur in arid and semi-arid areas.[1] Conditions within and around the Project vicinity do not fit this profile and therefore mudflows would be considered unlikely to occur.

Impacts and Mitigation Measures

The Oak Knoll Project involves a complex series of alterations to the existing natural and remnant built site conditions that affect hydrologic and water quality conditions. In particular, the following analysis requires an integrated consideration of several Project characteristics that are described in other sections of this chapter, as well as in the Chapter 3 (Project Description). As described throughout, the Project involves approximately 3 million cubic yards of grading (including corrective grading required for existing unstable areas and grading associated with the proposed creek improvements – the latter being described below). Substantial grading would occur largely in southeast and east areas of the site. Cuts and fills in these areas would range up to -60 feet and +40 feet, respectively. (See Figures 3-15a through 3-15c, and 3-16a and 3-16b.)

However, the existing overall on-site drainage patterns on the Project site would not be changed and would continue to flow to Rifle Range Creek or its tributaries at rates and volumes similar to existing conditions. Any change to existing surface drainage patterns would occur as a result of changes to impervious surfaces on the site. The Project site has approximately 40 percent impervious coverage, and the Project proposes development largely within the existing impervious areas, resulting in minimal net change impervious areas. (See Figure 3-5.)

Approximately 43.5 acres of existing open spaces (largely Oak woodlands and grasslands on the upper edges of the Project site) would remain undisturbed, and the approximately 18.5 acres where the most substantial grading would occur are also the areas where slope banks would be revegetated. (See Figures 3-10, 3-15a and 3-15b.) Approximately 4,000 trees would be removed largely in the graded areas of the site, and approximately 5,000 trees would be replanted. (See Figures 3-18 and 4.3-7.)

The proposed restoration and stabilization of Rifle Range Creek is described in detail in the analysis that follows below (and previously in Section 4.3, *Biological Resources,* and in the Hydrology Report, Restoration Plan, and Preliminary Creek Protection Plan included in **Appendix N** to this Draft SEIR.) To create a continuous open creek and riparian corridor across the length of the Project site, the alterations will remove substantial fill from the creek ccorridor, reconstruct the channel, and replant the creek slopes and uplands. The alignment and slope gradient of the creek would have minimal change. However, the cross-section of the creek channel would be widened, increasing the storage capacity of the channel. The analysis below describes the various proposed Project features affecting hydrology and water quality effects of the creek project. (See Figures 3-12, 3-13a, 3-13b, and 4.3-6.)

[1] For this analysis a mudflow is considered to be mass wasting with a very large water component which is distinguished from landslide or slope failure which is analyzed in Section 4.H Geology, Soils and Seismicity.

In addition to the Creek Hydrology Report, Restoration Plan, and Protection Plan (Appendix N), a Project-specific Preliminary Storm Drainage Master Plan (BKF, 2015) (**Appendix Y**), Preliminary Stormwater Treatment Plan exhibit (C.3 plan) (Figure 4.8-3), and Flood Delineation Map (Figure 4.8-2) define the Project's proposed activities and mitigating features, which are referenced throughout the impact analysis that follows, where appropriate.

Degradation of Water Quality / Violation of Standards

Impact HYD-1: Runoff from the proposed Project would be different from existing conditions; however, the Project would not violate any water quality standards or waste discharge requirements. (Criteria a and g) *(Less than Significant with SCAs)*

1998 EIS/EIR.

The 1998 EIS/EIR acknowledged that potentially adverse impacts to surface or ground water quality or quantity could occur with the Maximum Capacity Alternative through use of chemicals (e.g., fertilizers, pesticides, and herbicides, etc.) and grading, demolition, and construction activities. The analysis concluded that these potentially adverse impacts would be "nonsignificant" (i.e., less than significant) since the Alternative would comply with applicable laws, regulations, and standards applicable at that time, including preparation and implementation of a storm water pollution prevention plan (SWPPP), consistent with the National Pollution Discharge Elimination System (NPDES) permit program (under section 402[p] of the Clean Water Act) and Regional Water Quality Control Board (RWQCB) requirements.

Proposed Project.

Degradation of water quality and violation of water quality and waste discharge standards can occur as a result of typical construction activities. These include construction activities that may 1) loosen soils and increase erosion and downstream siltation, 2) potentially intercept contaminated groundwater during dewatering, and 3) allow for accidental spill or release of construction-related chemicals that may contact surface waters. Each of these potential occurrences is discussed below. After construction, resulting increases in peak stormwater flows can also result in violations of standards intended to reduce sediments and contaminants in the stormwater system.

As with the Maximum Capacity Alternative analyzed in the 1998 EIS/EIR, construction of the proposed Project would involve excavation, soil stockpiling, boring, and extensive grading that would dislodge soil particles and therefore potentially cause soil erosion. The dislodged soil particles, if not properly managed, could be washed into waterways by rain or by water used during construction. Project construction would also involve use of motorized heavy equipment, including trucks and dozers that require fuel, lubricating grease, and other fluids. Accidental chemical release or spill from a vehicle or equipment could affect surface water. Such spills could get washed into the creek or could infiltrate into soil affecting groundwater quality.

Creek Excavation and Grading

Excavation work is proposed along creek Reach 4b (see Figure 4.8-1) where a 636-foot-long underground culvert would be daylighted by reconstructing an open channel (WRA, 2016c).

Mass grading associated with the creek work will include the construction of engineered keyways along much of the creek corridor to meet geotechnical requirements. Existing creekbed materials include boulder, cobble, gravel, cohesive alluvial sediment, bedrock, and rubble that would be disturbed and/or removed. To facilitate revegetation of graded slopes as well as its integration with proposed creek work, engineered slopes of the creek will be constructed with a layer of native soils (stockpiled during construction) at the surface.

Overall, the creek restoration activities would also involve replacing certain underground culverts with open channels; grading and reconfiguring oversteepened banks to a more stable slope that will support existing and more robust native riparian vegetation (or if stabilization is not possible using grading, biotechnical bank stabilization measures and structural stabilization measures would be employed to protect the banks); arresting channel erosion; and stabilizing the creek bottom at a sustainable slope through structural grading.

The restoration would not remove existing culverts along segments of Hospital Creek or Powerhouse Creek (see Figure 4.8-1), but would also employ bank stabilization measures and realignment along the open segment of the Hospital Creek tributary (ESA/PWA, 2016a). In addition,201 linear feet of a highly incised reach of Powerhouse Creek would be realigned and stabilized to maintain flow function and stability. The restoration would be subject to compliance with the SWPPP to prevent pollutant discharges within the creek and downstream, as discussed below.

Groundwater / Dewatering

Groundwater at the Project site was encountered at between 5 feet and 43 feet below ground surface (WEST, 2013). Since there are areas of relatively shallow groundwater onsite, the excavation described above for the creek restoration could intercept the water table and thus require dewatering. A dewatering and flow bypass system will be required during construction for creek restoration. Furthering **SCA BIO-4 (Creek Dewatering/Diversion),** a water control plan detailing methods to be used by the contractor will be prepared following guidelines published by the US Fish and Wildlife Service and incorporating specific requirements of resource agency permits for the project. The plan will specify methods and locations for water diversion as well as other guidelines related to managing creek flows during construction. Water removed offsite during the dewatering process (pursuant to a RWQCB construction dewatering permit) could potentially be contaminated with chemicals released from construction equipment, invisible contamination such as elevated pH, or sediments from excavation and adversely affect water quality. Project compliance with RWQCB and City **SCA BIO-3 (Creek Protection Plan)** (discussed further below in detail) will prevent water quality impacts associated with construction dewatering activities.

Construction SWPPP / BMPs

The Project would disturb more than one acre and therefore would be required to comply with the NPDES General Construction Activities Permit (Order No. 2012-0006-DWQ; NPDES No. CAS000002) issued by the State Water Resources Control Board (SWRCB), which requires the project applicant to prepare a Stormwater Pollution Prevention Plan (SWPPP) as also required by

the City's **SCA HYD-2 (State Construction General Permit)**. The project SWPPP would list the specific erosion control and stormwater quality best management practices (BMPs) that would be employed to minimize contamination of stormwater runoff, along with the proper methods of installation, and maintenance of BMPs. In addition to erosion control BMPs, the SWPPP would include BMPs for preventing the discharge of other NPDES pollutants besides sediment (e.g. paint, solvents, concrete, petroleum products) to downstream waters.

Implementation of construction BMPs is also required by the City's **SCA HYD-1 (Erosion and Sedimentation Control Plan for Construction)**. SCA HYD-1 requires the Project applicant to submit an Erosion and Sedimentation Control Plan that includes all the measures to be taken to prevent excessive stormwater runoff or carrying by stormwater runoff of solid materials on to lands of adjacent property owners, public streets, or to creeks as a result of conditions created by grading and/or construction operations. These measures can include short-term erosion control planting, waterproof slope covering, check dams, interceptor ditches, benches, storm drains, dissipation structures, diversion dikes, retarding berms and barriers, devices to trap, store and filter out sediment, and stormwater retention basins. The Project will also adhere to the requirements in the City's **SCA HAZ-1 (Hazardous Materials Related to Construction)** and **SCA HAZ-2 (Site Contamination)** which include BMPs to minimize potential negative effects on groundwater, soils and minimize potential soil and groundwater hazards during construction.

Implementation of construction BMPs and the SCAs would be effective in protecting water quality of receiving waters and reduce potential construction impacts related to water quality requirements, to less than significant.

Post-Construction Water Quality

Runoff from the developed and landscaped parts of the site could potentially contain fuel, lubricating grease, and other fluids from vehicles, as well as fertilizers, pesticides, and herbicides, and if not properly managed, could be washed into waterways by rain or irrigation systems. Once construction is completed, the Project would implement new stormwater control features involving a series of drainage systems and surface treatment facilities described in the Project's preliminary proposed stormwater control plan, discussed below.

Further, increases in impervious surface area typically cause an increase in the rate and volume of stormwater runoff and thereby increase erosion and downstream siltation. Increased runoff may also potentially contact unknown or residual pollutants in soil and on surface waters. As discussed in detail under Impact HYD-5 (Substantial Runoff Exceeding Stormwater Drainage System / Polluted Runoff) and shown in in Table 4.8-1, the creek project would reduce modeled peak flows. For the rest of the Project site, the proposed Project is expected to increase impervious surfaces from 40 percent in the existing condition to 41 percent in the proposed condition (BKF, 2015). Figure 3-5 delineates the existing impervious areas on the Project site, and the Project proposes development largely within the existing impervious areas, resulting in the minimal net change in impervious areas. As a result, the proposed condition would represent a slight increase stormwater runoff.

The estimated increase in peak runoff would be reduced with (1) implementation of the Preliminary Stormwater Treatment Plan and C.3 provisions of the NPDES Permit, which are also intended to reduce transport of pollutants into the storm drain system (see Impact HYD-5 [Substantial Runoff Exceeding Stormwater Drainage System / Polluted Runoff] and Table 4.8-1 in that discussion); (2) exposure of a stabilized earthen channel where existing hard-surface culverts would be removed; and (3) creek improvements that would reduce the effective channel slope and introduce revegetation that would slow runoff (see Impact HYD-6 [Alter Existing Drainage Patterns]). Overall site removal of undersized culverts may contribute to increased flows in the creek but the Project also would allow 100-year flows to be accommodated within the creek channel.

In addition to SCA HYD-1 and SCA HYD-2 above, the proposed Project is required to comply with the drainage control requirements of the City's SCAs which require that BMPs and drainage control features can manage stormwater flows in a manner that minimizes the potential for transmitting stormwater pollutants offsite. **SCA HYD-3 (Drainage Plan for Post-Construction Stormwater Runoff on Hillside Properties)** requires the Project applicant to shall submit and implement a Drainage Plan that includes measures to reduce the volume and velocity of post-construction stormwater runoff, and ensures no increase in runoff to offsite areas. **SCA HYD-4 (Site Design Measures to Reduce Stormwater Runoff)** aligns directly with the aforementioned C.3 provisions to incorporate site design measures (such as use of permeable pavers, clustering structures, preserving quality open space, etc.) into the Project to reduce the amount of stormwater runoff. **SCA HYD-5 (Source Control Measures to Limit Stormwater Pollution)** ensures source control measures consistent with the C.3 provisions to limit pollution in stormwater runoff, for example minimizing pesticides and fertilizers use in the Project. **SCA HYD-6 (NPDES C.3 Stormwater Requirements for Regulated Projects)** ensures compliance with the C.3 provisions specific for post-construction measures to address the flow and quality of runoff from the Project. **SCA HYD-7 (Architectural Copper**) specifically reduces the potential water quality effects that could occur with the use of architectural copper during and after construction. **SCA UTIL-6 (Water Efficient Landscapes [WELO])** will require that the Project's stormwater retention and water conservation features are incorporated into landscaping. Further, adherence to SCA HAZ-1 (Hazardous Materials Related to Construction) and SCA HAZ-2 (Site Contamination) include post-construction measures, including which include BMPs to minimize potential negative effects on groundwater, soils and minimize potential soil and groundwater hazards during construction.

The City's SCA HYD-4, SCA HYD-5, and SCA HYD-6 follow the drainage control requirements of the RWQCB regional MS4 NPDES permit requirements known as provision C.3. Provision C.3 in the NPDES permit requires development and redevelopment projects to include specific site design features – many of which are addressed in the aforementioned City SCAs - such as minimizing impervious surfaces, including minimum impact site design standards, and adopting source control measures such as indoor mat/equipment wash racks for restaurants, sanitary drained outdoor covered wash areas for vehicles, equipment, and accessories. The ACCWP oversees the implementation of the NPDES Permit (discussed in the Regulatory Setting), which would apply to the Project site. The permit outlines a number of regulatory goals

and requirements for stormwater management for new development and redevelopment sites. The NPDES permit provisions require the implementation of Low Impact Development (LID), which includes "green" infrastructure.

Preliminary Stormwater Treatment Plan (C.3 Plan) and Preliminary Storm Drainage Master Plan

The Preliminary Stormwater Treatment Plan exhibit (C.3 Plan) is shown in **Figure 4.8-3**. The C.3 Plan illustrates conceptually the site storm drainage pattern and treatment areas on the Project site needed based on the stormwater flow estimates conducted. Runoff from all structures and paved areas will pass through post-construction BMPs that will provide water quality treatment and slow runoff before discharge to the creek. Rifle Range Creek outfalls have been designed to incorporate energy dissipation structures and biotechnical stabilization techniques to prevent erosion from concentrated stormwater discharges (ESA/PWA, 2016a). Actual locations will be determined during final design and pursuant to the Preliminary Storm Drainage Master Plan (BKF, 2015) (Appendix Y to this Draft SEIR).

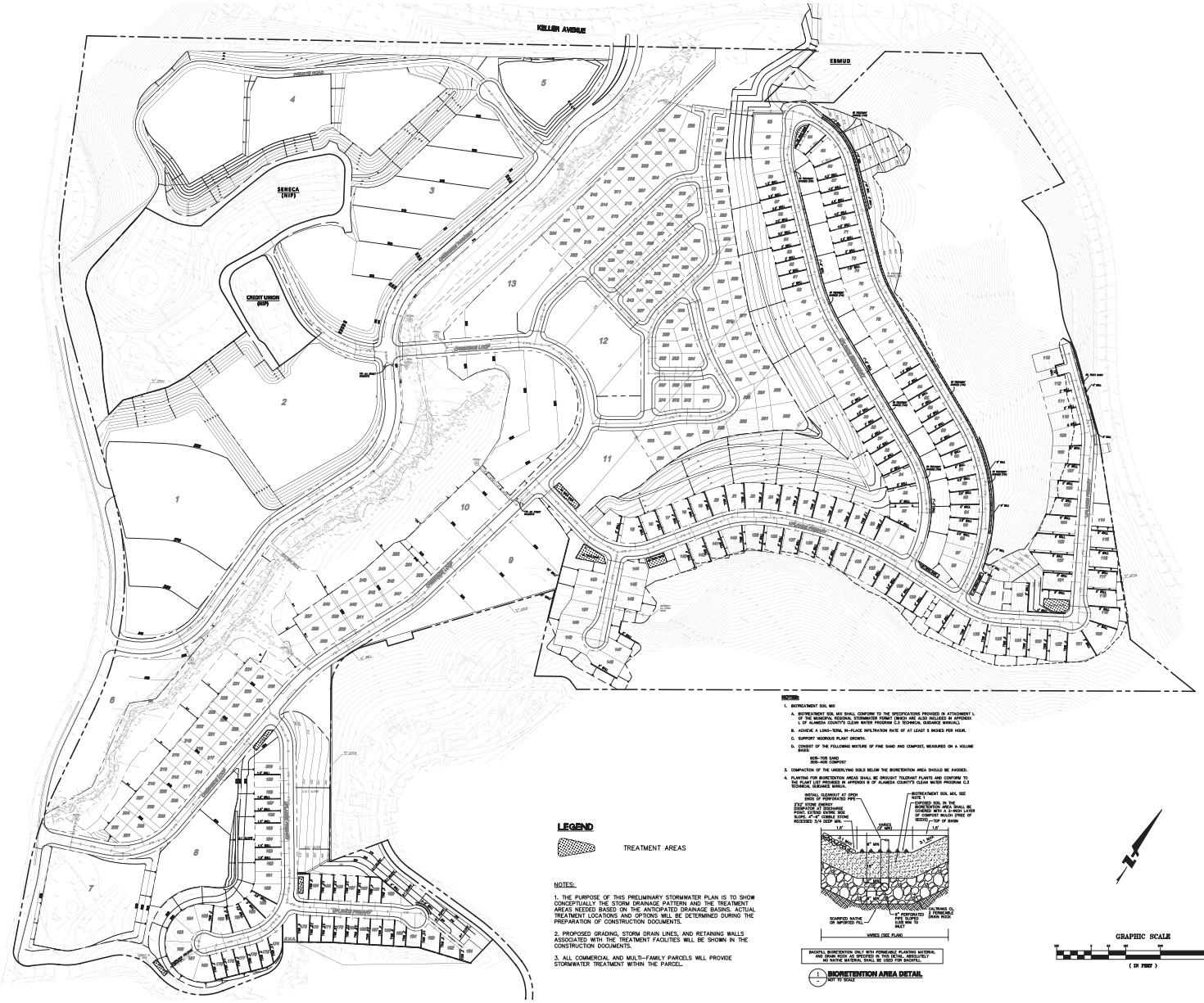
As described in the Master Plan, the Project proposes to use bio-retention basins, which are a component of the required BMPs, for its primary means of treating stormwater, as described below under *Oak Knoll Preliminary Storm Drainage Master Plan*. As shown in Figure 4.8-3, bio-retention basins for the public streets will be within curb bulb-outs where streets slopes are gradual enough to accommodate them. Where street slopes are too steep to accommodate the bulb-outs, centralized bio-retentions basins will be provided. Commercial and multi-family parcels will provide C.3 stormwater areas within those parcels.

The Master Plan describes the proposed Plan elements and design features, as well as long term, post construction stormwater management strategies for the Project site. These measures and strategies include source control, site design, and treatment requirements to reduce the amount of stormwater runoff and improve the quality of the stormwater runoff. The NPDES permit identifies appropriate LID stormwater management measures such as reuse, infiltration, evapotranspiration, and biotreatment while emphasizing that biotreatment systems are only to be used where it is practically infeasible to utilize reuse, infiltration, evapotranspiration measures.

Oak Knoll Preliminary Storm Drainage Master Plan

The Master Plan includes the following elements that are proposed and recommended for the Project, listed here comprehensively and referenced throughout the following hydrology and water quality impact discussions in this section, as appropriate. (More detailed characteristics of the proposed storm drainage infrastructure [sizing, location, etc.] are largely discussed in Section 4.14, *Utilities and Service Systems*, further in this Chapter 4):

- **Drainage System Framework**
    1) Street curb and gutter system.
    2) Network of new underground storm drain lines with multiple outfalls to the creek.
    3) Concrete lined ditches.



SOURCE: BKF, 2015

Oak Knoll Project . 120645

Figure 4.8-3

Preliminary Stormwater Treatment Plan – C.3 Plan

4) Storm water management facilities, such as:

   a) Bio-retention areas, grass swales, tree wells, pervious pavers and others that would be the first point of surface flow interception.

   b) Storm drain lines discharging to the creek at ten separate locations (following bio-retention areas), which is the primary drainage facility through the Project area.

5) Restoration of portions of the Rifle Range Creek channel.

6) Existing creek channel cross-section area widened at any given depth.

- **Storm Water Management**

Treatment Areas

1) Low impact development features such as disconnected impervious surfaces or impervious areas separated by pervious areas, down spouts draining to pervious or landscaped areas, permeable pavement or pavers, rain gardens, tree wells.

2) Treatment facilities, such as grass swales and bio-treatment basins, to provide stormwater treatment for on-site runoff and flow attenuation in accordance with the C.3 Requirements.

3) Treatment primarily located within the proposed street right-of-ways and on individual parcels/lots. Within the right-of-way, treatment facilities will be located in the planter strips (located between the curb and the sidewalk) and within designated street parking spaces. (See Figure 4.9-3)

4) Runoff from the street and untreated lots will be directed to the treatment basins via street curb and gutter system.

Post Treatment. Once treated:

1) Flow will be re-captured by a system of sub-drains and routed to an overflow inlet/catch-basin connected to the storm drain main (See Figures 3 through 5 in Appendix Y to this Draft SEIR.)

2) During intense storm events, flow in excess of treatment flow will be captured by an overflow inlet adjacent to the treatment system and conveyed to the storm drain main referenced above.

3) Where feasible, runoff from the self-treating areas (such as open spaces and large pervious areas) will be intercepted and diverted away from the treatment basins to minimize treatment footprint.

4) Off-site runoff will continue to discharge historically via Rifle Range Creek. Site runoff will be treated prior to commingling with the off-site runoff.

Treatment Facilities

1) Basins sized using flow and volume based approach. Sized to capture 80-percent of all storm events (adjusted Mean Annual Precipitation is 25 inches. Depth of flow in treatment facilities will range from 6-inches to 12-inches.

2) A system of concrete-lined ditches is proposed to convey hillside runoff around proposed development pads. These ditches are required where runoff from developed and undeveloped hillsides is directed toward building sites and streets.

- **Basins and Overland Flow Path**

  1) Project streets will carry all the flow in excess of storm drain system within the right-of way either to an outfall to the creek or further south to Mountain Boulevard.

  2) For events larger than a 100-year event or storm drain system failure situations, an overland flow path is provided to convey excess runoff with at least 1 foot of freeboard to building finished floor elevations.

- **Detention and Hydromodification Management**

  1) No additional detention or hydromodification measures will be required given the slight increase in imperviousness (40 percent to 41 percent) and the implementation of the treatment facilities to reduce runoff via infiltration and surface ponding.

Summary

In summary, implementation of the Preliminary Storm Drainage Master Plan (BKF, 2015), which would largely encompass implementation of the regulatory requirements including the NPDES Construction General Permit, Oakland's Municipal Code, and post construction MS4 NPDES requirements combined with (and reinforced by) the City's SCA HYD-1, SCA HYD-2, SCA HYD-3, SCA HYD-4, SCA HYD-5, SCA HYD-6, and SCA HYD-7, in addition to SCA BIO-3 SCA BIO-4, and UTIL-6 would ensure the Project would have a less-than-significant impact to water quality. No substantial changes in circumstances or new information of substantial importance exist that would result in a new significant or substantially more severe impact compared to those identified for the Maximum Capacity Alternative in the 1998 EIS/EIR.

Impact Conclusion: Less than Significant with SCAs.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact; No Mitigation Measures Identified.

Groundwater Supplies / Recharge

Impact HYD-2: The Project would not substantially deplete groundwater supplies or interfere with groundwater recharge. (Criterion b) ***(Less than Significant with SCA)***

1998 EIS/EIR.

The 1998 EIS/EIR identified two high-yield domestic water wells on the project site – one active and one capped.

Proposed Project.

The groundwater basin in which the Project site is situated experiences a mean annual rainfall of approximately 25 inches, and the natural infiltration and percolation of rainfall contributes to its recharge (ESA/PWA, 2016a). The Project sponsor has indicated that the existing on-site wells identified in the 1998 EIS/EIR would be capped or abandoned and shall not be used for the proposed Project. Capping or abandoning these wells would be done in accordance with

permitting requirements from the Alameda County Public Works Agency-Water Resources. In addition, as noted above, the proposed Project is expected to slightly increase impervious surfaces from 40 percent in the existing condition to 41 percent in the proposed condition; the Project proposes development largely within the existing impervious areas (BKF, 2015). As a result, the change in the amount of recharge would be relatively small and with implementation of LID storm drainage features that encourage onsite infiltration, possibly negligible. Therefore, development of the proposed Project would not be expected to deplete existing groundwater supplies, interfere substantially with groundwater recharge, or lower the groundwater table. As identified in Impact HYD-1 (Degradation of Water Quality / Violation of Standards), SCA BIO-4 (Creek Dewatering/Diversion) would apply to the proposed Project and this would prevent potential adverse effects involving groundwater depletion. The impact would be less than significant, as was identified for the Maximum Capacity Alternative in the 1998 EIS/EIR. No new impact is identified.

Impact Conclusion: Less than Significant with SCAs.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact; No New Mitigation Measures Identified.

Substantial Erosion/Siltation on Water Quality

Impact HYD-3: The Project would not result in substantial erosion or siltation on- or off-site that would affect the quality of receiving waters. (Criteria c and g) *(Less than Significant with SCAs)*

1998 EIS/EIR.

The 1998 EIS/EIR did not describe the specifics of the proposed improvements to Rifle Range Creek as part of the Maximum Capacity Alternative, stating more generally that the Maximum Capacity Alternative involved creek "restoration activities" that could result in the removal of native vegetation and sensitive habitat surrounding the creek and its tributaries. According to the 1998 EIS/EIR, the "removal of native vegetation surrounding Rifle Range Creek and its tributaries" could indirectly cause "increased erosion and sedimentation in the creek and its tributaries" including from "adjacent demolition or construction activities, including grading, cutting, filling, and other earth moving that may be needed to accommodate the implementation of" the Maximum Capacity Alternative.

The 1998 EIS/EIR identified a mitigation measure (Mitigation 1) to protect both the creek's biological resources and address hydrological issues. Regarding hydrology, the mitigation measure required "a detailed habitat restoration plan for restoration activities in Rifle Range Creek, its tributaries, and the surrounding riparian corridor that includes ongoing maintenance of [a 50-foot] buffer zone" and "all activities necessary to restore the drainage with minimal erosion." The 1998 EIS/EIR analysis concluded that the Maximum Capacity Alternative would result in "nonsignificant" (i.e., less than significant) impacts to the creek since the Maximum Capacity Alternative would comply with Mitigation 1 and applicable laws, regulations, and

standards applicable at that time (i.e., SWPPP, NPDES permit program, Clean Water Act, etc.) The 1998 EIS/EIR also concludes that water quality impacts (including those associated with erosion) would be "nonsignificant" (i.e., less than significant) since the Maximum Capacity Alternative would comply with applicable laws, regulations, and standards applicable at that time to address water quality, including by preventing erosion and siltation (i.e., NPDES, SWPPP).

Proposed Project.

The Oak Knoll Project would construct a new storm drainage system involving a series of surface treatment facilities. However, this would not change the overall on-site drainage patterns on the Project site; flows would continue to flow to Rifle Range Creek or its tributaries at rates and volumes similar to existing conditions. Any change to existing surface drainage patterns would occur as a result of the minor change to impervious surface areas on the site. Because the proposed system generally aligns with existing drainage patterns on and upwards of the property, the alteration is not considered substantial. The proposed plan is described in the Preliminary Storm Drainage Master Plan (BKF, 2015), as described in Impact HYD-1 (Degradation of Water Quality / Violation of Standards) and provided in Appendix Y to this SEIR. (BKF, 2015)

The Project would also affect existing on-site drainage patterns to some extent with implementation of the Creek Restoration Plan, which includes a series of improvements to Rifle Range Creek, namely, replacing certain underground culverts with open channels and stabilizing the creek bottom at a sustainable slope through structural grading. Described in Impact HYD-6 (Alter Existing Drainage Patterns), the alignment and slope gradient of the creek would have minimal change. However, the cross-section of the creek channel would be widened, increasing the storage capacity of the channel. (ESA/PWA, 2016a)As discussed in Impact HYD-1 (Degradation of Water Quality / Violation of Standards), the construction activities associated with implementation of the new storm drainage system, as well as work within the channel of Rifle Range Creek as part of the creek restoration activities, could, if not properly managed, loosen soils and cause erosion and siltation onsite and downstream. These effects are addressed by existing regulatory requirements including NPDES construction and operational requirements as well as the City's SCAs (SCA HYD-1, SCA HYD-2, SCA HYD-3, SCA HYD-4, SCA HYD-5, SCA HYD-6, and SCA HYD-8) that require implementation of BMPs to minimize potential erosion in addition to adherence to the City of Oakland's Creek Protection Ordinance (City of Oakland, O.M.C, Chapt. 13.16, 2003), associated permits discussed below under criterion "m" (Creek Protection Ordinance), as well as measures pertaining to the management of vegetation along the Creek with regard to preventing erosion and sediment control.

As described in Impact HYD-1 (Degradation of Water Quality / Violation of Standards) regarding the Preliminary Storm Drainage Master Plan, and discussed in greater detail in Impact HYD-5 (Substantial Runoff Exceeding Stormwater Drainage System / Polluted Runoff) below, the proposed Project will incorporate LID features such as disconnected impervious surfaces or impervious areas separated by pervious areas, down spouts draining to pervious or landscaped areas, permeable pavement or pavers, rain gardens, tree wells and treatment facilities such as grass swales and bio-treatment basins all of which promote infiltration and as a result reduce the potential for erosion. In addition, the restoration of Rifle Range Creek would improve the

hydraulics of this deteriorating system thus reducing the erosion currently occurring. As a result, the Project will reduce impact to downstream areas compared to the existing condition.

Therefore, aspects of the proposed Project that would alter existing drainage patterns on the site would not substantially do so. As mentioned above, the alignment and slope gradient of the creek after grading would have minimal change, and the cross-section of the creek channel would be widened, increasing the storage capacity of the channel. (ESA/PWA, 2016a). Also, overall site grading will not substantially change drainage patterns, which will continue to flow to the creek and its tributaries at rates and volumes similar to existing. but As a result, the Project would not have a significant impact regarding erosion or siltation onsite or offsite. In areas such as within Rifle Range Creek, the Project would improve existing conditions. Thus the Project would not result in a new significant or substantially more severe impact than identified for the Maximum Capacity Alternative in the 1998 EIS/EIR. The 1998 EIS/EIR and the analysis of the Project both conclude that impacts would be less than significant.

Impact Conclusion: Less than Significant with SCAs.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact; No New Mitigation Measures Identified.

Flooding

Impact HYD-4: The Project would not result in substantial flooding on or off-site. (Criterion d) *(Less than Significant with SCAs)*

1998 EIS/EIR.

The 1998 EIS/EIR indicated that the MCA would increase pervious surfaces and reduce peak storm flows in steams and therefore would have a beneficial impact on downstream flood flows.

Proposed Project.

The potential for the Project to result in substantial flooding related to catastrophic failure, creating significant risk of loss, injury or death, is previously addressed under *Impacts Not Further Evaluated,* as there would be no impact. As noted there, this discussion addresses flooding not related to catastrophic failure.

As mentioned above, the Project would redevelop the site and update the existing drainage infrastructure which will incorporate low impact development features such as disconnected impervious surfaces or impervious areas separated by pervious areas, down spouts draining to pervious or landscaped areas, permeable pavement or pavers, rain gardens, tree wells and treatment facilities such as grass swales and bio-treatment basins all of which promote infiltration, retention and attenuation of runoff. These features reduce the potential for flooding onsite. These features also reduce the amount of runoff that would be discharged from on-site to off-site locations and thus the potential for substantial flooding off-site is diminished. (Also see

discussion under Impact HYD-5 [Substantial Runoff Exceeding Stormwater Drainage System / Polluted Runoff].) Existing stormwater flows are accommodated in Rifle Range Creek in its existing condition, except where existing road crossings restrict creek flows. Replacement of existing road crossings would allow a 100-year flow to be fully contained in the creek channel with adequate freeboard (i.e., the distance between the top of the water and the top of the channel) (ESA/PWA, 2016a). In addition, the rehabilitation of Rifle Range Creek would increase the width of the existing channel cross-section area, and while the removal of undersized culverts may contribute to increased flows in the creek, the creek's water storage capacity would be increased compared to existing conditions and accommodate 100-year flows. This change would further attenuate and reduce the risk of flooding (BKF, 2015).

With or without implementation of the creek restoration activities, the post-Project 100-year floodplain would occur within the Resource Conservation and Urban Open Space land use areas, and would not encroach on the proposed buildings. The proposed restoration activities could occur while maintaining channel velocities, flow stability, adequate freeboard, and floodplain width so that water would not encroach upon the proposed development and flows would comply with FEMA criteria (ESA/PWA, 2016a). Once the restoration activities are complete the risk of flooding would decrease. Also, several aforementioned SCAs would also minimize flooding risk of the Project, including SCA BIO-3 and SCA HYD-3, SCA HYD-4, SCA HYD-5, SCA HYD-6.

In summary, the Project would not increase on or offsite flooding, resulting in a less-than-significant impact. This is the same conclusion reached for the Maximum Capacity Alternative in the 1998 EIS/EIR. No substantial change in circumstances or new information of substantial importance exist that would result new significant or substantially more severe flooding impact. No new significant impact is identified.

Impact Conclusion: Less than Significant with SCAs.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact; No New Mitigation Measures Identified.

Substantial Runoff Exceeding Stormwater Drainage System / Polluted Runoff

Impact HYD-5: The Project would not create or contribute substantial runoff which would exceed the capacity of existing or planned stormwater drainage systems or would be an additional source of polluted runoff. (Criteria e and f) (*Less than Significant with SCAs*)

1998 EIS/EIR.

The 1998 EIS/EIR reported an expected net reduction in impervious surface area on the Project site with development of the Maximum Capacity Alternative. The report also concluded that the reduction would result in reduced stormwater runoff volumes and allow for increased stormwater infiltration time onsite. As a program-level analysis, the 1998 EIS/EIR did not include a detailed estimate of net change in paved surface area compared to existing conditions.

Proposed Project.

Considerations regarding stormwater runoff relative to the capacity of the stormwater drainage system include 1) the distribution of impervious surface areas, accounting for the implementation of effective post-construction management practices to reduce/delay stormwater runoff and sources of polluted runoff offsite, 2) the effect of preliminary proposed stormwater systems, and 3) the design capacity of new stormwater systems. Each of these considerations is discussed below.

Change in Impervious Surface Area Onsite

As opposed to the Maximum Capacity Alternative analyzed in the 1998 EIS/EIR, the proposed Project is expected to result in a slight increase of impervious surfaces onsite from 40 to 41 percent of the total area, as the Project proposes development largely within the existing impervious areas (BKF, 2015). As previously discussed for Impact HYD-1 (Degradation of Water Quality / Violation of Standards), the Project would be required to include LID drainage features as part of the proposed drainage system. So while the change in the amount of impervious surfaces would not be substantial compared to either existing conditions or the Maximum Capacity Alternative in the 1998 EIS/EIR, the design features incorporated in the guidelines prescribed through the C.3 provision of the NPDES (discussed below) would increase the time that stormwater is detained onsite, allowing it greater opportunity to infiltrate into the ground before reaching the receiving creek and flowing offsite. This decreases the stormwater system capacity required to adequately handle run off.

Change in Storm Outflow / System Design and Stormwater Treatment

Rifle Range Creek would continue to be the primary drainage facility through the Project area. The model used to estimate peak flow rates through the Rifle Range Creek reaches for existing and Project conditions shows that, upstream (entering the Project site) and downstream (leaving the Project site), peak flow rates for the 5-year, 10-year, 25-year, and 100-year design event are would be reduced. This is shown for existing and proposed conditions in **Table 4.8-1**, as presented in the Creek Hydrology Report (part of Appendix N to this Draft SEIR).

TABLE 4.8-1
EXISTING AND PROPOSED DISCHARGE AT DOWNSTREAM END OF CREEK ON THE PROJECT SITE

	Peak flow (cfs)			
	Upstream end of Project reach	Downstream end of Project reach		
		Existing	Proposed	% change
5-year	222	369	357	-3.2%
10-year	284	496	477	-3.7%
25-year	360	630	614	-2.6%
100-year	470	821	800	-2.5%

SOURCE: ESA/PWA, 2016a

Model results show reductions in peak flow for all storm events modeled. Reductions in modeled peak flow result from 1) the LID features of the proposed onsite storm drainage system, which increases modeled infiltration rates and reduces runoff, and 2) changes in runoff timing for on-

site sub-basins relative to the Rifle Range peak flow from the upper watershed. (ESA/PWA, 2016a) The City requires projects to not exceed existing peak 15-year and 100-year design storm flow, which the Project complies with since reductions occur with Project conditions in the 5-year, 10-year, and 25-year flow as well as the 100-year flow, per Table 4.8-1.

As previously described, the proposed storm drainage system would include street curb and gutter system, a network of new underground storm drain lines with multiple outfalls to the creek, concrete lined ditches and stormwater management facilities (BKF, 2015). Storm water management facilities such as bio-retention areas, grass swales, tree wells, pervious pavers and others would be the first point of surface flow interception followed by storm drain lines discharging to the creek.

Proposed New Storm Drainage System

Implementation of a new storm drainage system on the Project site would reduce existing peak stormwater flows compared to existing conditions. The reduction would result from a series of new site drainage facilities and aforementioned treatment facilities intended to detain stormwater flows onsite in accordance with the NPDES C.3 requirements. Also, portions of the Rifle Range Creek channel would be restored and the channel storage capacity increased (BKF, 2015). Since the Project would decrease peak flows and increase capacity, the proposed Project would not result in adverse conditions onsite or at downstream waterways caused by the changes in stormwater flows, or contribute substantial run off that could exceed the capacity of the on-site or off-site storm drainage systems (ESA/PWA, 2016a; BKF, 2015).

Also, as discussed in Impact HYD-1 (Degradation of Water Quality / Violation of Standards), implementation of the Preliminary Storm Drainage Master Plan (BKF, 2015) is intended to reduce the volume and peak flow rate of stormwater (and the transport of pollutants into the storm drain system) and addresses ACFCWCD, RWQCB, and corresponding City of Oakland requirements in SCA HYD-3, SCA HYD-4, SCA HYD-5, and SCA HYD-6, including that post-Project flows not exceed existing conditions.

The proposed storm drainage system design includes measures to convey excess flows within the right-of way of the streets either to an outfall to the Creek or further south to Mountain Boulevard. Street intersections, vertical curves and site grading may result in low points where the depth of ponding from a 100-year event may extend beyond the right-of-way prior to overland release of the flow (BKF, 2015). The storm drain system serving these low lying areas would be sized to carry the 100-year flow below the inlet finished grade. For events larger than a 100-year event or storm drain system failure situations, an overland flow path would be provided to convey excess runoff with at least 1 foot of freeboard to building finished floor elevations (BKF, 2015).

Off-site runoff will continue to discharge historically via Rifle Range Creek without treatment provided by this Project. Site runoff will be treated prior to commingling with the off-site runoff (BKF, 2015).

Implementation of the proposed Master Plan would reduce the volume and peak flow rate of stormwater in accordance with the City's drainage control requirements and SCAs. Accordingly, runoff would not exceed the capacity of the drainage system.

C.3 Provisions / BMPs

The C.3 provision in the NPDES permit requires prevention and control of post-construction runoff from a Project site. Stormwater treatment BMPs would be selected and designed such that the runoff from the Project site, pervious as well as impervious areas (such as the roofs, parking areas, and driveways), would be routed to grassy swales and treatment facility areas to the extent feasible. These requirements are reinforced by the City's SCA HYD-4, HYD-5, and HYD-6. Examples of the post-construction BMPs that would be incorporated into Project design are shown in **Table 4.8-2** and **Table 4.8-3**, below. With the BMPs, the runoff during post-construction operations would not cause the stormwater drainage capacity to be exceeded.

TABLE 4.8-2
POST-CONSTRUCTION SITE DESIGN BEST MANAGEMENT PRACTICES (BMPS) INCORPORATED INTO THE PROPOSED PROJECT

Yes	N/A	Site Design BMP
✓		Landscape areas will be provided consistent with zoning agreements, village setback/parkway standards, and design objectives.
✓		Conserve Natural Areas through implementation of the Open Space Element of the General Plan.
✓		Construct streets, sidewalks, and parking lot aisles to the minimum widths specified in the City Land Use Code, except if there are other overriding design issues and in compliance with regulations for the Americans with Disabilities Act and safety requirements for fire and emergency vehicle access.
✓		Canopy interception by planting trees will be provided consistent with City standards.
✓		Use natural drainage systems in compliance with the City's drainage policy. Natural drainage systems shall be preserved in all open space areas.
✓		If Type C or D soils are present on the project site, use perforated pipe or gravel filtration for low flow infiltration, except in hillside areas as defined in City Code.
✓		Drain residential impervious sidewalks, walkways, trails, and patios into adjacent landscaping. Where landscaping is proposed for commercial and industrial projects, drain sidewalks, walkways, trails, and patios into the landscaping if landscaping slopes are less than 2 percent and the project is not adjacent to steep slopes.
		Use one or more of the following features for design of driveways and private residential parking areas in residential projects with landscaping adjacent to the driveway or parking area, and no adjacent steep slopes:
✓		• Design driveways to drain into landscaping prior to discharging to the stormwater conveyance system.
✓		• Uncovered temporary or guest parking on private residential lots to the extent practical will be designed to drain into landscaping prior to discharging to the stormwater conveyance system.
✓		Where landscaping is proposed in the outer perimeter of parking areas, incorporate landscape areas into the drainage design. Public roads shall incorporate internal parking lot landscaping areas into the drainage design if the functionality of pedestrian traffic is not compromised. Drain a minimum of 25 percent of the parking lot to landscaped areas. If Type C or D soils are present, an underdrain shall be used to prevent flooding, earth movement/settlement, increased landslide potential, erosion and other potential damage.

SOURCE: BKF, 2006 (reconfirmed 2016)

TABLE 4.8-3
POST-CONSTRUCTION NON-STRUCTURAL SOURCE CONTROL
BEST MANAGEMENT PRACTICES (BMPS) INCORPORATED INTO THE PROPOSED PROJECT

Yes	No	Non-Structural Source Control BMP
✓		N1 Education for property owners, tenants and occupants - practical information materials will be provided to the first residents/occupants/tenants on general housekeeping practices that contribute to the protection of stormwater quality. The materials (included in this SWCP) cover the following topics:
✓		• The use of chemicals (including household type) that should be limited to the property, with not discharge of specified wastes via hosing or other direct discharge to gutters, catch basins, and storm drains.
✓		• The proper handling of material such as fertilizers, pesticides, cleaning solutions, pint products, automotive products, and swimming pool chemicals.
✓		• The environmental and legal impacts of illegal dumping of harmful substances into storm drains and sewers.
✓		• Alternative household products which are safer to the environment.
✓		• Household hazardous waste collection programs.
✓		• Used oil recycling programs.
✓		• Proper procedures for spill prevention and clean up.
✓		• Proper storage of materials which prose pollution risks to local waters.
✓		• Carpooling programs and public transportation alternatives to driving.
✓		N2 Activity restrictions (CC&Rs) - CC&Rs will be prepared by the developer for the purpose of surface water quality protection, or use restrictions will be developed through lease terms.
✓		N3 Common area landscape management - ongoing maintenance consistent with County Water Conservation Resolution or city equivalent, plus fertilizer and/or pesticide usage consistent with County Management Guidelines for Use of Fertilizers (DAMP Section 5.5), or city equivalent.
✓		N4 BMP maintenance - Business Owner Associations shall be responsible for the inspection and maintenance of structural BMPs within the public right-of-way and irrevocable offers of dedication. POAs shall be responsible for the inspection and maintenance of structural BMPs within their boundaries. The City of Oakland shall be responsible for re-stenciling of catch basins as required.
✓		N5 Title 22 CCR Compliance - compliance with Title 22 of the California Code of Regulations and relevant sections of the California Health & Safety Code regarding hazardous waste management.
✓		N6 Local industrial permit compliance - provide for clean stormwater discharges from fuel dispensing areas, and require permission to discharge industrial wastes to public properties.
✓		N7 Spill contingency plan - mandates stockpiling of cleanup materials, notification of responsible agencies, disposal of cleanup materials, documentation, etc.
	✓	N8 Underground storage tank compliance - compliance with State regulations dealing with underground storage tanks.
✓		N9 Hazardous materials disclosure compliance - compliance with County and comparable City ordinances.
✓		N10 Uniform fire code implementation - compliance with Article 80 of the Uniform Fire Code.
✓		N11 Common area litter control - litter patrol, emptying of trash receptacles in common areas, and noting trash disposal violations by tenants/homeowners or businesses and reporting the violations to the owner/POA for investigation.
✓		N12 Employee training - manual(s) for initial purchasers of business site or for development that is constructed for an unspecified use, commitment on behalf of POA to prepare.
✓		N13 Housekeeping of loading docks - loading docks for grocery, drug and discount stores and warehouse-type commercial and industrial loading docks will be kept in a clean and orderly condition through weekly sweeping and litter control, and immediate cleanup of spills and broken containers. Runoff will drain through water quality inlets or an equally effective alternative. Pre-treatment may also be required.

TABLE 4.8-3 (Continued)
POST-CONSTRUCTION NON-STRUCTURAL SOURCE CONTROL
BEST MANAGEMENT PRACTICES (BMPS) INCORPORATED INTO THE PROPOSED PROJECT

Yes	No	Non-Structural Source Control BMP
✓		N14 Common area catch basin inspection - for industrial/commercial developments and for developments with privately maintained drainage systems, the owner is required to have privately-owned catch basins inspected and, if necessary, cleaned prior to the storm season, no later than October 1st each year
✓		N15 Street sweeping private streets and parking lots - streets are required to be swept prior to the storm season, no later than October 1st each year and according to the City of Oakland street sweeping program schedule. Parking lots shall be swept weekly, weather permitting.
✓		N16 Commercial vehicle washing - commercial vehicles will be washed in dedicated washing facilities only. Soaps and detergents will not be discharged to the storm drain system.

SOURCE: BKF, 2006 (reconfirmed 2016)

Summary

In summary, the proposed Project would likely result in 1) only slightly increased impervious surface areas (40 to 41 percent), 2) reduced peak stormwater runoff with implementation of the proposed Preliminary Storm Drainage Master Plan, 3) increased flood carrying capacity with implementation of the Creek Restoration Plan; and 3) implementation of design and source control BMPs consistent with the C.3 provision of the NPDES permit that would reduce potential pollutant flows into the stormwater drainage system. No new information of significance importance or substantial change in circumstances exist that would result in the proposed Project having a new significant or substantially more severe impact compared to the Maximum Capacity Alternative in the 1998 EIS/EIR. The Project would have less than significant impacts on the stormwater drainage system.

Impact Conclusion: Less than Significant with SCAs.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact; No New Mitigation Measures Identified.

Alter Existing Drainage Patterns

Impact HYD-6: The Project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course, or increasing the rate or amount of flow, of a creek, river, or stream in a manner that would result in substantial erosion, siltation, or flooding, both on- or offsite. (Criterion letter "l") (*Less Than Significant with SCAs*)

1998 EIS/EIR.

There was no specific discussion of alteration of existing drainage patterns or flows affecting creeks, rivers or streams, as this threshold criterion was not in effect at that time. The entire analysis under the topic of *Water Resources* in the 1998 EIS/EIR assumed all flows from a developed site would continue to be discharged into Rifle Range Creek, via a new storm drainage

system. The discussion anticipated reduced peak storm flows from all alternatives, due to a reduction in impervious surface areas. Since there was no specific development alternative proposed at that time, there was no plan for any specific set of creek modifications/enhancements. All impacts were determined to be less than significant, mainly due to required compliance with applicable federal and state regulations governing construction and post development stormwater runoff and pollution control, and compliance with the City's regulations concerning flood control. No mitigation measures were identified.

Proposed Project.

As discussed above, site runoff in the proposed Project development condition would convey all flows into Rifle Range Creek (same as what occurs in existing conditions) while maintaining the existing on-site drainage pattern that follows the site topography, even after proposed grading.

Site Drainage

The proposed development plan would result in a minor increase in total impervious surface area, i.e., from 40 percent to 41 percent (BKF 2015), resulting in some potential to slightly increase runoff flows and flow rates into the creek. There would be no changes to drainage patterns from upstream/off-site tributary areas, and the Project would continue to convey such off-site flows into the creek as they occur in existing conditions. Flows through Powerhouse Creek into Rifle Range Creek would be maintained through reconfigured culverts. Hospital Creek flows would be maintained as part of the creek restoration program. The proposed Project would replace the existing, degraded storm drain system installed when the former naval medical facilities were built with a LID drainage system. As described previously, elements would include disconnected impervious surfaces or impervious areas separated by pervious areas, down spouts draining to pervious or landscaped areas, permeable pavement or pavers, rain gardens, tree wells and treatment facilities such as grass swales and bio-treatment basins. All of these characteristics would promote infiltration, retention and attenuation of runoff, reducing erosion, siltation, and flooding. Such measures are not present in the existing condition. As a result, the Project would reduce impacts to downstream areas compared to the existing condition. (BKF; 2015)

Creek Drainage and Modifications

Rifle Range Creek is currently showing signs of degradation. Portions of Rifle Range Creek are concrete lined, which has accelerated channel velocities, resulting in steepened, destabilized creek banks. While the current alignment of the creek will be largely maintained, portions of the Rifle Range Creek channel morphology will be physically modified. Proposed modifications would increase the existing channel cross-section area at any given depth and as a result the channel storage capacity would be increased, which helps attenuate and reduce the peak runoff (BKF, 2015). Proposed creek profile changes would generally mirror the existing shapes of the banks and bottoms, while incorporating a variety of features to stabilize creek banks, prevent erosion and scouring, reduce flow velocities, provide water filtration and restore and enhance wetlands and wildlife habitat. Existing channel slope gradients would be maintained. (See Figures See Figures 3-12, 3-13a, 3-13b, and 4.3-6.) for illustrations of existing and proposed creek alignment in plan and selected creek profiles.

Proposed creek improvements to provide slope stabilization, erosion and scour prevention, and flow velocity reduction, are as follows:

- ***Geotechnical Stabilization*:** Engineered keyways and engineered, 2:1 or flatter slopes
- ***Biotechnical Stabilization*:** Planting of native grasses or similar, brush mattress (willow), vegetated soil lift, planted rock
- ***Habitat Structures:*** Use of log structures and boulder piles to increase channel roughness and complexity
- ***Roughened Channels*:** Boulder-lined segment of channel that is specially designed to hold a steeper channel slope without eroding (compared to "natural" channel bottom), while providing ecological benefits. Roughened channels (boulder step pools) are proposed in Reaches 1-3 (see Figure 4.8-1) to stabilize "major knickpoints" in place and locally steep channel segments. A "knickpoint" is a discontinuity or "step" in the channel profile, usually where erosion migrating upstream hits a hard point in the channel bottom. In this case a "major" knickpoint is a step that's over 2-3 feet high. Boulder step pools are also proposed in Reaches 4a+4b+4c (see Figure 4.8-1) to create step pool channel morphology for the reconstructed, daylight channel. Buried rock toes at the downstream end of each pool are designed to accommodate as little as zero channel slope without undercutting, while the wing walls are designed to accommodate up to a 3 percent channel slope without lateral channel migration.
- ***Equilibrium Slope:*** An equilibrium slope is the channel gradient where sediment transport is in balance with creek hydrology, such that the channel profile persists in dynamic equilibrium (neither aggrading[2] nor eroding significantly) over time.

Riparian habitat restoration or creation would occur along more than 3,900 feet of Rifle Range Creek, and along approximately 299 feet of Hospital Creek on site. Riparian habitat also would be created along the realigned segment (188 feet) of Powerhouse Creek.

As a result of all of the proposed creek enhancements, peak flow rates at downstream end of Rifle Range Creek would be reduced in all design-storm conditions, ranging from -2.5 percent in the 100-year storm to -3.7 percent in the 10-year storm, as previously summarized in Table 4.8-1 in Impact HYD-5 (ESA/PWA, 2016a). As also discussed earlier in this impact discussion and under Impact HYD-4 (Flooding), the proposed Rifle Range Creek improvements and the proposed Preliminary Storm Drainage Master Plan would convey all runoff from the developed site into and through Rifle Range Creek, without resulting in flooding on or off-site or increasing siltation.

Summary

Overall, the proposed Creek enhancements are designed to enhance bank stability, prevent erosion and scouring and to contain 100-year storm flows, while reducing peak runoff to downstream waters, and restore/improve riparian habitat compared to current conditions. As would pertain to each of the analyses in this section, all construction and post-construction hydrology reports, storm drainage and water quality management plans and the Rifle Range Creek Restoration Plan (part of Appendix N to this Draft SEIR) are subject to City review and

[2] Aggradation is the increase in land elevation in the creek due to the deposition of sediment.

approval to ensure compliance with applicable SCAs (listed below), the City's Storm Drainage Design Standards, the City's Creek Protection Permit Ordinance, and the Alameda Countywide Clean Water Program. These Project plans are also subject to review and approval by the San Francisco Bay Regional Water Quality Control Board to ensure compliance with the regional water basin plan's water quality objectives, and to ensure compliance with the statewide General Construction Permit. The Project would incorporate the following aforementioned City SCAs that align with each of the aforementioned requirements or plans intended to address drainage patterns, flows, and minimize erosion/siltation and potential flooding: SCA HYD-1, SCA HYD-2, SCA HYD-3, SCA HYD-4, SCA HYD-5, SCA HYD-6, and SCA HYD-7, in addition to SCA BIO-3 and SCA BIO-4.

Taken together, the proposed Project would result in less than significant impacts involving alterations to the existing drainage pattern and flows, as well as alterations to Rifle Range, Powerhouse and Hospital Creeks, that would not adversely affect flows, would not result in substantial erosion/siltation and would not result in potential flooding. No substantial change in circumstances or new information of substantial importance exist that would result new significant or substantially more severe impact regarding drainage, erosion/siltation and potential flooding. No new significant impact is identified.

Impact Conclusion: Less than Significant with SCAs.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact; No New Mitigation Measures Identified.

Creek Protection Ordinance

Impact HYD-7: The Project would not fundamentally conflict with the City of Oakland Creek Protection Ordinance (OMC Chapter 13.16) intended to protect hydrologic resources. (Criterion m) ***(Less than Significant with SCAs)***

1998 EIS/EIR.

The 1998 EIS/EIR did not analyze consistency with Oakland's Creek Protection Ordinance, however, since that ordinance was adopted after the 1998 EIS/EIR was prepared. As discussed above, the 1998 EIS/EIR identified that work near the creek had the potential to cause significant impacts and imposed a mitigation measure that would reduce the impacts to less than significant.

Proposed Project.

As indicated above in the *Regulatory Setting*, the Project is required to apply for and obtain a Category 4 Creek Protection Permit pursuant to the Creek Protection Ordinance (City of Oakland, O.M.C, Chapt. 13.16) because the Project would involve work within 100 feet of the centerline of Rifle Range Creek. Noncompliance with the Creek Protection Ordinance by the Project could result in a potentially significant impact. The Project sponsor has prepared and submitted a Category 4 Creek Protection Permit application for review and approval by City staff, as well as

the Creek Restoration Plan (Appendix N), both in accordance with the City's *Guide to Oakland's Creek Ordinance.* (Oakland Public Works Agency, 2015) As required by the Ordinance, the Creek Restoration Plan includes the overall restoration approach, design elements, such as boulder step pools, cascades, new culverts, and retaining walls, that would be introduced along the creek to stabilize the creek channel, as well as detailed hydrological and hydraulic modeling and analysis of the creek (prepared by a licensed engineer with creek hydrology expertise) for flood management purposes.

In addition, the proposed Project is required to comply with the City's SCA BIO-3 which specifies adherence to the Creek Ordinance, including preparation and approval of a plan, construction BMPs, post-construction BMPs, and creek landscaping requirements, to preserve and maintain important riparian and wetland habitat values. Approval of the plan would be required prior to issuance of a grading or building permit. Implementation of the City's SCA BIO-3 would ensure compliance with the City's Creek Protection Ordinance, resulting in a less than significant impact.

Impact Conclusion: Less than Significant with SCAs.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact, No New Mitigation Measures Identified.

Impact HYD-8: The Project would not have a considerable contribution to any cumulative impacts related to hydrology and water quality, considering the combined effect of the Project and past, present, approved, pending, and reasonably foreseeable future projects in the relevant geographic area. *(Less than Significant with SCAs)*

Geographic Context

The geographic area considered for hydrology and water quality includes parts of Arroyo Viejo watershed areas where cumulative development discharges into the City's stormwater drainage system and into Rifle Range Creek. The Creek is the regional conveyance channel that flows through the Project area into the lower part of the Arroyo Viejo watershed area, through Oakland to San Leandro Bay and ultimately San Francisco Bay. Cumulative development contributes flows and pollutants to the system, and this section analyzes the potential for an adverse cumulative effect to water quality and stormwater flows. As described in Section 4.0 of this DSEIR, for hydrology and water quality impacts, cumulative development includes all development considered in the June 2015 Alameda County Transportation Commission (ACTA) Travel Demand Model that drain into the Arroyo Viejo watershed and projects with pending applications or that have been approved in the City since preparation of the June 2015 ACTA Travel Demand Model that drain into this watershed.

Impacts

1998 EIS/EIR.

The 1998 EIS/EIR including the following cumulative analysis of cumulative water quality and hydrology impacts:

> Site preparation activities would increase the surface area exposed to erosion and could add incrementally to the total loading of nonpoint source contaminants generated by existing development along Rifle Range Creek. This could affect downstream water courses leading to San Francisco Bay. The project's contribution to downstream contamination would be addressed by implementation of best management practices as required under the state's general non-point source construction permit. The nearest new construction project may be at the former Leona Quarry, north of NMCO. This project would not be located within the watershed of Rifle Range Creek and would have, no cumulative effect on flooding or sedimentation along Rifle Range Creek. NMCO reuse and the Leona Quarry project would therefore not cumulatively contribute to impacts on water resources. Since the impervious surface area in the watershed of Rifle Range Creek would not be increased relative to existing conditions, the would not adversely impact flooding downstream of NMCO. Increases in the amount of open space could beneficially reduce peak discharges to Rifle Range Creek and its tributaries, thereby reducing downstream flooding event frequency.
>
> Alameda County has identified about $2 million in improvements in flood control structures needed on the floodplain of Arroyo Viejo to meet existing code requirements. The modifications mostly result from the inability of culverts to accommodate peak flows resulting from a storm event with a probability to occur once every 25 years. An evaluation performed by the County's Watershed Planning unit (Saleh, personal communication, December 20, 1995) concluded that reducing flows in the NMCO watershed would not significantly reduce the cost of the flood control improvements needed on the floodplain of Arroyo Viejo.

The 1998 EIS/EIR did not add any mitigation measure to address cumulative water quality and hydrology impacts.

Proposed Project.

Implementation of the proposed Project, together with past, present and reasonably foreseeable future projects in the Arroyo Viejo watershed could combine to increase stormwater runoff and pollutant loading to receiving East Bay drainages that empty into the San Francisco Bay. Water quality of the Arroyo Viejo watershed, which includes Rifle Range Creek, has been compromised over many years of urban runoff lacking proper control and treatment. As discussed in the *Regional and Local Setting* of this section, as is typical of many East Bay creeks, there is evidence of active erosion in the creek channel and along the banks that affect water quality and lead to further unstable conditions in some areas. Existing development contributes flows to these conditions and urban pollutants that affect water quality.

The proposed Project and other future projects in the relevant geographic area would be required to comply with drainage and grading requirements intended to control runoff and regulate water quality at each development site. Additionally, new projects and the Project would be required to demonstrate that stormwater volumes could be managed by stormwater conveyance facilities

designed to control onsite stormwater flows. The Project and other new Oakland projects in the watershed also would be required to comply with regional stormwater requirements and City of Oakland SCAs regarding water quality including MS4 regional NPDES C.3 permitting requirements. Specifically, these include SCA HYD-1, SCA HYD-2, SCA HYD-3, SCA HYD-4, SCA HYD-5, SCA HYD-6, SCA HYD-7, and SCA HYD-8, in addition to SCA BIO-3 and SCA BIO-4; SCA HAZ-1 and SCA HAZ-2; and SCA UTIL-6. All construction work would require NPDES Construction General permits which require all activities to minimize adverse effects to water quality through implementation of BMPs. In addition, the parcels in the Arroyo Viejo watershed are already mostly developed or protected parkland, so little new development other than the Project is anticipated in the Arroyo Viejo watershed. For these reasons, the Project would not make a cumulatively considerable contribution to cumulative water quality and hydrology impacts.

Although implementation of the Project would not expose people and/or property to flooding (see above discussion), cumulative impacts of other projects in the vicinity could expose people and/or property to flooding from a 100-year event. These effects could occur through increases in stormwater runoff volumes in a 100-year storm event. The proposed Project would be required to comply with flood control requirements intended to provide flood protection. Additionally, the Project would be required to demonstrate that stormwater volumes could be managed by stormwater conveyance facilities designed to control onsite stormwater flows, decreasing the likelihood of flooding. The Project also would be required to comply with Alameda County and Regional MS4 NPDES permit requirements which include drainage requirements to include LID drainage features that reduce runoff, and thus reduce flooding. Therefore, the Project would not make a cumulatively considerable contribution to stormwater runoff that could exacerbate a cumulative impact to people and/or property from a 100-year event.

Impact Conclusion: Less than Significant with SCAs.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact, No New Mitigation Measures Identified.

References – Hydrology and Water Quality

City of Oakland, *Oakland Municipal Code, Title 13, Chapter 13.16, Creek Protection, Storm* Water Management and Discharge Control Ordinance, http://ec2-54-235-79-104.compute-1.amazonaws.com/oak/groups/pwa/documents/report/oak024460.pdf, accessed October 19, 2015.

BKF Engineers, *Oak Knoll Preliminary Storm Drainage Master Plan,* September 22, 2015. (2015) (Included as part of **Appendix Y** to this Draft SEIR.)

Environmental Science Associates (ESA/PWA), *Rifle Range Creek: Hydrology Report, Restoration Plan and Preliminary Creek Protection Plan*. Oak Knoll Mixed Use Community Development Project. Prepared for Oak Knoll Venture Acquisition LLC. February 24, 2016 (ESA 2016a). (Included as part of **Appendix N** to this Draft SEIR.)

ESA, *Hydrology Report, Basis of Design Rifle Range Creek, Oakland, CA.* Prepared for Oak Knoll Venture Acquisition LLC. February 26, 2016 (ESA 2016b).

Regional Water Quality Control Board (RWQCB), *Best Management Practices (BMP) 3-01 Non-Stormwater Discharge Controls, Dewatering Operations, Amendment 6 to WQ Order 2012-0006-DWQ*, 2003.

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U.S. Department of the Navy Engineering Field Activity and City of Oakland, *Final Environmental Impact Statement / Environmental Impact Report for the Disposal and Reuse of Naval Medical Center Oakland - SCH 95103035,* April 1998

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WRA Environmental Consultants, *Riparian Restoration and Monitoring Plan, Oak Knoll,* March 2016. (2016c).

4.9 Land Use and Planning

4.9.1 Introduction

This section addresses the physical aspects of land use and the regulatory land use and planning framework that would guide future development of the proposed Project. The analysis specifically addresses whether the proposed Project would result in any new impacts related to land use and planning, or increase the severity of land use and planning impacts previously disclosed in the 1998 EIS/EIR. The discussion focuses on the land use and planning impacts from the Project, including the adoption of the proposed rezoning within the Project site and implementation of the Project. Existing land uses on and around the Project site are described, and applicable City of Oakland General Plan land use policies and other applicable plans and regulations pertaining to physical land use and planning consideration factors are identified.

The study area considered for this land use analysis includes the Project site and surrounding areas that could be directly or indirectly affected by the construction or operation of the Project.

4.9.2 Setting

Regional and Local Setting

The Oak Knoll Project site comprises approximately 188 acres in the South Hills area of the City of Oakland in Alameda County, east of San Francisco Bay. The Project site is bounded by Mountain Boulevard / I-580 to the west, Keller Avenue to the north and east, and Sequoyah Road to the south (see Figure 3-1 in Chapter 3, Project Description).[1]

The Project vicinity is characterized primarily by residential areas including a range of housing types (single family, townhomes, and garden apartments), and small local commercial centers, a large church, regional open spaces, and the I-580 corridor. Most portions of the Project site are separated from surrounding uses visually and/or topographically; see existing photographs that illustrate these characteristics in Figure 3-6 (Birdseye Views of the Project Site) in Chapter 3 (Project Description), and in Figures 4.1-5A through 4.1-12B in Section 4.1, *Aesthetics*, of this chapter.

Uses surrounding the Project Site include the following:

- **South/East:** To the south and east of the Project site is the Sequoyah Hills neighborhood, which primarily includes single family neighborhoods within areas zoned RH-3 and RH-4 and within the Hillside Residential land use classification. The Sequoyah Country Club is located to the southeast of the Project site, and the north boundary of Knowland Park, a 400-acre city-owned park that includes the Oakland Zoo is located approximately 0.75 miles south of the site. The Toler Heights residential neighborhood exists to the southwest.

[1] For purposes of the EIR, and following Oakland convention, the Oakland Estuary is a western border of Oakland, thus parallel roadways (e.g., I-580 / Mountain Boulevard, Skyline Boulevard) run north-south, and perpendicular roadways (e.g., Keller Avenue, Golf Links Road, 73rd Avenue) run east-west.

- North/West (east of I-580): To the north and west of the Project site, the mix of land uses includes residential and condominium developments (including Ridgemont Skyline and Shadow Woods). These areas include detached residential (RD-1) and mixed-use residential (RM-2 and RM-3) zones and General Plan land use classifications (Detached Unit Residential and Mixed Housing Type Residential). Sequoyah Community Church sits adjacent to the Project site on part of a prominent knoll, near the northwest corner of the Project site. North of the church and adjacent to the Project site are residential uses along Keller Avenue, near Mountain Boulevard. Residential condominiums are located to the west of the Project site, between Mountain Boulevard and I-580 (Oak Knoll Heights), within areas zoned RD-1 and RM-2 and within the Mixed Housing Type Residential land use classification.

  Small commercial developments are also located northeast of the site (along Keller Avenue), within the commercial neighborhood (CN-3) zone and the Neighborhood Center Mixed Use land use classification, as well as west of the site, along Mountain Boulevard, south of Keller Avenue. The Leona Quarry residential development is located approximately one mile north of the Project site and east of I-580.

- **West of I-580:** West of I-580 is undeveloped hillside areas surrounded by the Gold Links and Eastmont Hills residential neighborhoods, with a church and schools/educational learning center being the uses located nearest the freeway and the Project Site.

- **Regional Open Spaces:** The Project vicinity is largely characterized by sizeable open spaces, including the 300-acre Leona Regional Open Space Preserve, owned by the East Bay Regional Park District, to the northeast of the site, across Keller Avenue; the King Estate Recreational Area and Open Space located west of I-580; and the 400-acre Knowland Park and Arboretum to the southeast. Sequoyah Country Club includes a private course that extends to Knowland Park. (See Figure 3-1 in Chapter 3, Project Description.)

Previous and Existing Uses on the Project Site

The Project site was developed beginning in the late 1920s as four subdivisions that would become the Oak Knoll Golf Course and Country Club. The Oak Knoll Golf Course was redeveloped as the Naval Medical Center Oakland (NMCO) when the Navy acquired the property in 1941 for the construction of a temporary hospital after the outbreak of World War II (Page & Turnbull, 1994). All structures on the Project site were demolished as of 2011, except for Club Knoll, a locally-designated historic resource constructed in 1924 as a clubhouse to the Oak Knoll Golf and Country Club and later used as an officer's Club; the Club Knoll garage also still remains. Some utility infrastructure, roadways, and parking areas that supported the former NMCO facilities remain onsite.

The only existing active uses within the former NMCO property are the Sea West Coast Guard Federal Credit Union administrative offices (Sea West) on a 1.2-acre parcel, and administrative offices for the Seneca Center for Children and Families (Seneca) on a 7.9-acre parcel. Both are privately-owned properties surrounded by, but not part of, the Oak Knoll Project Site. The land use analysis in this section assumes that both uses will remain, and concurrent with its consideration of the Oak Knoll Project, the City of Oakland is considering Seneca's proposal for a master plan and expansion that includes the introduction of school activities. This expansion is factored into the cumulative context throughout this SEIR (however, certain analyses in this Draft SEIR acknowledge the school use as an existing sensitive receptor).

Regulatory Setting

This section describes each of the City of Oakland documents that contain policies relevant to the development of the proposed Project. This section also identifies potential conflicts with any policies or existing land use regulations, and how any conflicts would be addressed.

Previous Oak Knoll Redevelopment Plan

The Project site is within the previous Oak Knoll Redevelopment Project Area established in 1998, which encompasses the entire NMCO property and was amended in 2006 to merge with the previous Central City East Redevelopment Area. Redevelopment project areas were dissolved on February 1, 2012, under the constitutional Dissolution Act.

For informational purposes and context for this CEQA assessment of land use and planning policies for the currently proposed Project at Oak Knoll, the following are goals from the Oak Knoll Redevelopment Plan that pertain to the proposed Project:

Redevelopment Plan Goals included:

- *Correction of environmental deficiencies in the Oak Knoll Project Area, including buildings in which it is unsafe or unhealthy for persons to live or work; obsolete aged, dilapidated, and deteriorated building types; substandard, faulty, inadequate or deteriorate infrastructure and utility lines; incompatible land uses; and buildings that do not meet current building codes;*

- *The subdivision of land into parcels suitable for modern, integrated development with improved pedestrian and vehicular circulation in the Project Area; and*

- *The provision of adequate land for open space.*

City of Oakland General Plan

The Oakland General Plan establishes comprehensive, long-term land use policies for the City and provides the primary policy direction for development throughout the City and therefore the Project site. The General Plan is made up of a series of "elements," each of which deals with a particular topic and includes policies, many of which guide development citywide. The Oakland General Plan includes the *Land Use and Transportation Element* (LUTE) (adopted March 24, 1998), including the Bicycle Master Plan (November 2002) and the *Pedestrian Master Plan* (December 2007), which are adopted as part of the LUTE; the *Historic Preservation Element* (adopted March 8, 1994 and amended July 21, 1998); the *Open Space, Conservation, and Recreation Element* (OSCAR) Element (adopted June 11, 1996); the *Safety Element* (November 2004, amended 2012); the *2015-2023 Housing Element Update* (December 9, 2014); the *Noise Element* (June 21, 2005); and the *Scenic Highways Element* (September, 1974).

A. Land Use and Transportation Element (LUTE)

Existing General Plan Land Use Designations

The City of Oakland General Plan LUTE Land Use Diagram applies the following land use designations to the Project site, consistent with the Final Oak Knoll Reuse Plan adopted by the

Oak Knoll Base Reuse Authority (OBRA) in 1996. Each is described below (as stated in the General Plan LUTE) and shown in **Figure 4.9-1**.

- **Hillside Residential** (5 principal units per gross acre): The Hillside Residential classification is intended to create, maintain, and enhance neighborhood residential areas that are characterized by detached, single unit structures on hillside lots. Typical lot sizes range from approximately 8,000 square feet to one acre in size. Future development within this classification should remain residential in character.

- **Community Commercial** (125 residential units per gross acre / maximum FAR 5.0 for non-residential uses): The Community Commercial classification is intended to identify, create, maintain, and enhance areas suitable for a wide variety of commercial and institutional operations along the City's major corridors and in shopping districts or centers. Community Commercial areas may include neighborhood center uses and larger scale retail and commercial uses, such as auto related businesses, business and personal services, health services and medical uses, educational facilities, and entertainment uses. Community Commercial areas can be complemented by the addition of urban residential development and compatible mixed use development.

- **Institutional** (125 units per gross acre / maximum FAR 8.0): The Institutional classification is intended to create, maintain, and enhance areas appropriate for educational facilities, cultural and institutional uses, health services and medical uses as well as other uses of similar character. Future uses include educational and cultural facilities, institutions, health services, and medical facilities. Under certain conditions, mixed use housing and commercial development that supports these institutional areas may be allowed.

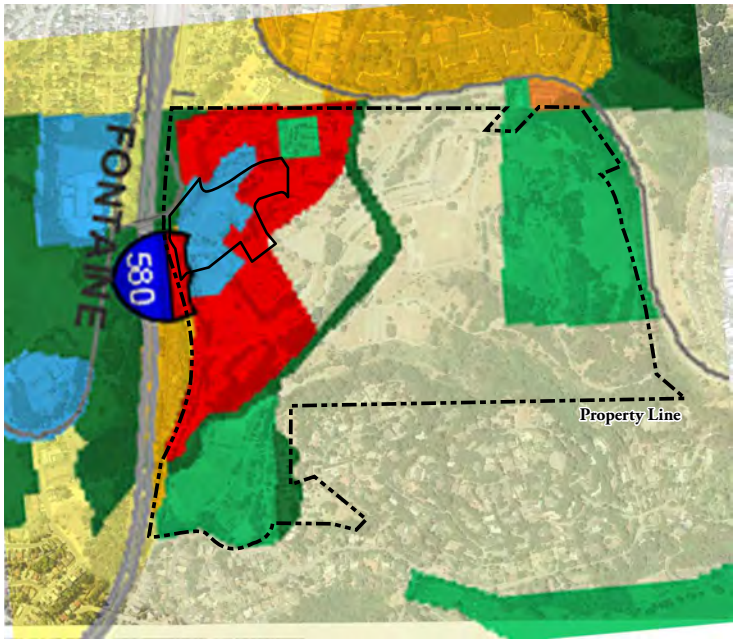
- **Urban Park and Open Space**: The Urban Park and Open Space classification is intended to identify, enhance and maintain land for parks and open space. Its purpose is to maintain an urban park, schoolyard, and garden system which provides open space for outdoor recreation, psychological and physical well-being, and relief from the urban environment. Desired uses also include cemeteries and other active outdoor recreation spaces.

- **Resource Conservation**: The Resource Conservation classification is intended to identify, enhance and maintain publicly-owned lands for the purpose of conserving and appropriately managing undeveloped areas which have high natural resource value, scenic value, or natural hazards which preclude safe development. Future development within this classification is extremely limited, and must relate to the conservation and management of natural resources, public open space, and natural hazards.

General Plan Conformity Findings for the 2006 Oak Knoll Plan

As described in detail in section 3.6.1, *Existing and Proposed General Plan Land Uses and Configuration*, in Chapter 3 (Project Description), of this document, in 2006, the City of Oakland reviewed a previous proposal for the Oak Knoll site: the 2006 Oak Knoll Plan.[2] The City of Oakland determined that that previous proposal was in substantial conformance with the Oakland General Plan (2006a and 2006b). The City's determination was based on the following findings (summarized from Chapter 3):

[2] The 2006 Oak Knoll Plan previously considered but not approved by the City is described in Chapter 3 (Project Description), section 3.6.1 of this Draft SEIR.

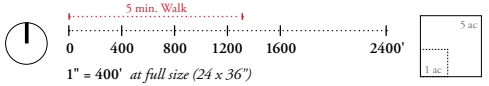


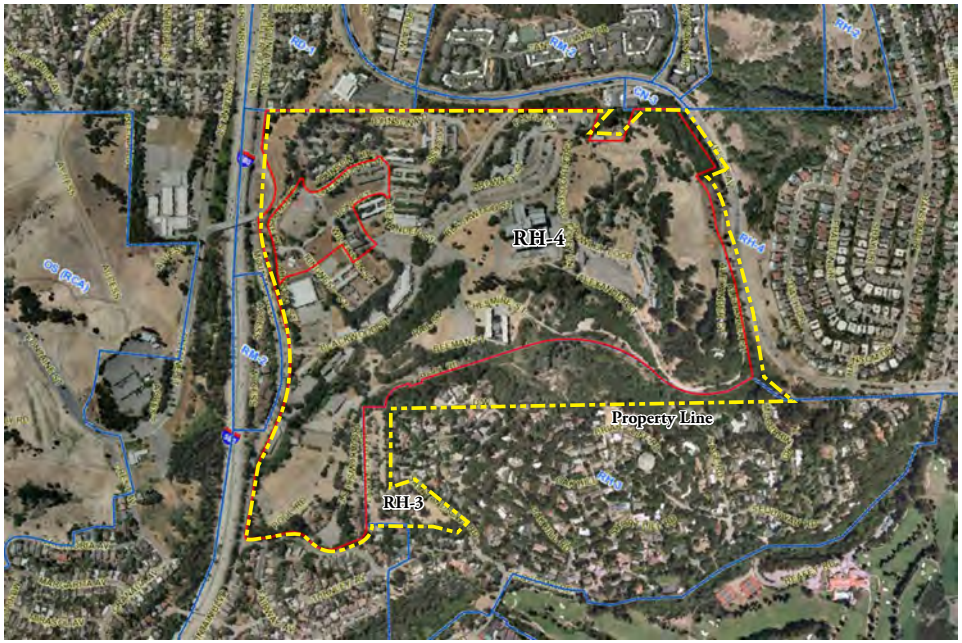
Legend

- Hillside Residential
- Detached Unit Residential
- Mixed Housing Type Residential
- Neighborhood Center Mixed Use
- Community Commercial
- Institutional
- Resource Conservation
- Urban Park and Open Space

Existing General Plan Designations

(from General Plan Designations, City of Oakland, November 18, 2014





Existing Zoning

(from City of Oakland Zoning and EStuary Policy Plan Maps, Bureau of Planning, January 8, 2015

SOURCE: OKVA, Hart Howerton, 2016; City of Oakland

Figure 4.9-1

Existing General Plan and Zoning Designations

2. Use and Facility Types. The uses and facility types of the 2006 Oak Knoll Plan were generally consistent with the adopted LUTE land use plan and diagram, as the 2006 Oak Knoll Plan proposed a land use development program that did not change or introduce new or different land use designations for the property other than those shown on the LUTE Land Use Diagram. Boundaries of those land use designations were adjusted in part to reflect site conditions and environmental resources.

3. Density of Development. The density/intensity of the 2006 Oak Knoll Plan was found to be within the maximum limits set forth in the General Plan. The overall density of proposed residential development under the 2006 Oak Knoll Plan was found to be equal to or less than the density that would be realized under the LUTE land use designations.

4. General Plan Conformity Guidelines. The 2006 Oak Knoll Plan was found consistent with key General Plan policies cited in City-adopted guidelines, which were used at that time for determining General Plan conformity. After reviewing and weighing all pertinent goals and policies of the Oakland General Plan, the City issued a written determination concluding that the 2006 Oak Knoll Plan was in substantial compliance with the General Plan (Oakland, 2006a and 2006b).

Relevant General Plan LUTE Policies and Potential Conflicts

The LUTE of the Oakland General Plan contains the following land use (LU) policies that address issues related to land use and planning, and/or are particularly relevant to the Oak Knoll Project. As discussed generally in Impact LU-3 (in section 4.9.3, *Discussion of Impacts*) the proposed Project does not conflict with these policies.

- ***LU Policy 1/C2.2 Reusing Abandoned Buildings***: The reuse of abandoned buildings by non-traditional activities should be encouraged where the uses are consistent with, and will assist in the attainment of, the goals and objectives of all elements of the Plan.

- ***LU Policy I/C.4.1: Protecting Existing Activities.*** Existing industrial, residential, and commercial activities and areas which are consistent with long term land use plans for the City should be protected from the intrusion of potentially incompatible land uses.

- ***LU Policy I/C.5.1: Planning for Military Base Reuse.*** Plans for the reuse of military bases should encourage activities which provide economic development expansion opportunities for the City.

- ***LU Policy I/C.5.4: Planning for Oak Knoll.*** The formulation of a reuse plan which incorporates a mixture of land uses or density patterns should be encouraged for the Oak Knoll Naval Hospital site.

- ***LU Policy N.1.1: Concentrating Commercial Development.*** Commercial development in the neighborhoods should be concentrated in areas that are economically viable and provide opportunities for smaller scale, neighborhood-oriented retail.

- ***LU Policy N.1.5: Designing Commercial Development.*** Commercial development should be designed in a manner that is sensitive to surrounding residential uses.

- ***LU Policy N.2.B: Making Compatible Development.*** The height and bulk of commercial development in "Neighborhood Mixed Use Center" and "Community Commercial" areas should be compatible with that which is allowed for residential development.

- ***LU Policy N.3.2: Encouraging Infill Development.*** In order to facilitate the construction of needed housing units, infill development that is consistent with the General Plan should take place throughout the City of Oakland.

- ***LU Policy N.3.5: Encouraging Housing Development.*** The City should actively encourage development of housing in designated mixed housing type and urban housing areas through regulatory and fiscal incentives, assistance in identifying parcels that are appropriate for new development, and other measures.

- ***LU Policy N.3.8: Required High-Quality Design.*** High-quality design standards should be required of all new residential construction. Design requirements and permitting procedures should be developed and implemented in a manner that is sensitive to the added costs of those requirements and procedures.

- ***LU Policy N.3.9: Orienting Residential Development.*** Residential developments should be encouraged to face the street and to orient their units to desirable sunlight and views, while avoiding unreasonably blocking sunlight and views for neighboring buildings, respecting the privacy needs of residents of the development and surrounding properties, providing for sufficient conveniently located on-site open space, and avoiding undue noise exposure.

- ***LU Policy N.6.1: Mixing Housing Types.*** The City will generally be supportive of a mix of projects that provide a variety of housing types, unit sizes, and lot sizes which are available to households with a range of incomes.

- ***LU Policy N.7.1: Ensuring Compatible Development.*** New residential development in Detached Unit and Mixed Housing Type areas should be compatible with the density, scale, design, and existing or desired character of surrounding development.

- ***LU Policy N.7.2: Defining Compatibility.*** Infrastructure availability, environmental constraints and natural features, emergency response and evacuation times, street width and function, prevailing lot size, predominant development type and height, scenic values, distance from public transit, and desired neighborhood character are among the factors that could be taken into account when developing and mapping zoning designations or determining "compatibility." These factors should be balanced with the citywide need for additional housing.

- ***LU Policy N.7.3: Subdividing Hill Area Properties.*** At least 8,000 square feet of lot area per dwelling unit should be required when land in the hill area is being subdivided. Lots smaller than 8,000 square feet may be created to cluster development, and as long as this ratio is maintained for the parcel being divided.

- ***LU Policy N.7.6. Developing Subdivided Parcels.*** Development on subdivided parcels should be allowed where site and building design minimize environmental impacts, building intensity and activity can be accommodated by available and planned infrastructure, and site and building designs are compatible with neighborhood character.

- ***LU Policy N.7.8. Coordinating Covenants, Conditions, and Restrictions.*** Private development should maintain local Covenants, Conditions, and Restrictions (CC&Rs) that are compatible with City development standards such as lot size, set backs, and height.

- ***LU Policy N.8.2: Making Compatible Interfaces Between Densities.*** The height of development in urban residential and other higher density residential areas should step down as it nears lower density residential areas to minimize conflicts at the interface between the different types of development.

- ***LU Policy N.9.7: Creating Compatible but Diverse Development.*** Diversity in Oakland's built environment should be as valued as the diversity in population. Regulations and permit processes should be geared toward creating compatible and attractive development, rather than "cookie cutter" development.

- ***LU Policy N10.1: Identifying Neighborhood "Activity Centers".*** Neighborhood Activity Centers should become identifiable commercial, activity and communication centers for the surrounding neighborhood. The physical design of neighborhood activity centers should support social interaction and attract persons to the area. Some of the attributes that may facilitate this interaction include plazas, pocket parks, outdoor seating on public and private property, ample sidewalk width, street amenities such as trash cans and benches, and attractive landscaping.

The LUTE also includes one key implementation strategy for the Oak Knoll property:

- ***Oak Knoll Target Area for Community and Economic Development.*** [Oak Knoll] is a key opportunity site for sizable new development in the South Hills area. Future use of this site will emphasize the compatibility with surrounding development. The former Oak Knoll Naval Hospital site has received federal approval of a reuse plan which identifies a mixture of uses including housing, recreation, small scale commercial, and public services....

B. Bicycle Master Plan

In December 2007, the City Council adopted the Oakland Bicycle Master Plan (BMP) as part of the LUTE. The BMP promotes citywide, long-range policy that promotes bicycling as a viable means of transportation and recreation in Oakland. Several bicycle facility types that exist or that are proposed throughout the City are defined in the BMP and detailed in Section 4.13, *Transportation, Circulation and Parking*, of this chapter. The BMP includes design guidelines for bikeways and parking. Currently, Class 3 bike routes exist on Mountain Boulevard along the Oak Knoll site and along Golf Links Road to the south, and the BMP identifies planned Class 2 bike lanes along these segments, as well as a new Class 3 bike route along Keller Avenue north and east of Oak Knoll. Figure 4.13-3 in Section 4.13, *Transportation, Circulation and Parking*, shows the existing and planned bicycle facilities in the vicinity of the Project site.

The BMP contains the following policies that address issues related to land use and planning, that were adopted for the purpose of avoiding or mitigating an environmental effect, and that are particularly relevant to the Oak Knoll Project.

- ***BMP Policy 1B, Routine Accommodation****:* Address bicycle safety and access in the design and maintenance of all streets.

- ***BMP Policy 1C, Safe Routes to Transit:*** Improve bicycle access to transit, bicycle parking at transit facilities, and bicycle access on transit vehicles.

Additional BMP actions are included in Section 4.13, *Transportation, Circulation and Parking*, of this chapter.

C. Pedestrian Master Plan

In November 2002, the City Council also adopted the Pedestrian Master Plan (PMP) as part of the LUTE. The PMP identifies policies and implementation measures for achieving LUTE policies that promote a walkable city. The PMP identifies types of pedestrian routes and minimum design guidelines for each type of route. The City of Oakland is currently in the process of updating the PMP, and the revised plan is expected to be completed by April 2016.

The PMP designates Mountain Boulevard, Golf Links Road, and Keller Avenue as "District Routes" within the Oak Knoll transportation study area. As discussed in detail in Section 4.13, *Transportation, Circulation and Parking*, of this chapter, "District Routes have a more local function as the location of schools, community centers, and smaller scale shopping; they are often located within a single district and help to define the character of that district." As also discussed in Section 4.13, some of the pedestrian facilities (e.g., sidewalks, crosswalks, and pedestrian signals) on the streets adjacent to the Oak Knoll site do not meet all PMP guidelines, namely minimum sidewalk standards.

The PMP contains the following policies that address issues related to land use and planning, that were adopted for the purpose of avoiding or mitigating an environmental effect, and/or that are particularly relevant to the Oak Knoll Project. As discussed generally in Impact LU-3 (in Section 4.9.3, *Discussion of Impacts*) the proposed Project does not conflict with these policies.

- ***PMP Policy 1.1, Crossing Safety:*** Improve pedestrian crossings in areas of high pedestrian activity where safety is an issue.
- ***PMP Policy 1.2, Traffic Signals:*** Use traffic signals and their associated features to improve pedestrian safety at dangerous intersections.
- ***PMP Policy 2.1, Route Network:*** Create and maintain a pedestrian route network that provides direct connections between activity centers.
- ***PMP Policy 2.3, Safe Routes to Transit:*** Implement pedestrian improvements along major AC Transit lines and at BART stations to strengthen connections to transit.
- ***PMP Policy 3.2, Land Use:*** Promote land uses and site designs that make walking convenient and enjoyable.

(Additional PMP policies and actions are included in Section 4.13, *Transportation, Circulation and Parking*, of this chapter.)

D. Open Space, Conservation, and Recreation (OSCAR) Element

The Open Space, Conservation and Recreation Element (OSCAR) of the General Plan addresses the management of open land, natural resources and parks in Oakland. Oakland's parks are categorized by size and intended service area. The Project site is located in the City's South Hills Planning Area, which, with 1.49 acres of local serving parks per 1,000 residents, exceeds the current citywide provision of 1.33 acres of local-serving park acreage per 1,000 residents.

The OSCAR identifies the following Major Recommendations for Oak Knoll:

- ***South Hills Planning Area Recommendation – Open Space:*** Retain open space on the portions of the Oak Knoll Naval Hospital which are greater than 30 percent slope, contain native oak woodlands, or are within the riparian zone along Rifle Range Creek. Consider using the Officer's Club at the Naval Hospital as a recreation center serving the South Hills.

- ***South Hills Planning Area Recommendation – Parks*:** Retain steep hillsides within Oak Knoll as open space. Retain creek corridor and pursue 10 acre community park in the vicinity of Officer's Club (Club Knoll) and ballfields.

The OSCAR contains the following open space (OS) policies that address issues related to land use and planning, that were adopted for the purpose of avoiding or mitigating an environmental effect, and that are particularly relevant to the Oak Knoll Project. As discussed generally in Impact LU-3 (in section 4.9.3, *Discussion of Impacts*) the proposed Project does not conflict with these policies.

- ***Policy OS-1.3, Development of Hillside Sites:*** On large sites with subdivision potential, generally conserve ridges, knolls, and other visually prominent features as open space. Maintain development regulations which consider environmental and open space factors such as land stability, plant and animal resources, earthquake and fire hazards, and visual impacts, in the determination of allowable density. Where hillside development does occur, encourage creative architecture and site planning which minimizes grading and protects the natural character of the hills.

- ***Policy OS-3.2, Military Base Open Space:*** Support provisions for park and open space areas in plans for military base reuse. At Oak Knoll Naval Hospital, designate undeveloped areas with high natural resource or scenic values as Resource Conservation Areas. Consider using existing athletic fields and recreational facilities at Oak Knoll as new Urban Park site.

- ***Policy OS-4.1, Provision of Usable Open Space:*** Continue to require new multi-family development to provide useable outdoor open space for its residents.

- ***Policy OS-4.2, Protection of Residential Yards:*** Recognize the value of residential yards as a component of the City's open space system and discourage excessive coverage of such areas by buildings or impervious surfaces.

- ***Policy OS-5.1, Priorities for Trail Improvement:*** Improve trail connections within Oakland, emphasizing connections between the flatlands and the hill and shoreline parks; lateral trail connections between the hill area parks; and trails along the waterfront.

- ***Policy OS-5.3, Trail Design Principles:*** Plan and design all new trails in a manner which: (a) minimizes environmental impacts; (b) fully considers neighbor privacy and security issues; (c) involves the local community in alignment and design; and (d) considers the needs of multiple users, including pedestrians, bicycles, and wheelchairs.

- ***Policy OS-8.1, Public Access to Creeks:*** Pursue additional public access to creeks at feasible locations, including city parks, schools, flood control easements, and City-owned properties along creeks. Encourage the development of trails or linear parks within creek corridors, with priority placed on creeks traversing public, commercial, or institutional properties that may be developed in the future.

- ***Policy OS-8.2, Creek Daylighting:*** Support programs to restore or "daylight" sections of creek that have been culverted or buried in the storm drain systems, provided that the

following conditions exist: (1) broad-based community support for the project; (2) availability of financial resources for the project; and (3) no significant health, safety, flooding, or erosion hazards would result from the project. Place priority for daylighting on properties where additional opportunities for recreational access would be created.

- ***Policy OS-9.1, Protection of Natural Landforms:*** Design new development to preserve natural topography and terrain. Enhance prominent topographic features where appropriate by parks, plazas, or architectural expressions.

- ***Policy OS-9.2, Use of Natural Features to Define Communities:*** Use open space and natural features to define city and neighborhood edges and give communities within Oakland a stronger sense of identity. Maintain and enhance city edges, including the greenbelt on the eastern edge of the city, the shoreline, and San Leandro Creek. Use creeks, parks, and topographical features to help define neighborhood edges and create neighborhood focal points.

(Additional OSCAR policies are addressed in Section 4.1, *Aesthetics*, and Section 4.12, *Public Services and Recreation*, of this chapter, and below under *Safety Element*.)

E. Housing Element

The Housing Element (HE) Update 2015-2023 of the Oakland General Plan provides an assessment of the need for housing and an inventory of housing; statement of the goals with regard to housing residents; and a program for providing the needed amount of housing throughout the City. The Housing Element contains the following policies that address issues related to land use and planning, that were adopted for the purpose of avoiding or mitigating an environmental effect, and that are particularly relevant to the Oak Knoll Project:

- ***HE Policy 7.4, Minimize Environmental Impacts from New Housing:*** Work with developers to encourage construction of new housing that, where feasible, reduces the footprint of the building and landscaping, preserves green spaces, and supports ecological systems.

F. Historic Preservation Element

In March 1994, the Oakland City Council adopted the Historic Preservation Element (HPE) of the Oakland General Plan (amended July 21, 1998). The HPE sets out a graduated system of ratings and designations resulting from the Oakland Cultural Heritage Survey and the Oakland Zoning Regulations (discussed further below in this section). The following HPE policies address issues related to land use and planning, were adopted for the purpose of avoiding or mitigating an environmental effect, and are particularly relevant to the Oak Knoll Project. As discussed generally in Impact LU-3 (in section 4.9.3, *Discussion of Impacts*) the proposed Project does not conflict with these policies.

- ***HPE Policy 3.1, Avoid or minimize adverse historic preservation impacts related to discretionary city actions:*** The City will make all reasonable efforts to avoid or minimize adverse effects on the Character-Defining Elements of existing or Potential Designated Historic Properties which could result from private or public projects requiring discretionary City actions.

- ***HPE Policy 3.5, Historic preservation and discretionary permit approvals:*** For additions or alteration to Heritage Properties or Potential Designated Historic Properties requiring discretionary City permits, the City will make a finding that: (1) the design matches or is compatible with, but not necessarily identical to, the property's existing or historical design; or (2) the proposed design comprehensively modifies and is at least equal in quality to the existing design and is compatible with the character of the neighborhood; or (3) the existing design is undistinguished and does not warrant retention and the proposed design is compatible with the character of the neighborhood.

  For any project involving complete demolition of Heritage Properties or Potential Designated Historic Properties requiring discretionary City permits, the City will make a finding that: (1) the design quality of the proposed project is at least equal to that of the original structure and is compatible with the character of the neighborhood; or (2) the public benefits of the proposed project outweigh the benefit of retaining the original structure; or (3) the existing design is undistinguished and does not warrant retention and the proposed design is compatible with the character of the neighborhood.

- ***HPE Policy 3.7, Property relocation rather than demolition as part of discretionary projects:*** As a condition of approval for all discretionary projects involving demolition of existing or Potential Designated Historic Properties, the City will normally require that reasonable efforts be made to relocate the properties to an acceptable site.

- ***Policy 3.8: Definition of "Local Register of Historical Resources" and Historic*** Preservation "Significant Effects" for environmental review purposes. For purposes of environmental review under the California Environmental Quality Act, the following properties will constitute the City of Oakland's Local Register of Historic Resources:

  1) All Designated Historic Properties [Landmarks, Heritage Properties, Study List Properties, Preservation Districts, and S-7 and S-20 Preservation Combining Zone Properties]; and

  2) Those Potential Designated Historic Properties that have an existing rating of "A" or "B" or are located within an Area of Primary Importance.

  Complete demolition of a Historical Resource will normally be considered a significant effect that cannot be mitigated to a level less than significant and will, in most cases, require preparation of an Environmental Impact Report.

  A proposed addition or alteration to a Historical Resource that has the potential to disqualify a property from Landmark or Preservation District eligibility or may have substantial adverse effects on the property's Character-Defining Elements will normally, unless adequately mitigated, be considered to have a significant effect.

- ***Policy 3.11: Historic Preservation and Seismic Retrofit and Other Building Safety Programs.***

  a) The City's building safety programs, including seismic retrofit programs, will seek to preserve existing or Potentially Designated Historic Properties and their Character-Defining Elements. Where changes to such elements are unavoidable to achieve code compliance or other City-mandated modifications, the City will encourage owners to design the changes in a manner which minimizes visual impacts.

  b) Prevailing codes for the City's building safety programs when applied to existing or Potentially Designated Historic Properties will be the Oakland Building Code; the

Uniform Code for building Conservation where permitted under state law; and, for qualified historical buildings, the State Historical Building Code.

- ***HPE Policy 4.1, Archaeological resources:*** To protect significant archaeological resources, the City will take special measures for discretionary projects involving ground disturbances located in archaeologically sensitive areas.

(These and additional HPE policies are addressed in Section 4.4, *Cultural and Paleontological Resources,* of this chapter.)

G. Noise Element

In June 2005, the Oakland City Council adopted the Noise Element of the General Plan. The Noise Element analyzes and quantifies the existing and projected noise levels from noise sources such as traffic, commercial and aviation activities, and includes implementation measures to address any foreseeable noise problems. The following policies in the Noise Element address issues related to land use and planning, were adopted for the purpose of avoiding or mitigating an environmental effect, and/or are particularly relevant to the Oak Knoll Project:

- ***Noise Policy 1*:** Ensure the compatibility of existing and, especially, of proposed development projects not only with neighboring land uses but also with their surrounding noise environment.
- ***Noise Policy 2:*** Protect the noise environment by controlling the generation of noise by both stationary and mobile noise sources.
- ***Noise Policy 3:*** Reduce the community's exposure to noise by minimizing the noise levels that are received by Oakland residents and others in the City.

(Additional noise-related policies and ordinances are also addressed in Section 4.10, *Noise and Vibration,* of this chapter.)

H. Safety Element

In 2004, the Oakland City Council adopted the Safety Element of the General Plan. The Safety Element includes a policy framework to guide the public decision making process with regard to safety hazards including public safety, geologic hazards, fire, flooding and hazardous materials. In 2012, the City adopted its Local Hazard Mitigation Plan as Appendix F to the Safety Element to identify and define actions to reduce or eliminate the long-term risk to human life and property from hazards. The following Safety Element policies address issues related to land use and planning, were adopted for the purpose of avoiding or mitigating an environmental effect, and/or are particularly relevant to the Oak Knoll Project. As discussed generally in Impact LU-3 (in section 4.9.3, *Discussion of Impacts,* in this section) the proposed Project does not conflict with these policies.

- ***Safety Policy GE-2:*** Continue to enforce ordinances and implement programs that seek specifically to reduce the landslide and erosion hazards.
- ***Safety Policy HM-1:*** Minimize the potential risks to human and environmental health and safety associated with the past and present use, handling, storage and disposal of hazardous materials.

- ***Safety Policy HM-2:*** Reduce the public's exposure to toxic air contaminants through appropriate land use and transportation strategies.

- ***Safety PolicyFI-3:*** Prioritize the reduction of the wildfire hazard, with an emphasis on prevention.

There are also several land use and planning policies in other General Plan Elements that pertain to safety and that are identified in the appendices of the Safety Element. Those related to land use and planning, that were adopted for the purpose of avoiding or mitigating an environmental effect, and that are particularly relevant to the Oak Knoll Project (and not previously identified under the other elements discussed above) include the following from the OSCAR Element:

- ***OSCAR/Safety Policy CO-1.1, Soil loss in new development:*** Regulate development in a manner which protects soil from degradation and misuse or other activities which significantly reduce its ability to support plant and animal life. Design all construction to ensure that soil is well secured so that unnecessary erosion, siltation of streams, and sedimentation of water bodies does not occur.

- ***OSCAR/Safety Policy CO-2.1, Slide hazards:*** Encourage development practices which minimize the risk of landsliding.

- ***OSCAR/Safety Policy CO-2.4, Hillside cuts and fills****:* Minimize hillside cuts and fills and the removal of desirable vegetation. Limit large-scale grading to those areas where it is essential to development. Where hillside grading does occur, reshape the terrain in smooth, naturally appearing contours rather than flat, terraced benches. Immediately replant and reseed graded areas to reduce soil loss

- ***OSCAR/Safety Policy CO-12.4:*** Design of development to minimize air quality impacts. Require that development projects be designed in a manner which reduces potential adverse air quality impacts. This may include: (a) the use of vegetation and landscaping to absorb carbon monoxide and to buffer sensitive receptors; (b) the use of low-polluting energy sources and energy conservation measures

(Additional Safety Element policies are largely addressed in Section 4.5, *Geology and Soils*, and 4.7, *Hazards and Hazardous Materials*).

I. Scenic Highways Element

The City adopted the Scenic Highways Element of the General Plan in 1974. This Element includes a number of related policies that aim to limit signage and visual intrusions and protect panoramic vistas along scenic corridors, as well as to ensure that new construction within scenic corridors demonstrate "architectural merit" and are "harmonious" with the surrounding landscape. The following Scenic Highways Element policies for the MacArthur Freeway (I-580) are relevant to the proposed Project. As discussed generally in Impact LU-3 (in section 4.9.3, *Discussion of Impacts*) and in Section 4.1, *Aesthetics,* the proposed Project does not conflict with these policies.

- ***MacArthur Freeway Policy 3:*** Panoramic vistas and interesting views now available to the motorist should not be obliterated by new structures.

- ***MacArthur Freeway Policy 4:*** New construction within the scenic corridor should demonstrate architectural merit and a harmonious relationship with the surrounding landscape.

Oakland Energy and Climate Action Plan

The Oakland City Council adopted the Oakland Energy and Climate Action Plan (ECAP) on December 4, 2012. The ECAP was adopted to identify, evaluate and recommend prioritized actions to reduce energy consumption and GHG emissions in Oakland. The adopted ECAP outlines a ten-year plan including more than 150 actions that will enable Oakland to achieve the desired 36% reduction in GHG emissions. The ECAP includes a Three Year Priority Implementation Plan, with a prioritized set of actions recommended for implementation within specific timeframes. In November of 2012, the City released an ECAP Implementation Report which identified 15 completed actions. A Priority Action (PA) 31 of the ECAP that pertains to private development in the City focuses on reducing long term vehicle miles traveled (VMT) and associated GHG emissions by fully integrating all land use and transportation planning efforts. Consistency of the proposed Project with the ECAP is analyzed in Section 4.6, *Greenhouse Gas Emissions and Climate Change.*

City of Oakland Complete Streets Policy

In January 2013, the Oakland City Council adopted a resolution (Resolution 84204 C.M.S) for the Complete Street Policy to further ensure that Oakland Streets provide safe and convenient travel options for all users. The resolution, consistent with the California Complete Streets Act of 2008, directs the City of Oakland to plan, design, construct, operate, and maintain the street network in the City to accommodate safe, convenient, comfortable travel for all modes, including pedestrians, bicyclists, transit users, motorists, trucks, and emergency vehicles. Consistency with the Oakland Complete Streets Policy is demonstrated in Section 4.13, *Transportation, Circulation and Parking*.

Oakland Tree Preservation and Removal Ordinance

City of Oakland Tree Preservation and Removal Ordinance (Oakland Municipal Code [OMC] Chapter 12.36) permits removal of protected trees under certain circumstances. To grant a tree removal permit, the City must determine that removal is necessary in order to accomplish specific objectives related to public health and safety, property rights, views, acceptable professional practices, and vegetation management prescriptions in certain areas. Consistency with the Oakland Tree Preservation and Removal Ordinance is demonstrated in Section 4.3, *Biological Resources*.

Oakland Creek Ordinance

Title 13, Chapter 13.16, City of Oakland Creek Protection, Storm Water Management, and Discharge Control Ordinance, provides a high level of protection for creeks within Oakland's city limits. This ordinance and key definitions are described in detail, including how the proposed Project plans to comply with the ordinance, in section 4.3, *Biological Resources*, of this chapter. A creek protection permit is required whenever work is to be undertaken on a creekside property. The ordinance prohibits, among other things, the discharge of concentrated stormwater or other

modification of the natural flow of water in a watercourse, development within a watercourse or within 20 feet from the top of the bank, and the deposition or removal of any material within a watercourse without a permit.

Oakland Zoning Ordinance

As depicted in Figure 4.9-1, the City of Oakland's currently effective Zoning Map designates the majority of the Project site as Hillside Residential-4 (RH-4 Zone), and approximately five acres of the Project site as Hillside Residential-3 (RH-3 Zone). The intent of the Hillside Residential (RH) regulations in the Oakland Planning Code is to create, maintain, and enhance residential areas that are primarily characterized by detached, single unit structures on hillside lots. The intent of the existing zoning on the Project site is as follows:

- **Hillside Residential-3 Zone:** The intent of the RH-3 Zone is to create, maintain, and enhance areas for single-family dwellings on lots of at least twelve thousand (12,000) square feet and is appropriate in portions of the Oakland Hills.
- **Hillside Residential-4 Zone:** The intent of the RH-4 Zone is to create, maintain, and enhance areas for single-family dwellings on lots of six thousand five hundred (6,500) to eight thousand (8,000) square feet and is typically appropriate in already developed areas of the Oakland Hills.

The above zoning provides for a general similarity of zoning categories at both the Project site and surrounding neighborhoods. The Project includes a zone change for the property to a site-specific zoning designation created specifically for the unique characteristics of the Project and its site, with an overlying Planned Unit Development (PUD) (discussed further below).

Conflict between Existing Zoning and General Plan

The existing RH-3 and RH-4 zoning does not allow the Project site to have a mix of different types of land uses, which the General Plan land use designations on the Project site (as shown in Figure 4.9-1) envision for Oak Knoll. Specifically, the RH-3 and RH-4 zones do not permit the types of commercial activities, small-lot single-family homes, and townhomes that are otherwise permitted under the various land use designations indicated under the General Plan. Based on the narrow range of land uses permitted in the RH-3 and RH-4 zoning districts, there is an express conflict between the existing "blanket" Hillside Residential zoning of the Project site as compared to the broader mix of land uses allowed under the General Plan.

At the time the Project site was zoned primarily RH-4 in 2011, the accompanying City of Oakland Planning Department's Staff Report acknowledged that the RH-4 rezoning was an interim measure, and that the City anticipated a subsequent rezoning when a specific development proposal came forward, as is now proposed. With respect to the Oak Knoll property, the 2011 Rezoning Staff Report said

> *. . . Oak Knoll Naval Hospital is proposed for RH-4 zoning as an interim measure until development plans for the site are confirmed. The property has a variety of General Plan designations, reflecting reuse planning activities prior to the adoption of the Land Use and Transportation Element in 1998. Rather than zoning the site to match the General Plan*

(which would result in large areas being rezoned to CC-2), the RH-4 zone is being used as a 'holding zone'. This is equivalent to the [then] existing R-30 zoning. It is likely that portions of the site will be rezoned (including the zoning of some areas as open space) in the future.

To establish permanent rather than interim zoning and to resolve the current conflicts between existing zoning and General Plan land use designations, the Project proposes to amend the zoning code and establish new Oak Knoll zoning districts and a PUD permit, described specifically in Chapter 3 (Project Description, under 3.6.2 *Planned Unit Development* and 3.6.3 *Rezoning*); and in Impact LU-3 in the *Impacts and Mitigation Measures* analysis in this section.

Planned Unit Development Permit

Section 17.142.002 of the City of Oakland Planning Code includes regulations that govern Planned Unit Developments (PUDs). The purposes of these regulations are to encourage the comprehensive planning of larger tracts of land; to provide flexibility in the application of certain regulations in a manner consistent with the general purposes of the zoning regulations; and to promote a "harmonious variety of uses, the economy of shared services and facilities, compatibility with surrounding areas, and the creation of attractive, healthful, efficient, and stable environments for living, shopping, or working." The PUD permit requires a Preliminary Development Plan (PDP) of the entire development site, showing development details sufficiently detailed to indicate intent and impact. As applicable for phased projects, each subsequent stage or phase of development will be dependent upon approval of a Final Development Plan (FDP) for that individual stage or phase. The City reviews the FDP for conformance with the preceding PUD/PDP. Not until detailed plans for each of the individual development blocks are submitted to the city will detailed building and landscaping plans and elevations be developed.

City of Oakland Standard Conditions of Approval and Uniformly Applied Development Standards Imposed as Standard Conditions of Approval

The City of Oakland has no Standard Conditions of Approval (SCA) specific to the potential land use impacts of the proposed Project.

4.9.3 Discussion of Impacts

Significance Criteria

The City of Oakland has established thresholds of significance for CEQA impacts (City of Oakland, 2013). The Project would have a significant adverse impact on the environment regarding land use, plans, and policies if it would:

a) Physically divide an established community;

b) Result in a fundamental conflict between adjacent or nearby land uses;

c) Conflict with any applicable land use plan, policy, or the regulation of an agency with jurisdiction over the Project (including, but not limited to the general plan, specific plan,

local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect; or

d) Conflict with any applicable habitat conservation plan or natural community conservation plan.

Approach to Analysis

General Plan Consistency and Physical Effects

Conflicts with a General Plan do not inherently result in a significant effect on the environment within the context of CEQA. As stated in Section 15358(b) of the CEQA Guidelines, "[e]ffects analyzed under CEQA must be related to a physical change." Section 15125(d) of the Guidelines states that EIRs shall discuss any inconsistencies between the proposed project and applicable policies. Regarding a project's consistency with the General Plan in the context of CEQA, the Oakland General Plan states the following:

> *The General Plan contains many policies which may in some cases address different goals, policies and objectives and thus some policies may compete with each other. The Planning Commission and City Council, in deciding whether to approve a proposed project, must decide whether, on balance, the project is consistent (i.e., in general harmony) with the General Plan. The fact that a specific project does not meet all General Plan goals, policies and objectives does not inherently result in a significant effect on the environment within the context of the California Environmental Quality Act (CEQA).*[3]

Further, Appendix G of the CEQA Guidelines (Environmental Checklist Form) makes explicit the focus on environmental policies and plans, asking if the project would "conflict with any applicable land use plan, policy, or regulation . . . *adopted for the purpose of avoiding or mitigating an environmental effect*" (emphasis added). To the extent that physical impacts may result from such conflicts, such physical impacts are analyzed elsewhere in this SEIR and indicated in the discussion below.

The compatibility of the proposed Project with General Plan policies that do not relate to physical environmental issues will be considered by decision-makers s (e.g., the City Planning Commission and City Council) as part of their decision whether to approve or disapprove the proposed Project. The Project's consistency with the General Plan is based on the Project as proposed, including proposed amendments to the Zoning Ordinance.

Moreover, a conflict with a policy or regulation that exists today but that is amended to accommodate a proposed project does not normally constitute a significant effect on the environment under CEQA. That is, should the decision-makers determine that any part of the City's policy framework be amended to accommodate the Oak Knoll Project, the Project would not conflict with applicable City land use plans, policies, or regulations adopted for the purpose of avoiding or mitigating an environmental effect, and in such instance, there would be a less-than-significant effect under Criterion b, above.

[3] City Council Resolution No. 79312 C.M.S.; adopted June 2005.

Impacts Not Further Evaluated

The following provides a discussion of significance criteria or topics for which there would be no land use and planning impact. A review and comparison of the setting circumstances and proposed Project clearly show that no impacts would result for criterion "d."

The Project would not conflict with an adopted habitat conservation plan or natural community conservation plan. (Criterion d) No impact would occur.

No habitat conservation plan or natural community conservation plan exists on the Project site. The closest area covered by a Habitat Conservation Plan is the area covered by the East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP), whose closest boundary is located approximately seven miles east of the project site across a highly urbanized area (the City of Walnut Creek). The project site is not located within an area identified in a habitat conservation plan or natural community conservation plan. In addition, there are no habitat conservation plans or natural community conservation plans proposed for adoption that would include the project site. Thus, the Project would not conflict with an applicable habitat conservation plan or a natural community conservation plan.

The 1998 EIS/EIR did not assess whether the Maximum Capacity Alternative would conflict with any applicable habitat conservation plan or natural community conservation plan. Because there are no HCP/NCCPs that apply to the Project site, however, no new significant impact is identified for the currently proposed Oak Knoll Project compared to the 1998 EIS/EIR.

New Information / Changed Circumstances

As discussed in the *Regulatory Setting*, since 1998, the Oak Knoll Redevelopment Project Area was established, amended, and dissolved. As addressed in the analysis below, since preparation of the 1998 EIS/EIR, the City has adopted the LUTE and adopted and/or amended several other elements of the General Plan (all except the OSCAR and the Scenic Highways Element), as well as certain City ordinances (ECAP, Creek Ordinance, and Complete Streets Policy). There is no information of substantial importance or substantial change in circumstances regarding land use and planning that would result in new significant effect not previously identified for the Maximum Capacity Alternative in the 1998 EIS/EIR.

Impacts and Mitigation Measures

Division of an Established Community

Impact LU-1: The proposed Project would not divide an established community. (Criterion a) (*Less than Significant*)

1998 EIS/EIR.

The 1998 EIS/EIR determined that the Maximum Capacity Alternative, which included a mix of land uses (residential, office, retail, recreation and open space), would be generally compatible with the prevailing residential character of the areas adjacent to the NMCO property. Thus, the

analysis determined that the alternative would not disrupt or divide existing physical land use configurations. Overall, land use impacts were considered "nonsignificant" (i.e., less than significant) and no mitigation was identified.

Proposed Project.

The proposed Project is redevelopment of the previously developed NMCO, which is a self-contained property with distinct boundaries set by changes in topography, roadways, or substantial vegetation. The proposed development of the Oak Knoll site would create a new residential neighborhood with supporting neighborhood commercial retail uses and a system of open spaces and trails/paths that connect to existing surrounding regional open space facilities and resources. Specifically, the Project proposes a system of trails, bikeways, and walkways that would connect to the East Bay Regional Park District (EBRPD) trail system and local transit connections. As shown in Figure 3-11 (Pedestrian, Bike and Transit Facilities and Connections) in Chapter 3 (Project Description), one linkage would occur at Keller Avenue to connect with the Leona Canyon Regional Open Space Preserve to the northeast. Another linkage will occur at Mountain Boulevard to the King Estate Recreational Area and open space to the west via existing public streets. As a result, the proposed Project would not physical divide an established community since no community exists on the Project Site, and since the site's physical characteristics limit physical or visual access to adjacent areas due to steep slopes, mature vegetation and/or roadways (Mountain Blvd., Sequoyah Rd., and Keller Ave.). The impact regarding division of a community would be less than significant. No new impact is identified compared to the finding in the 1998 EIS/EIR.

Impact Conclusion: Less than Significant.

Comparison to 1998 EIS/EIR Findings: No New Impact; No Mitigation Measures Identified.

Fundamental Conflict with Nearby Land Uses

Impact LU-2: The proposed Project would not result in a fundamental conflict between adjacent or nearby land uses. (Criterion b) (*Less than Significant*)

1998 EIS/EIR.

The 1998 EIS/EIR determined that the Maximum Capacity Alternative, which included a mix of land uses (residential, office, retail, recreation and open space), would be generally compatible with the prevailing residential character of the areas adjacent to the NMCO property. Thus, the analysis determined that the alternative would not result in a fundamental conflict between adjacent or nearby land uses. Overall, land use impacts were considered "nonsignificant" (i.e., less than significant) and no mitigation was identified.

Proposed Project.

The proposed Project includes predominately a range of residential development (traditional and small-lot single family and townhomes), and neighborhood commercial retail uses focused in a Village Center near the western, primary entrance to the site, as well as community facilities that include a clubhouse/activity space, parks, open spaces, and a network of multi-use trails and paths throughout (see Figure 3-7, Oak Knoll Project Master Plan).

As described in the *Regional and Local Setting*, the surrounding uses are residential in character, with small neighborhood-serving commercial uses. Specifically, immediately south and east (across Sequoyah Road and upper Keller Avenue) are single family neighborhoods. Immediately north and west (across lower Keller Avenue and Mountain Boulevard) are detached single family and condominium developments. Expanses of regional open spaces exist to the northeast (Leona Regional Open Space Preserve), southeast (Knowland Park and Arboretum), and west of I-580 (King Estate Recreational Area and Open Space).

Land uses proposed on the perimeter of the Oak Knoll Project site are primarily residential or open space, which are consistent with land uses and development density in the areas adjacent to the Project site. On the east, southeast, and southwest areas of the Project site, the Project proposes hillside residential areas (single family units on 3,780 to 6,000 sq.ft. lots) and open space, which is compatible with and not in conflict with the single family neighborhood near the Project's eastern border and the expanse of regional open space existing to the northeast (Leona Regional Open Space Preserve). On the south, the Project proposes single-family homes and townhomes, which would be compatible with and not conflict with the residential uses already located directly south of the Project site. To the north, the Project proposes townhomes, compatible with the density and uses of the mixed-use residential areas in the RM-2 and RM-3 zones and neighborhood commercial nodes in the CN zone located to the north of the Property. The mix and density of uses proposed by the Project also would not conflict with Knowland Park and Arboretum, located south of Golf Links Road because it is separated by a residential neighborhood from the Project's southern border. The Project is bordered on the west by I-580, and across from I-580 is King Estate Recreational Area and Open Space. The proposed commercial area on the Project's western border is compatible with this border's adjacency to a highway and would not conflict with King Estate Recreational Area.

The Project is compatible with these adjacent and nearby uses and therefore would not result in a fundamental conflict between adjacent or nearby land uses. This impact is less than significant.

Compared to the effects of the 1998 Maximum Capacity Alternative identified in the 1998 EIR/EIS, the proposed Project contains generally the same type of land uses (absent a golf course or commercial office land use), but with a different site plan configuration and land use distribution. However, the uses previously proposed on the perimeter of the site included a mix of uses, including open space/golf course, residential, mixed uses (corporate/commercial and residential), similar to the proposed Project. Also, the surrounding land uses and character are the same as they were for the 1998 analysis.

No new impact is identified compared to the finding in the 1998 EIS/EIR.

Impact Conclusion: Less than Significant.

Comparison to 1998 EIS/EIR Findings: No New Impact; No Mitigation Measures Identified.

Conflict with Applicable Plans and Policies

Impact LU-3: The Project would not conflict with any applicable land use plan, policy, or the regulation of an agency with jurisdiction over the Project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect. (Criterion c) (*Less than Significant*)

1998 EIS/EIR.

Oakland Comprehensive Plan

During preparation of the 1998 EIS/EIR, the Oakland Comprehensive Plan included an Illustrative Future Land Use Map that designated the project site as "M" (Institutional or Governmental-Medical use) and indicated that a General Plan Amendment (among other discretionary approvals, including a rezoning, discussed below) would be required to accommodate development of the Maximum Capacity Alternative.

Comprehensive/General Plan Policies

The 1998 EIS/EIR identified land use policies from the Oakland Comprehensive Plan (amended and renamed the Oakland General Plan) that applied when the 1998 EIS/EIR was prepared. The discussion indicated that development of the project site would not conflict with land use policies of the City's Comprehensive Plan applicable at that time. Generally, the discussion summarized applicable land use policies from the Oakland Comprehensive Plan regarding decision making; the natural setting; circulation and noise; urban design and preservation; civic and open space uses; and land use regulations, mixture, and transitions. No detailed discussion of the Maximum Capacity Alternative's consistency with the City's land use policies was provided in the document, but the analysis did conclude that the proposed project would, in particular, increase public access to recreational facilities and open space (including along Rifle Range Creek) which would specifically support policies in the then-draft Open Space, Conservation, and Recreation (OSCAR) Element of the Oakland General Plan. The 1998 EIS/EIR identified a "nonsignificant" (i.e., less than significant) impact regarding consistency with land use policies.

1998 Zoning

The 1998 EIS/EIR identified that the entire NMCO site was within the R-30 One Family Residential Zone. The R-30 Zone would not have accommodated development of the Maximum Capacity Alternative, and the 1998 EIS/EIR indicated that a rezone of the property would be

required prior to reuse under the alternative. With the rezone, the Maximum Capacity Alternative would be consistent with the zoning.

Proposed Project.

As discussed in detail in the *Regional and Local Setting*, the City of Oakland had determined that that a previous 2006 development proposal for Oak Knoll was in substantial conformance with the Oakland General Plan, including the LUTE Land Use Diagram; therefore, no General Plan amendments are proposed or necessary for the Project.

Overall General Plan Conformity

The currently proposed development plan and land uses for Oak Knoll are shown in Figures 3-7 and 3-22, respectively, in Chapter 3 (Project Description). The land use configuration differs slightly from the 2006 Oak Knoll Plan, but remains in substantial conformance with that prior proposal, thereby also meeting the criteria for General Plan consistency previously found by the City based on findings regarding (1) use and facility types, (2) density of development, and (3) General Plan conformity guidelines (previously discussed in the Setting of this section, under *General Plan Conformity Findings for the 2006 Oak Knoll Plan.* As with the 2006 Plan, the currently proposed Project does not change or introduce new or different land uses other than those shown on the existing General Plan Land Use Diagram. The currently proposed Oak Knoll Project continues to include residential, commercial and open space/resource conservation land uses and facility types of a similar nature previously found to conform to the General Plan Land Use Diagram. (See Figure 4.9-1 compared to Figure 3-22.)

More specifically and as described overall in Chapter 3 (Project Description), the proposed Oak Knoll Project would create a mixed-use development consisting of residential neighborhoods, and a commercial Village Center. Other major elements of the Project include the proposed enhancement and restoration of Rifle Range Creek; new publicly accessible parks and recreational facilities, including a community center in the relocated and rehabilitated historic Club Knoll; and a community-wide trail system that would link the site to the existing regional trail system, as described in Impact LU-1 above.

The General Plan LUTE includes a key implementation strategy for the Oak Knoll property (*Oak Knoll Target Area for Community and Economic Development*). As presented in the Setting of this section, under *Relevant General Plan LUTE Policies and Potential Conflicts*, the City recognized the NMCO property as appropriate for a sizable new development, and that that development would contain a mixture of uses and be compatibility with existing surrounding development. As discussed through this analysis of Impact LU-3, the proposed Project aligns with this General Plan action.

Consistency with Plans and Policies

As discussed throughout the analysis in this Draft SEIR, the proposed Oak Knoll Project would not conflict with a land use plan, policy, or regulation adopted for the purpose of avoiding or

mitigating an environmental effect such that the Project would be considered in conflict with the General Plan or other land use policy or regulation.

Overall Policy Consistency. The proposed Projects is consistent with numerous key policies pertinent to the physical environmental effects. Of note are the Project characteristics below.

- Proposed site planning, design, and density of new mixed-use residential neighborhoods that includes multiple types of housing types integrated with public parks and open spaces, and guided by Oak Knoll Design Guidelines (Appendix E to this Draft SEIR) and the Preliminary Development Plan (for structures and landscaping). The site plan is organized around the site's varied topography and other natural features, including a restored Rifle Range Creek and conservation of the eastern knoll (Figures 3-7 and 3-10).

  Consistent with:

  - ***LU Policy N.3.9: Orienting Residential Development.***
  - ***LU Policy N.6.1: Mixing Housing Types.***
  - ***LU Policy N.7.1: Ensuring Compatible Development.***
  - ***Policy OS-3.2, Military Base Open Space.***
  - ***MacArthur Freeway Policy 4.***

- Retaining the prominent northeast and southern knolls on the Project site (Figures 3-10 and 4.1-2), and where development is proposed on existing hillsides, grading is minimized and slopes are revegetated (Figures 3-10 and 3-15a through 3-15c).

  Consistent with:

  - ***Policy OS-1.3, Development of Hillside Sites.***
  - ***Policy OS-9.1, Protection of Natural Landforms.***
  - ***OSCAR/Safety Policy CO-2.4, Hillside cuts and fills***.

- Proposed restoration and enhancement of riparian areas along, and public access to, Rifle Range Creek (Figures 3-8, 3-10 and 3-11).

  Consistent with:

  - ***Policy OS-8.1, Public Access to Creeks.***
  - ***Policy OS-8.2, Creek Daylighting.***
  - ***Oakland Creek Ordinance***

- Proposed network of new parks, trails, and walkways through the project that link to adjacent open space and neighborhoods and provide passive and active recreation spaces (Figures 3-8, 3-19 and 3-11).

  Consistent with:

  - ***Policy OS-5.1, Priorities for Trail Improvement.***
  - ***City of Oakland Complete Streets Policy***

- Proposed corrective grading for unstable areas and creek improvements, retention and creation of high-value wildlife habitat (in particular oak woodland areas in steep and/or

open areas of the site), and removal of invasive, fire-prone vegetation (Figures 3-10, 3-18, 3-20 and 4.3-7).

Consistent with:

- ***OSCAR/Safety Policy CO-1.1, Soil loss in new development.***
- ***Safety PolicyFI-3, Prioritize the reduction of the*** wildfire ***hazard, with an emphasis on prevention.***
- ***Oakland Tree Preservation and Removal Ordinance.***

- Proposed relocation and restoration of Club Knoll (detailed in Section 4.4, *Cultural Resources and Paleontological Resources,* and Figures 3-14a and 3-14b).

  Consistent with:

  - ***HPE Policy 3.1, Avoid or minimize adverse historic preservation impacts related to discretionary city actions***
  - ***HPE Policy 3.5. Historic preservation and discretionary permit approvals***
  - ***HPE Policy 3.7, Property relocation rather than demolition as*** part ***of discretionary projects***

Like the 2006 Oak Knoll Project, the currently proposed Project would be in substantial compliance with the whole of various General Plan policies.

Proposed Rezoning to New Oak Knoll District Zoning

As introduced in section 3.6.3 in Chapter 3 (Project Description), and in the *Regulatory Setting* in this section, the Project proposes rezoning the Project site to better match the broad mix of land use types allowed under the General Plan Land Use Diagram, to accurately reflect the proposed Land Use Plan, and to codify the specific development standards for new development under the Oak Knoll PUD permit. As introduced in Chapter 3, the overall intent of the proposed zoning is to:

1) Create a new Oakland Hills commercial area that provides a mix of commercial uses to serve both new and existing residents.

2) Create a new Oakland Hills community with a mix of residential types within walkable neighborhoods.

3) Create and enhance recreational opportunities in the Oakland Hills by encouraging the adaptive reuse of Club Knoll.

The proposed Oak Knoll District Zones (D-OK) include the following:

1) ***D-OK-1 Oak Knoll District Residential Zone - 1.*** The D-OK-1 zone is intended to create, maintain, and enhance areas suitable for low-density single-family home development. Development responds to the site's topography and includes appropriate landscaping, consistent with the surrounding neighborhoods.

2) ***D-OK-2 Oak Knoll District Residential Zone - 2.*** The D-OK-2 zone is intended to create, maintain, and enhance areas suitable for medium-low density single-family homes. This area has standard-sized Oakland lots and small lots.

3) ***D-OK-3 Oak Knoll District Residential Zone - 3.*** The D-OK-3 zone is intended to create, maintain, and enhance areas suitable for medium-density residential units, such as townhomes. This area would have attached housing, adding to the diversity of the housing stock in the Oak Knoll PUD area.

4) ***D-OK-4 Oak Knoll District Commercial Zone - 4.*** The D-OK-4 zone is intended to create, maintain, and enhance areas that provide neighborhood-serving retail, such as supermarkets, banks, cafes, and dry-cleaners. This zone is also appropriate for business and office uses, particularly on the second floor of a building with retail on the ground floor.

5) ***D-OK-5 Oak Knoll District Open Space Zone - 5.*** The D-OK-5 zone is intended to create, maintain, and enhance open space areas that preserve natural features of the Oak Knoll PUD area and provide opportunities for passive or active recreation. The programing of each individual open space will respond to its location, natural resources, and topography.

6) ***D-OK-6 Oak Knoll District Community Zone - 6.*** The D-OK-6 zone is intended to create, maintain, and enhance areas for community activities and commercial uses that provide a community amenity. Although this area is intended primarily to serve the community, spaces may be rented for non-community functions, including weddings and other organized events.

As discussed previously, purposes of the proposed rezoning and the proposed Oak Knoll District Zones include resolving the current conflicts between existing zoning and General Plan land use designations (among others), thus allowing for development at Oak Knoll that better reflects the broad mix of land use types allowed under the General Plan Land Use Diagram. As also discussed previously under *Conflict between Existing Zoning and General Plan* in the *Environmental Setting* of this chapter, the proposed rezoning for the Oak Knoll site provides a better match to the General Plan Land Use Diagram than does the "blanket" RHzones currently in effect. This is consistent with the intent of the proposed rezoning stated above.

Further, the proposed Oak Knoll District Zones support development that supports several of the General Plan policies identified in the *Consistency with Plans and Polices,* above. Of particular note, the proposed Oak Knoll District Zones support policies addressing the mix of housing types (LU Policy N.6.1), as well as the protection and development of open spaces (Policies OS-3.2 and OS-9.1). In summary, the proposed rezoning and the proposed Oak Knoll District Zones would not be in conflict with the General Plan or other land use policy or regulation.

Planned Unit Development Permit

The Project's proposed PUD permit proposes to utilize the flexibility of the City's PUD permit process to accomplish four key objectives, as described below (expanding on the introductory discussion in section 3.6.2 in Chapter 3).

1. **Mix of Land Uses**. Qualifying PUDs may be granted exceptions and bonuses to otherwise applicable zoning regulations. The Oakland Planning Code (OPC) allows land use type bonuses, enabling a greater mix of land uses than those otherwise permitted in the existing zone (OPC section 17.142.100D). This PUD bonus enables the Project to include a variety of land use types that are better reflective of the mix of land use types suggested under the mix of General Plan land use designations for the site, inclusive of the following:

- Typically-sized single family residential lots
- Smaller lot and "courtyard"-type single family lots
- Townhomes
- Apartments
- Neighborhood-serving commercial uses (i.e., the proposed grocery store),
- Community assembly use (i.e., the proposed community center in the relocated/rehabilitated Club Knoll building or a new building)
- Open space

Consistent with the objectives of the City's PUD ordinance, this proposed mix of land uses provides a variety of uses, an economy of shared services and facilities, compatibility with surrounding areas, and the creation of new sites for living and shopping.

2. **Establishing Residential Density**. The density/intensity of the 2006 Oak Knoll Plan was found to be within the maximum limits set forth in the General Plan. The overall density of proposed residential development under the 2006 Oak Knoll Plan (at 960 total residential units) was found to be equal to or less than the density that would be realized under the LUTE land use designations. The proposed Oak Knoll Project proposes a total of up to 935 units, and therefore the overall residential density would continue to be consistent with the General Plan.

3. **Open Space Preservation**. Areas of the Project will either be dedicated as public open space and/or permanently reserved as common open space for use by the owners and residents of the Project. Any publicly dedicated space will be offered to the City of Oakland, and any common open space areas will be owned and maintained by an association of owners or tenants created for the purpose of maintaining such open space. Under either scenario, these open spaces will be permanently reserved as parks and playgrounds accessible to the public or natural open space to be preserved.

4. **Preliminary Development Plan**. The PUD permit requires a Preliminary Development Plan (PDP) of the entire development site, showing development details sufficiently detailed to indicate intent and impact. The Project includes a PDP for the entire development site, showing all required components of a PDP as described below.

   - ***Tabulation of Land Area and Use*.** The proposed Oak Knoll PDP includes a tabulation (Table 3-2 in Chapter 3) of the proposed Project's gross and net land area by land use, dwelling units by type, and square feet of commercial and community-based space. The land use types are shown on the Oak Knoll PDP Land Use Map (Figure 3-22 in Chapter 3) which indicates the location and arrangement of proposed land uses including all of the Project's various residential types, open space types, commercial and community center location, and their geographic relationship to each other.

   - ***Scale and Character*.** Section 17.140.020 of the Oakland Planning Code requires the PDP to include drawings and elevations clearly establishing the scale, character and relationship of buildings, streets, and open spaces. This PDP information must be "sufficiently detailed to indicate intent and impact." The Oak Knoll PDP includes a set of proposed Design Guidelines (discussed in Section 4.1, *Aesthetics,* and included as Appendix E to this Draft SEIR*)* that are intended to demonstrate the overall scale and character of all proposed new development within the Project.

- ***Exceptions and Bonuses.*** Section 17.142.100(G) of the Oakland Planning Code allows PUD permits to include waivers or reductions in the minimum lot area, width and frontage; height; yard and other dimensional requirements that are otherwise applicable pursuant to the underlying zoning, provided that those waivers and reduction can be demonstrated as promoting a better integrated siteplan. The Project's PDP includes a variety of residential development types (specified in Table 3-2 in Chapter 3 and described in the Oak Knoll Design Guidelines in Appendix E to this Draft SEIR). Each residential development type includes a unique set of design guidelines that are intended to result in a fully integrated development plan (discussed in Section 4.1, Aesthetics).

- ***Other PDP Components.*** The PDP also requires components that are introduced in Chapter 3 (Project Description), and other sections of this Draft SEIR noted below. These include:

  - *Streets and Circulation* (see section 3.4.2; Figures 3-8 and 3-11; and Section 4.13, *Transportation, Circulation and Parking*);
  - *Landscape Features* (see section 3.4.4, Figures 3-7, 3-10, 3-18, and 4.3-7); as detailed in the aforementioned proposed Oak Knoll Design Guidelines (Appendix E), which include guidelines for landscaping, parks, plazas and open spaces, as well as guidelines for monumentation. Specific landscape plans will be prepared as part of the individual FDPs for the Project; and
  - *Public and Common Ownership Land Uses* (see section 3.4.6, and Figure 3-10).

Together, the proposed PUD permit and the proposed rezoning accommodates a Project design that is intended to be more environmentally beneficial than could otherwise be achieved under the currently applicable zoning regulations and General Plan. For example, rezoning of substantial portions of the Project site to a new open space zone removes all development potential from certain biologically significant and prominent portions of the Project site, while commensurately increasing the development density on those portions planned for residences. This effectively clusters new development in those portions of the site that are most suitable for new development.

Overall, the proposed Project, which includes the proposed rezoning for the Oak Knoll site, would not conflict with the Oakland Zoning Code.

Conclusion

In summary, the proposed Project would not result in a significant land use impact or conflict with existing land use plans, policies or regulations intended to avoid or mitigate environmental effects. The impact would be less than significant. No new significant impact is identified.

Impact Conclusion: Less than Significant.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact; No Mitigation Measures Identified.

Cumulative

Impact LU-4: The proposed Project, in combination with other past, present, existing, approved, pending, and reasonably foreseeable future projects within and around the Project area, would not result in an adverse cumulative impact to land use and planning. ***(Less than Significant)***

Geographic Context

This analysis considers cumulative development (past, present, existing, approved, pending, and reasonably foreseeable future projects, as described in Section 4.0 Environmental Analysis), in combination with the proposed Project, to determine if their effects would combine to result in cumulative land use impacts. The vicinity surrounding the Project is largely built out with residential neighborhoods and developments of varying density and building types, neighborhood commercial nodes, civic uses, and regional open spaces. All past development in the area is reflected in the regional growth model and is aligned with the General Plan land use classifications and zoning districts, creating the land use pattern and character described throughout this section. As indicated in Section 4.0 in this chapter (see *2040 Cumulative Projections Assumptions*), specific recent, current or future projects in the City of Oakland and the Oak Knoll area include the proposed Seneca master plan and expansion (which is conservatively assessed as an existing sensitive receptor for certain topics analyzed in this Draft SEIR: air quality and health risk, hazards and hazardous materials, and noise), the Oakland Zoo Expansion Project, development under the Coliseum Area Specific Plan, the potential future redevelopment of the Redemptorist Society's retreat center at 8945 Golf Links Road.

Impact Discussion

Except for the proposed Seneca master plan and expansion, none of the specific cumulative projects listed above are in immediate vicinity of the proposed Project where they could combine to create significant land use conflicts or policy conflicts that would result in an adverse environmental impact. Further, development of the Seneca project as well as all other future development of future cumulative projects (including those named above, in particular) would be required to adhere to the existing land use and development guidance in the City; any request for a change – such as a General Plan Amendment or rezoning – would only be approved upon the City's determination that the proposal is compatible with its surroundings and appropriate for the property in question. The adjacent Seneca project involves the introduction of a new school use and associated administrative offices – land uses that would be generally consistent with the proposed Project and would not combine with the project to create a cumulative land use impact.

Further, the Project does not propose new roadways or other infrastructure changes that would (when considered with other past, existing, and future development) divide the existing community. The circulation proposed by the Project is intended to link the site with offsite areas, including to the adjacent out-parcels of Seneca and Sea West Credit Union. As shown in Figure 3-8 (Proposed Street Network) in Chapter 3 (Project Description), the connection between the Project site to the adjacent community will occur at three major Project Gateways: two on

Mountain Boulevard and one on Keller Avenue, with secondary entrances from Mountain Boulevard to directly serving the Village Center, and on Keller Avenue on the east of the Project site. Further, as indicated by the Citywide Traffic Improvement Fee Program (see Section 4.13, *Transportation and Circulation*, the City plans to improve its existing infrastructure and not construct new infrastructure that could divide the area.

As also discussed in Impact LU-1, the Project also proposes a system of on-site trails, bikeways, and walkways that will interconnect all neighborhoods within the Oak Knoll site, and would also connect to adjacent open space areas and parks. The trail and bikeway system (see Figure 3-11 in Chapter 3) is intended to provide connections to the EBRPD trail system and local transit connections. One linkage will occur at Keller Avenue, connecting the project's trails to the Leona Canyon Regional Open Space Preserve to the northeast. Another linkage will occur at Mountain Boulevard, connecting the project's trails to the King Estate Recreational Area and open space to the west. These new connections would align with those existing or proposed by other cumulative developments or existing City plans.

In summary, based on the information in this land use and planning analysis, the proposed Project would not make a cumulatively considerable contribution to potential cumulative land use impacts and would not combine with other cumulative development to result in any significant adverse cumulative land use and planning impacts.

Impact Conclusion: Less Than Significant.

Comparison to 1998 EIS/EIR Findings: No New Impact; No Mitigation Measures Identified.

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4.10 Noise and Vibration

4.10.1 Introduction

This section assesses the potential for the Project to result in significant adverse noise and vibration impacts. To determine whether the proposed Project would result in any new noise or vibration impacts, or increases in the severity of noise or vibration impacts previously disclosed in the 1998 EIS/EIR, this analysis considers the impacts that would result from construction and operation activities that would take place within the Project area, and compares these impacts to those identified in the previous EIS/EIR, and mitigation measures in that document. Potential impacts are discussed and evaluated, and appropriate mitigation measures or Standard Conditions of Approval (SCA) are identified, as necessary.

4.10.2 Setting

Technical Background

Sound is mechanical energy transmitted by pressure waves through a medium such as air. Noise is defined as unwanted sound. Sound is characterized by various parameters that include the rate of oscillation of sound waves (frequency), the speed of propagation, and the pressure level or energy content (amplitude). In particular, the sound pressure level has become the most common descriptor used to characterize the "loudness" of an ambient sound level. Sound pressure level is measured in decibels (dB), with zero dB corresponding roughly to the threshold of human hearing, and 120 to 140 dB corresponding to the threshold of pain.

Sound pressure fluctuations can be measured in units of hertz (Hz), which correspond to the frequency of a particular sound. Typically, sound does not consist of a single frequency, but rather a broad band of frequencies varying in levels of magnitude (sound power). The typical human ear is not equally sensitive to all frequencies of the audible sound spectrum. As a consequence, when assessing potential noise impacts, sound is measured using an electronic filter that de-emphasizes the frequencies below 1,000 Hz and above 5,000 Hz in a manner corresponding to the human ear's decreased sensitivity to low and extremely high frequencies. This method of frequency weighting is referred to as A-weighting and is expressed in units of decibels (dBA).[1] Frequency A-weighting follows an international standard methodology of frequency de-emphasis and is typically applied to community noise measurements.

Some representative noise sources and their corresponding A-weighted noise levels are shown in **Table 4.10-1**.

[1] All noise levels reported herein reflect A-weighted decibels unless otherwise stated.

TABLE 4.10-1
TYPICAL NOISE LEVELS

Noise Level (dBA)	Outdoor Activity	Indoor Activity
90+	Gas lawn mower at 3 feet, jet flyover at 1,000 feet	Rock Band
80-90	Diesel truck at 50 feet	Loud television at 3 feet
70-80	Gas lawn mower at 100 feet, noisy urban area	Garbage disposal at 3 feet, vacuum cleaner at 10 feet
60-70	Commercial area	Normal speech at 3 feet
40-60	Quiet urban daytime, traffic at 300 feet	Large business office, dishwasher next room
20-40	Quiet rural, suburban nighttime	Concert hall (background), library, bedroom at night
10-20		Broadcast / recording studio
0	Lowest threshold of human hearing	Lowest threshold of human hearing

SOURCE: Modified from Caltrans, 2013

Noise Exposure and Community Noise

An individual's noise exposure is a measure of the noise experienced by the individual over a period of time. A noise level is a measure of noise at a given instant in time. The noise levels presented in Table 4.10-1 represent noise measured at a given instant in time; however, noise levels rarely persist consistently over a long period of time. Rather, community noise varies continuously over time because of the contributing sound sources of the community noise environment. Community noise is primarily the product of many distant noise sources, which constitute a relatively stable background noise, with the individual contributors unidentifiable. The background noise level changes throughout a typical day, but does so gradually, corresponding with the addition and subtraction of distant noise sources such as traffic and wind. What makes community noise constantly variable throughout a day, besides the slowly changing background noise, is the addition of short duration single event noise sources (e.g., aircraft flyovers, motor vehicles, sirens), which are readily identifiable to the individual.

These successive additions of sound to the community noise environment varies the community noise level from instant to instant requiring the measurement of noise exposure over a period of time to accurately characterize a community noise environment and evaluate cumulative noise impacts. This time-varying characteristic of environmental noise is described using statistical noise descriptors. The most frequently used noise descriptors are summarized below:

L_{eq}: The equivalent sound level is used to describe noise over a specified period of time, typically one hour, in terms of a single numerical value. The L_{eq} is the constant sound level, which would contain the same acoustic energy as the varying sound level, during the same time period (i.e., the average noise exposure level for the given time period).

L_{max}: The instantaneous maximum noise level for a specified period of time.

L_{50}: The noise level that is equaled or exceeded 50 percent of the specified time. This is the median noise level during the specified time.

L_{90}: The noise level that is equaled or exceeded 90 percent of the specified time. The L_{90} is often considered the background noise level averaged over the specified time.

DNL: The Day/Night Average Sound Level is the 24-hour day and night A-weighed noise exposure level, which accounts for the greater sensitivity of most people to nighttime noise by weighting noise levels at night. Noise between 10:00 p.m. and 7:00 a.m. is weighted (penalized) by adding 10 dBA to take into account the greater annoyance from nighttime noise. (Also referred to as "Ldn.")

CNEL: Similar to the DNL, the Community Noise Equivalent Level (CNEL) adds a 5-dBA "penalty" for the evening hours between 7:00 p.m. and 10:00 p.m. in addition to a 10-dBA penalty between the hours of 10:00 p.m. and 7:00 a.m.

Effects of Noise on People

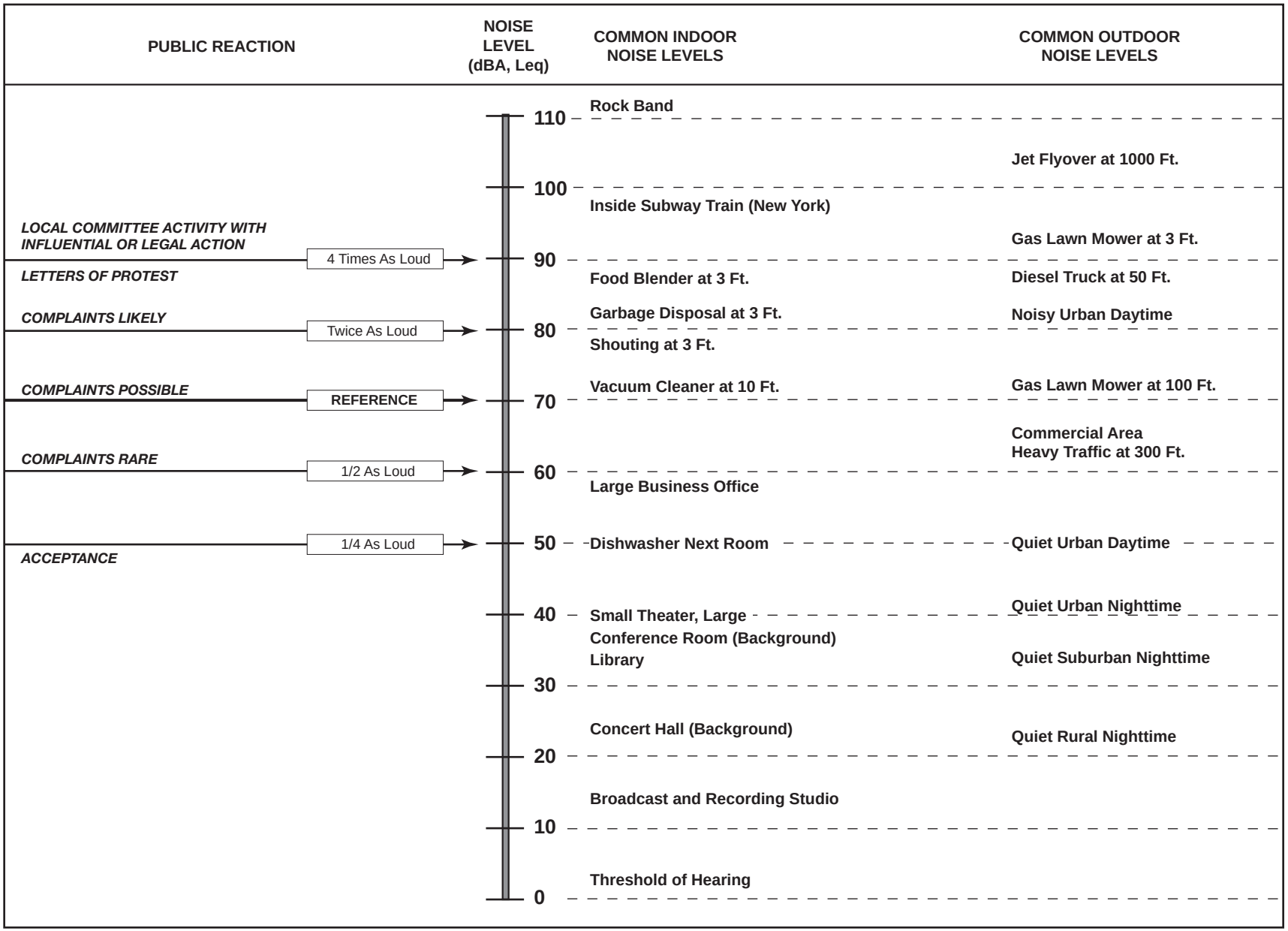
The effects of noise on people can be placed into three categories:

- Subjective effects of annoyance, nuisance, dissatisfaction;
- Interference with activities such as speech, sleep, learning; and
- Physiological effects such as hearing loss or sudden startling.

Environmental noise typically produces effects in the first two categories (see **Figure 4.10-1**). Workers in industrial plants generally experience noise in the last category. There is no completely satisfactory way to measure the subjective effects of noise, or the corresponding reactions of annoyance and dissatisfaction. A wide variation exists in the individual thresholds of annoyance, and different tolerances to noise tend to develop based on an individual's past experiences with noise.

Thus, an important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment to which one has adapted: the so called "ambient noise" level. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged by those hearing it. With regard to increases in A-weighted noise level, the following relationships occur:

- Under controlled conditions in an acoustics laboratory, the trained healthy human ear is able to discern changes in sound levels of 1 dBA;
- Outside these controlled conditions, the trained ear can detect changes of 2 dBA in normal environmental noise;
- It is widely accepted that the average healthy ear, however, can barely perceive changes in the noise level of 3 dBA;
- A change in level of 5 dBA is a readily perceptible increase in noise level; and
- A 10 dBA change is recognized as twice as loud as the original source (Caltrans, 2009).



Oak Knoll Project . 120645

SOURCE: Caltrans Transportation Laboratory Noise Manual, 1982; and modification by ESA

Figure 4.10-1
Effects of Noise on People

These relationships occur in part because of the logarithmic nature of sound and the decibel system. The human ear perceives sound in a non-linear fashion; hence the decibel scale was developed. Because the decibel scale is based on logarithms, two noise sources do not combine in a simple additive fashion, rather logarithmically. For example, if two identical noise sources produce noise levels of 50 dBA, the combined sound level would be 53 dBA, not 100 dBA.

Noise Attenuation

Stationary point sources of noise, including stationary mobile sources such as idling vehicles, attenuate (lessen) at a rate of 6 to 7.5 dBA per doubling of distance from the source, depending on the topography of the area and environmental conditions (i.e., atmospheric conditions and noise barriers, vegetative or manufactured, etc.). Widely distributed noise, such as a large industrial facility spread over many acres or a street with moving vehicles (known as a "line" source), would typically attenuate at a lower rate, approximately 3 to 4.5 dBA each time the distance doubles from the source, which also depends on environmental conditions (Caltrans, 2009). Noise from large construction sites would exhibit characteristics of both "point" and "line" sources, and attenuation will therefore generally range between 4.5 and 7.5 dBA each time the distance doubles.

Noise Sources and Levels

Transportation sources, such as automobiles, trucks, trains, and aircraft, are the principal sources of noise in the urban environment. Along major transportation corridors, noise levels can reach 80 DNL, while along arterial streets, noise levels typically range from 65 to 70 DNL. However, noise levels on roadways, like all areas, can be affected by intervening development, topography, or landscaping. Industrial and commercial equipment and operations also contribute to the ambient noise environment in their vicinities. Primary noise sources in the Project site vicinity include traffic along the section of I-580 corridor in the vicinity of the Project site as well as on the network of streets surrounding the Project site. No major stationary or industrial noise sources are located within the area.

To characterize the noise environment within the Project site and surrounding area, both long-and short-term noise monitoring was conducted. Long-term noise monitors was conducted at four locations on the Project site, while short-term monitoring was conducted at two off-site locations. **Table 4.10-2** presents a summary of the noise data collected during the noise monitoring effort. Long-term noise measurement locations were selected based on proximity of proposed residential uses to I-580 and are indicated in **Figure 4.10-2**.

Vibration Background

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Several different methods are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe physical vibration impacts on buildings. Typically, groundborne vibration generated by human activities attenuates rapidly with distance from the source of the vibration. Sensitive receptors to vibration include people (especially residents, the elderly, and sick people), structures (especially older masonry structures), and vibration-sensitive equipment.

TABLE 4.10-2
MONITORED NOISE ENVIRONMENTS WITHIN THE PROJECT AREA

Long Term Measurement Location	Day-Night Noise level (DNL)	Noise Levels in dBA	
		Daytime hourly average Leq	Nighttime hourly average Leq
LT-1. Uplands North Townhome Area	74	71	67
LT-2. Creekside South Townhome Area	75	71	67
LT-3. Creekside Village 2	57	55	50
LT-4. Uplands East at top of ridge	64	63	55

Short Term Measurement Location	Time	Noise Levels in dBA		
		L_{eq}	L_{10}	L_{max}
ST-1.: 8601 Mountain Boulevard	9:35 a.m.	66.4	68	75.3
ST-2. 3888 Sequoyah Road	9:49 a.m.	63.0	64	69.5
ST-3: 8141 Coach Drive	10:08 a.m.	54.2	58	72.5

NOTE: See Figure 4.10-2 for noise measurement locations.

SOURCE: Environmental Science Associates, 2015.

Another useful vibration descriptor is known as vibration decibels or VdBs. VdBs are generally used when evaluating human response to vibration, as opposed to structural damage (for which PPV is the more commonly used descriptor). Vibration decibels are established relative to a reference quantity, typically 1×10^{-6} inches per second.[2]

There are no major sources of vibration in the Project area. Most motor vehicles and trucks have independent suspension systems that substantially reduce if not eliminate vibration generation, barring discontinuities in the roadway.

Sensitive Receptors

Human response to noise varies considerably from one individual to another. Effects of noise at various levels can include interference with sleep, concentration, and communication; physiological and psychological stress; and hearing loss. Given these effects, some land uses are considered more sensitive to ambient noise levels than others. In general, residences, schools, hotels, hospitals, and nursing homes are considered to be the most sensitive to noise. Commercial and industrial uses are considered the least noise-sensitive. **Table 4.10-3** presents an inventory of noise-sensitive land uses within 0.5 miles of the Project boundaries.

2 Federal Transit Administration, Transit Noise and Vibration Impact Assessment, 2006.

RESIDENTIAL DEVELOPMENT PROGRAM	
Type	**Units**
Multifamily Apartments	134
Townhomes	433
Single Family Detached	368
TOTAL	935

COMMERCIAL DEVELOPMENT PROGRAM	
Use	**Area (sf)**
Retail (Gross Leasable)	72,000
Community Facility	4,000
TOTAL	76,000

LAND USE SUMMARY (APPROX.)	
Use	**Area (ac.)**
Developed Area	92
Major Streets (approx)	17
Parks and Open Space	77
TOTAL	187

Trails & Paths +/- 4.3 miles

Site Entrance

Pedestrian Bike Access

SOURCE: OKVA, Hart Howerton, 2015 (basemap); ESA, 2015 (monitoring locations)

Oak Knoll Project . 120645

Figure 4.10-2

Long-Term Noise Monitoring Locations

TABLE 4.10-3
SENSITIVE NOISE RECEPTORS IN THE VICINITY[1] OF THE PROJECT SITE

Receptor / Address	Type / Public or Private	Distance from Project Site (at closest point)
Daycare Centers:		
May May's Family Day Care / 8008 Earl St	Private	0.2 miles
Joious Beginnings Learning Center / 190 Elysian Fields Dr	Private	0.5 miles
Fine Arts Family Day Care / 7620 Hansom Dr	Private	0.4 miles
Nursing Homes and Care Centers:		
Bethany Home Care / 9450 Mountain Blvd	Private	0.2 miles
Heavenly Home Care / 8997 McGurrin Rd	Private	0.2 miles
Sunny Care Home / 3520 Calafia Ave	Private	0.4 miles
Schools:		
Color Me Children Preschool / 8115 Fontaine St	Private	<0.1 miles
Bay Area Technology School / 8251 Fontaine St	Charter	0.1 miles
King Estates Middle School / 8745 Fontaine St	Public	0.1 miles
Charles P Howard Elementary School / 8755 Fontaine St	Public	0.2 miles
Kids Konnect Preschool / 8800 Fontaine St	Private	0.2 miles
Pumpkin Seed Childcare / 7817 Greenly Dr	Private	0.4 miles
Seneca Center for Children and Families / within NCMO Site[2]	Private	<0.1 miles
Northern Light School / 3710 Dorisa Ave	Private	0.3 miles
Residential Areas (Neighborhoods):		
South (Sequoyah / Sequoyah Hills neighborhood)	Private	<0.1 miles
East (Sequoyah / Sequoyah Hills neighborhood)	Private	<0.1 miles
North (Shadow Woods, Ridgemont Skyline)	Private	<0.1 miles
West (Oak Knoll Heights and Eastmont Hills neighborhood)	Private	<0.1 miles
Religious Institutions:		
St. Cuthbert's Episcopal Church / 7932 Mountain Blvd	Private	0.3 miles
Sequoyah Community Church / 4292 Keller Ave	Private	<0.1 miles
Berith Christian Fellowship Offices / 4400 Keller Ave	Private	<0.1 miles
House of Truth / 430 Canyon Oaks Dr	Private	<0.1 miles
Living Faith Christian Church / 9530 Mountain Blvd	Private	0.2 miles
Saint Paschal Baylon Catholic Church / 3700 Dorisa Ave	Private	0.3 miles
United Lutheran Church of Oakland / 8800 Fontaine St	Private	0.2 miles

NOTE: For noise analysis, sensitive receptors are residential uses, schools, daycare centers, nursing homes, churches, and hospitals and medical facilities with overnight accommodation.

[1] Within 0.5 miles
[2] School uses are proposed, but conservatively considered as existing for this Draft EIR analysis.

SOURCE: ESA, 2015

Regulatory Context

Federal, state, and local agencies regulate different aspects of environmental noise. Federal and state agencies generally set noise standards for mobile sources such as aircraft and motor vehicles, while regulation of stationary sources is left to local agencies. Local regulation of noise involves implementation of general plan policies and noise ordinance standards. Local general plans identify general principles intended to guide and influence development plans; local noise ordinances establish standards and procedures for addressing specific noise sources and activities. Noise issues relevant to the proposed Project are addressed in Title 24 of the *California Code of Regulations*, City of Oakland General Plan policies and the Oakland noise ordinance standards.

HUD Noise Abatement and Control

The U.S. Department of Housing and Urban Development (HUD) environmental noise regulations are set forth in 24 CFR, Part 51, Subpart B, Noise Abatement and Control. According to the regulations, "It is HUD's general policy to provide minimum national standards applicable to HUD programs to protect citizens against excessive noise in their communities and places of residence." These regulations include criteria for assessing whether a HUD project is suitable for a particular site, given the background noise levels. HUD has defined the suitability of a site for new housing construction based on existing noise levels as follows:

- Acceptable—65 dB day-night average sound level (DNL) or less;
- Normally unacceptable—Exceeding 65 dB DNL but not exceeding 75 dB DNL; and
- Unacceptable—Exceeding 75 dB DNL.

The HUD regulations also include a goal (not a standard) that interior noise levels not exceed 45 dB DNL.[3] Sound attenuating features such as barriers or sound attenuating building materials shall be used to achieve the interior noise goal where feasible. Standard building construction generally provides 20 dB DNL of sound attenuation; therefore, if the exterior noise environment is classified as "acceptable," according to HUD standards, the interior noise environment should not exceed 45 dB DNL. The HUD regulations also encourage the use of quieter construction equipment and methods.

Federal Aviation Administration

The Federal Aviation Administration (FAA) develops noise exposure maps that use average annual DNL noise contours around the airport as the primary noise descriptor. The FAA states that all land uses are considered compatible when aircraft noise effects are less than 65 decibels (dB) DNL. Oakland International Airport is approximately four miles southwest, and San Francisco International Airport is approximately 15 miles southwest, of the project site. The Project site is outside the 55 dB CNEL noise contour of both airports (C/CAG, 2012 and OIA, 2009).

[3] 24 CFR, Section 51.103(c)

State of California

State regulations include requirements for the construction of new hotels, motels, apartment houses, and dwellings other than detached single-family dwellings that are intended to limit the extent of noise transmitted into habitable spaces. These requirements are collectively known as the California Noise Insulation Standards and are found in Title 24 of the California Code of Regulations.

The State of California updated its Building Code requirements with respect to sound transmission, effective January 2014. Section 1207 of the California Building Code (Title 24 of the California Code of Regulations) establishes material requirements in terms of sound transmission class (STC) [4] rating of 50 for all common interior walls and floor/ceiling assemblies between adjacent dwelling units or between dwelling units and adjacent public area. The previous code requirements (before 2014) set an interior performance standard of 45 dBA from exterior noise sources. This requirement was re-instated in July of 2015.Title 24 standards are enforced through the building permit application process in Oakland, as in most jurisdictions.

City of Oakland – Local Plans, Policies and Regulations

General Plan Noise Element

The Oakland General Plan contains guidelines for determining the compatibility of various land uses with different outdoor noise environments (City of Oakland, 2005). The Noise Element recognizes that some land uses are more sensitive to ambient noise levels than others, due to the amount of noise exposure (in terms of both exposure duration and insulation from noise) and the types of activities typically involved. The City uses state noise guidelines for judging the compatibility between various land uses and their noise environments, which are summarized in **Table 4.10-4** for various common land uses.

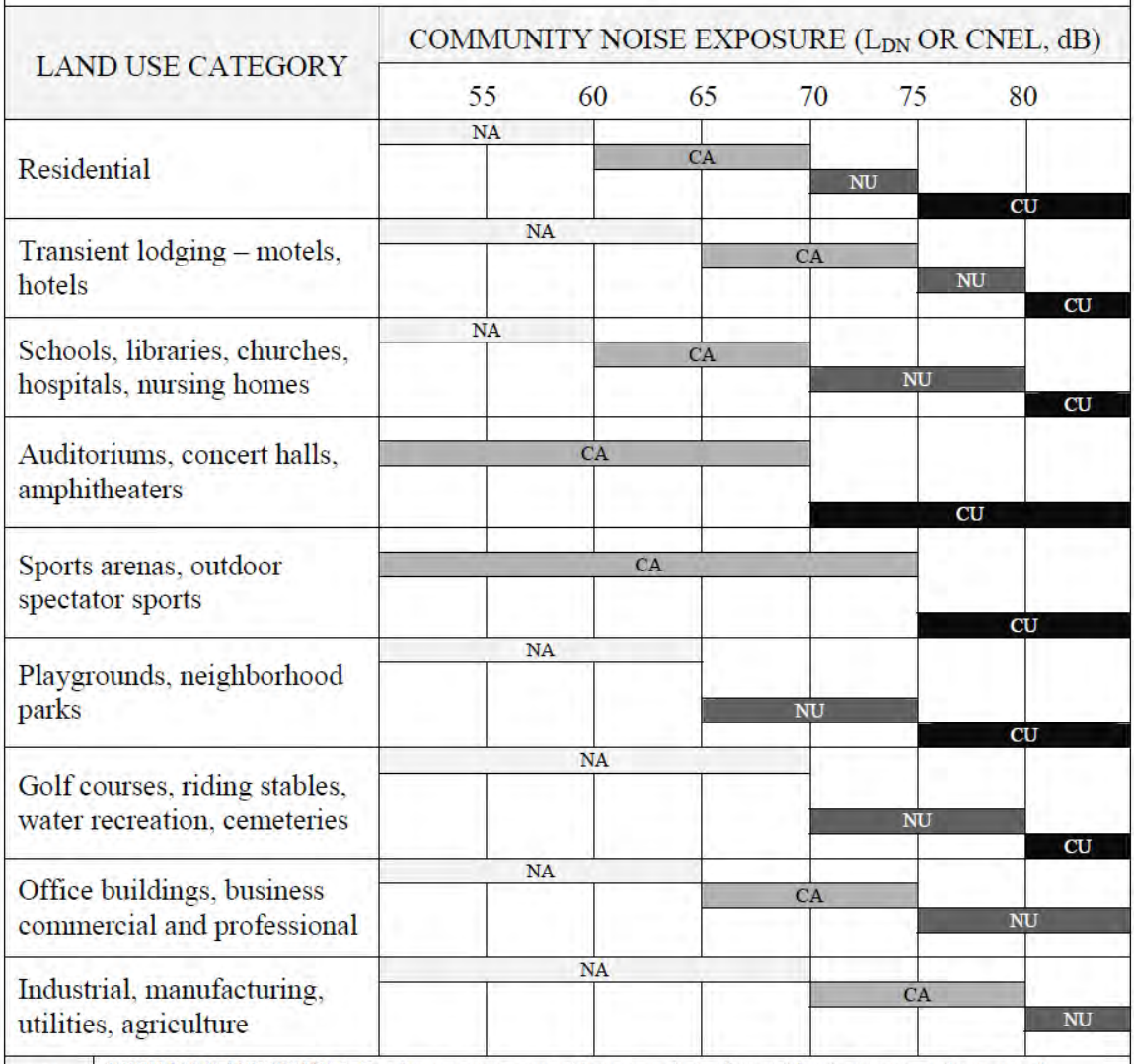
As shown in **Table 4.10-4** (Figure 1 of the City of Oakland's CEQA Thresholds/Criteria of Significance Guidelines), for lower-density residential uses (one- and two-unit dwellings), the guidelines indicate that a noise environment of approximately DNL 60 dBA or less is "normally acceptable," while a noise environment between approximately DNL 60 and 70 dBA is considered "conditionally acceptable" and DNL 70 to 75 dBA is "normally unacceptable." Noise environments of DNL greater than 75 dBA are considered "clearly unacceptable" for such uses. Noise environment standards for multifamily residential uses is similar to that for lower-density residential uses, except that approximately DNL 65 dBA or less (versus 60 for lower density) considered "normally acceptable," with approximately DNL 65 (versus 60 for lower density) to 70 dBA considered "conditionally acceptable." For commercial, business and office uses, which are generally less noise-sensitive, a noise environment of approximately DNL 65 dBA or less is considered normally acceptable, while a noise environment between approximately DNL 65 and 75 dBA is considered conditionally acceptable. A noise environment approximately DNL 70 dBA or less is "normally acceptable" for a school use, with DNL 60 to 70 dBA considered "conditionally acceptable."

[4] The STC is used as a measure of a materials ability to reduce sound. The STC is equal to the number of decibels a sound is reduced as it passes through a material.

TABLE 4.10-4
LAND USE NOISE COMPATIBILITY GUIDELINES - CITY OF OAKLAND

FIGURE 1

Land Use Compatibility Guidelines



NA	NORMALLY ACCEPTABLE: Development may occur without an analysis of potential noise impacts *to the proposed development* (though it might still be necessary to analyze noise impacts that the project might have *on its surroundings*).
CA	CONDITIONALLY ACCEPTABLE: Development should be undertaken only after an analysis of noise-reduction requirements is conducted and if necessary noise-mitigating features are included.
NU	NORMALLY UNACCEPTABLE: Development should generally be discouraged; it may be undertaken only if a detailed analysis of the noise-reduction requirements is conducted, and if highly effective noise mitigation features are included.
CU	CLEARLY UNACCEPTABLE: Development should not be undertaken.

SOURCE: City of Oakland, 2013

In this context, "normally acceptable" is defined as satisfactory for the specific land use, assuming that normal conventional construction is used in buildings. "Conditionally acceptable" means that 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. "Normally unacceptable" means that 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.

The Oakland Noise Element also identifies maximum interior noise levels generally considered acceptable for various common land uses (with windows closed). Relevant to the proposed project, 45 dB is the maximum level acceptable for residential or classrooms uses, and 55 dB is the maximum level acceptable for retail, banks, and restaurants. The Noise Element includes two goals for the City:

- To protect Oakland's quality of life and the physical and mental well-being of residents and others in the City by reducing the community's exposure to noise; and
- To safeguard Oakland's economic welfare by mitigating noise incompatibilities among commercial, industrial and residential land uses.

The Noise Element also contains the following applicable policies:

- ***Policy 1:*** Ensure the compatibility of existing and, especially, of proposed development projects not only with neighboring land uses but also with their surrounding noise environment.
    - *Action 1.1:* Use the noise-land use compatibility matrix (Figure 6) in conjunction with the noise contour maps (especially for roadway traffic) to evaluate the acceptability of residential and other proposed land uses and also the need for any mitigation or abatement measures to achieve the desired degree of acceptability.
    - *Action 1.2:* Continue using the City's zoning regulations and permit processes to limit the hours of operation of noise-producing activities which create conflicts with residential uses and to attach noise-abatement requirements to such activities.
    - *Action 1.3:* Continue working with the Alameda County Community Development Agency (in its role as the county's airport land use commission) and with the Port of Oakland to ensure consistency with the county's airport land-use plan of the city's various master-planning documents, zoning ordinance and land-use development proposals near Oakland's airport.
- ***Policy 2:*** Protect the noise environment by controlling the generation of noise by both stationary and mobile noise sources.
    - *Action 2.1:* Review the various noise prohibitions and restrictions under the City's nuisance noise ordinance and revise the ordinance if necessary.

- *Action 2.2:* As resources permit, increase enforcement of noise-related complaints and also of vehicle speed limits and of operational noise from cars, trucks and motorcycles.
- *Action 2.3:* Encourage the Port of Oakland to continue promoting its noise-abatement office and programs for Oakland International Airport.

- ***Policy 3:*** Reduce the community's exposure to noise by minimizing the noise levels that are received by Oakland residents and others in the City. (This policy addresses the reception of noise whereas Policy 2 addresses the generation of noise.)
  - *Action 3.1:* Continue to use the building-permit application process to enforce the California Noise Insulation Standards regulating the maximum allowable interior noise level in new multi-unit buildings.
  - *Action 3.2:* Review the City's noise performance standards and revise them as appropriate to be consistent with City Council policy.
  - *Action 3.3:* Demand that Caltrans implement sound barriers, building retrofit programs and other measures to mitigate to the maximum extent feasible noise impacts on residential and other sensitive land uses from any new, widened or upgraded roadways; any new sound barrier must conform with City policies and standards regarding visual and aesthetic resources and quality.

Oakland Noise Ordinance

The City of Oakland also regulates noise through enforcement of its noise ordinance, which is found in Section 17.120 of the Oakland Planning Code. The noise ordinance regulates only operational noise from stationary sources, as cities and counties do not have regulatory authority over noise from mobile sources (transportation noise). Transportation noise is regulated at the state and federal level by noise limits placed on vehicle manufacturers. **Table 4.10-5** presents maximum allowable receiving noise standards applicable to long-term exposure for residential and civic land uses, for noise from stationary noise sources (not transportation noise). Once constructed, noise from a stationary source would be limited by the standards in **Table 4.10-5** (for example, between 10:00 p.m. and 7:00 a.m., residential uses may only be exposed to noises up to 45 dBA for a period of cumulative 20 minutes in a one-hour time period. The noise ordinance states that if the measured ambient noise level exceeds the applicable noise level standard in any category, then the stated applicable noise level shall be adjusted so as to equal the ambient noise level. In other words, if existing noise is measured to be louder than the maximum allowed (i.e., the "applicable noise level standard"), the existing noise level shall be considered the maximum allowed.

Table 4.10-6 presents noise level standards from the noise ordinance that apply to temporary exposure to short- and long-term construction noise. In this context, short- term refers to construction activity lasting less than 10 days at a time while long-term refers to construction activities lasting greater than 10 days at a time.

TABLE 4.10-5
MAXIMUM ALLOWABLE RECEIVING NOISE STANDARDS FOR SPECIFIED LAND USES, DBA [a] (FROM STATIONARY SOURCES)

Receiving Land Use	Cumulative Number of Minutes in One-Hour Time Period[a]	Maximum Allowable Noise Level Standards (dBA)	
		Daytime 7:00 a.m. to 10:00 p.m.	Nighttime 10:00 p.m. to 7:00 a.m.
Residential, School, Child Care, Health Care, or Nursing Home, and Public Open Space	20 (L_{33}) 10 ($L_{16.7}$) 5 ($L_{8.3}$) 1 ($L_{1.7}$) 0 (L_{max})	60 65 70 75 80	45 50 55 60 65
		Anytime	
Commercial	20 (L_{33}) 10 ($L_{16.7}$) 5 ($L_{8.3}$) 1 ($L_{1.7}$) 0 (L_{max})	65 70 75 80 85	
		Anytime	
Manufacturing, Mining, and Quarrying	20 (L_{33}) 10 ($L_{16.7}$) 5 ($L_{8.3}$) 1 ($L_{1.7}$) 0 (L_{max})	70 75 80 85 90	

[a] These standards are reduced 5 dBA for simple tone noise, noise consisting primarily of speech or music, or recurring impact noise. If the ambient noise level exceeds these standards, the standard shall be adjusted to equal the ambient noise level.
[b] Lx represents the noise level that is exceeded X percent of a given period. Lmax is the maximum instantaneous noise level.

SOURCE: Oakland Noise Ordinance No. 11895, 1996

TABLE 4.10-6
MAXIMUM ALLOWABLE RECEIVING NOISE STANDARDS FOR TEMPORARY CONSTRUCTION OR DEMOLITION ACTIVITIES, DBA

Operation/Receiving Land Use	Daily 7:00 a.m. to 7:00 p.m.	Weekends 9:00 a.m. to 8:00 p.m.
Short-Term Operation (less than 10 days)		
Residential	80	65
Commercial, Industrial	85	70
Long-Term Operation (more than 10 days)		
Residential	65	55
Commercial, Industrial	70	60

NOTES: During the hours of 7 p.m. to 7 a.m. on weekdays and 8 p.m. to 9 a.m. on weekends and federal holidays, noise levels received by any land use from construction or demolition shall not exceed the applicable nighttime operational noise level standard (see Table IV.D-2). If the ambient noise level exceeds these standards, the standard shall be adjusted to equal the ambient noise level.

SOURCE: Oakland Noise Ordinance No. 11895, 1996

City of Oakland Standard Conditions of Approval and Uniformly Applied Development Standards Imposed as Standard Conditions of Approval

The Standard Conditions Approval (SCAs) relevant to the Project's noise impacts are presented below. If the Project is approved by the City, all applicable SCAs would be adopted as conditions of approval and required, as applicable, to be implemented during Project construction and operation to address noise impacts. The SCAs are incorporated and required as part of the Project, so they are not listed as mitigation measures.

- **SCA NOI-1: Construction Days/Hours.** *During construction.* The Project applicant shall comply with the following restrictions concerning construction days and hours:

  a. Construction activities are limited to between 7:00 a.m. and 7:00 p.m. Monday through Friday, except that pier drilling and/or other extreme noise generating activities greater than 90 dBA shall be limited to between 8:00 a.m. and 4:00 p.m.

  b. Construction activities are limited to between 9:00 a.m. and 5:00 p.m. on Saturday. In residential zones and within 300 feet of a residential zone, construction activities are allowed from 9:00 a.m. to 5:00 p.m. only within the interior of the building with the doors and windows closed. No pier drilling or other extreme noise generating activities greater than 90 dBA are allowed on Saturday.

  c. No construction is allowed on Sunday or federal holidays.

  Construction activities include, but are not limited to, truck idling, moving equipment (including trucks, elevators, etc.) or materials, deliveries, and construction meetings held on-site in a non-enclosed area.

  Any construction activity proposed outside of the above days and hours for special activities (such as concrete pouring which may require more continuous amounts of time) shall be evaluated on a case-by-case basis by the City, with criteria including the urgency/emergency nature of the work, the proximity of residential or other sensitive uses, and a consideration of nearby residents'/occupants' preferences. The Project applicant shall notify property owners and occupants located within 300 feet at least 14 calendar days prior to construction activity proposed outside of the above days/hours. When submitting a request to the City to allow construction activity outside of the above days/hours, the Project applicant shall submit information concerning the type and duration of proposed construction activity and the draft public notice for City review and approval prior to distribution of the public notice.

  When Required: During construction

  Initial Approval: N/A

  Monitoring/Inspection: Bureau of Building

- **SCA NOI-2: Construction Noise.** *During construction.* The Project applicant shall implement noise reduction measures to reduce noise impacts due to construction. Noise reduction measures include, but are not limited to, the following:

  a. Equipment and trucks used for project construction shall utilize the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures and acoustically-attenuating shields or shrouds) wherever feasible.

b. Except as provided herein, impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for project construction shall be hydraulically or electrically powered to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used; this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves shall be used, if such jackets are commercially available, and this could achieve a reduction of 5 dBA. Quieter procedures shall be used, such as drills rather than impact equipment, whenever such procedures are available and consistent with construction procedures.

c. Applicant shall use temporary power poles instead of generators where feasible.

d. Stationary noise sources shall be located as far from adjacent properties as possible, and they shall be muffled and enclosed within temporary sheds, incorporate insulation barriers, or use other measures as determined by the City to provide equivalent noise reduction.

e. The noisiest phases of construction shall be limited to less than 10 days at a time. Exceptions may be allowed if the City determines an extension is necessary and all available noise reduction controls are implemented.

When Required: During construction

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

- **SCA NOI-3: Extreme Construction Noise**

a. ***Construction Noise Management Plan Required.*** *Prior to approval of construction-related permit.* Prior to any extreme noise generating construction activities (e.g., pier drilling, pile driving and other activities generating greater than 90dBA), the project applicant shall submit a Construction Noise Management Plan prepared by a qualified acoustical consultant for City review and approval that contains a set of site-specific noise attenuation measures to further reduce construction impacts associated with extreme noise generating activities. The project applicant shall implement the approved Plan during construction. Potential attenuation measures include, but are not limited to, the following:

i. Erect temporary plywood noise barriers around the construction site, particularly along on sites adjacent to residential buildings;

ii. Implement "quiet" pile driving technology (such as pre-drilling of piles, the use of more than one pile driver to shorten the total pile driving duration), where feasible, in consideration of geotechnical and structural requirements and conditions;

iii. Utilize noise control blankets on the building structure as the building is erected to reduce noise emission from the site;

iv. Evaluate the feasibility of noise control at the receivers by temporarily improving the noise reduction capability of adjacent buildings by the use of

sound blankets for example and implement such measure if such measures are feasible and would noticeably reduce noise impacts; and

v. Monitor the effectiveness of noise attenuation measures by taking noise measurements.

When Required: Prior to approval of construction-related permit

Initial Approval: Bureau of Building

Monitoring/Inspection: Bureau of Building

b. ***Public Notification Required.*** *During construction.* The project applicant shall notify property owners and occupants located within 300 feet of the construction activities at least 14 calendar days prior to commencing extreme noise generating activities. Prior to providing the notice, the project applicant shall submit to the City for review and approval the proposed type and duration of extreme noise generating activities and the proposed public notice. The public notice shall provide the estimated start and end dates of the extreme noise generating activities and describe noise attenuation measures to be implemented.

When Required: During construction

Initial Approval: Bureau of Building

Monitoring/Inspection: Bureau of Building

- **SCA NOI-4: Project-Specific Construction Noise Reduction Measures.** *Prior to approval of construction-related permit.* The project applicant shall submit a Construction Noise Management Plan prepared by a qualified acoustical consultant for City review and approval that contains a set of site-specific noise attenuation measures to further reduce construction noise impacts. The project applicant shall implement the approved Plan during construction.

  When Required: Prior to approval of construction-related permit

  Initial Approval: Bureau of Building

  Monitoring/Inspection: Bureau of Building

- **SCA NOI-5: Construction Noise Complaints.** *Prior to approval of construction-related permit.* The project applicant shall submit to the City for review and approval a set of procedures for responding to and tracking complaints received pertaining to construction noise, and shall implement the procedures during construction. At a minimum, the procedures shall include:

  a. Designation of an on-site construction complaint and enforcement manager for the project;

  b. A large on-site sign near the public right-of-way containing permitted construction days/hours, complaint procedures, and phone numbers for the project complaint manager and City Code Enforcement unit;

  c. Protocols for receiving, responding to, and tracking received complaints; and

d. Maintenance of a complaint log that records received complaints and how complaints were addressed, which shall be submitted to the City for review upon the City's request.

When Required: Prior to approval of construction-related permit

Initial Approval: Bureau of Building

Monitoring/Inspection: Bureau of Building

- **SCA NOI-6: Exposure to Community Noise.** *Prior to approval of construction-related permit.* The project applicant shall submit a Noise Reduction Plan prepared by a qualified acoustical engineer for City review and approval that contains noise reduction measures (e.g., sound-rated window, wall, and door assemblies) to achieve an acceptable interior noise level in accordance with the land use compatibility guidelines of the Noise Element of the Oakland General Plan. The applicant shall implement the approved Plan during construction. To the maximum extent practicable, interior noise levels shall not exceed the following:

  a. 45 dBA: Residential activities, civic activities, hotels

  b. 50 dBA: Administrative offices; group assembly activities

  c. 55 dBA: Commercial activities

  d. 65 dBA: Industrial activities

  When Required: Prior to approval of construction-related permit

  Initial Approval: Bureau of Planning

  Monitoring/Inspection: Bureau of Building

- **SCA NOI-7: Operational Noise.** Noise levels from the Project site after completion of the Project (i.e., during Project operation) shall comply with the performance standards of chapter 17.120 of the Oakland Planning Code and chapter 8.18 of the Oakland Municipal Code. If noise levels exceed these standards, the activity causing the noise shall be abated until appropriate noise reduction measures have been installed and compliance verified by the City.

  When Required: Ongoing

  Initial Approval: N/A

  Monitoring/Inspection: Bureau of Building

- **SCA NOI-8: Exposure to Vibration.** *Prior to approval of construction-related permit.* The project applicant shall submit a Vibration Reduction Plan prepared by a qualified acoustical consultant for City review and approval that contains vibration reduction measures to reduce groundborne vibration to acceptable levels per Federal Transit Administration (FTA) standards. The applicant shall implement the approved Plan during construction. Potential vibration reduction measures include, but are not limited to, the following:

  a. Isolation of foundation and footings using resilient elements such as rubber bearing pads or springs, such as a "spring isolation" system that consists of resilient spring

supports that can support the podium or residential foundations. The specific system shall be selected so that it can properly support the structural loads, and provide adequate filtering of groundborne vibration to the residences above.

b. Trenching, which involves excavating soil between the railway and the project so that the vibration path is interrupted, thereby reducing the vibration levels before they enter the project's structures. Since the reduction in vibration level is based on a ratio between trench depth and vibration wavelength, additional measurements shall be conducted to determine the vibration wavelengths affecting the project. Based on the resulting measurement findings, an adequate trench depth and, if required, suitable fill shall be identified (such as foamed styrene packing pellets [i.e., Styrofoam] or low-density polyethylene).

When Required: Prior to approval of construction-related permit

Initial Approval: Bureau of Planning

Monitoring/Inspection: Bureau of Building

- **SCA NOI-9: Vibration Impacts on Adjacent Historic Structures or Vibration-Sensitive Activities.** *Prior to construction.* The project applicant shall submit a Vibration Analysis prepared by an acoustical and/or structural engineer or other appropriate qualified professional for City review and approval that establishes pre-construction baseline conditions and threshold levels of vibration that could substantially interfere with activities located at the Project site and/or the historic Club Knoll building. The Vibration Analysis shall identify design means and methods of construction that shall be utilized in order to not exceed the thresholds. The applicant shall implement the recommendations during construction.

  When Required: Prior to construction

  Initial Approval: Bureau of Building

  Monitoring/Inspection: Bureau of Building

4.10.3 Discussion of Impacts

Significance Criteria

The City of Oakland has established thresholds of significance for CEQA impacts (City of Oakland, 2013). The Project would have a significant adverse impact on the environment if it would:

a) Generate noise in violation of the City of Oakland Noise Ordinance (Oakland Planning Code section 17.120.050) regarding construction noise (see **Table 4.10-6**), except if an acoustical analysis is performed that identifies recommended measures to reduce potential impacts:[5]

[5] The acoustical analysis must identify, at a minimum, (a) the types of construction equipment expected to be used and the noise levels typically associated with the construction equipment and (b) the surrounding land uses including any sensitive land uses (e.g., schools and childcare facilities, health care and nursing homes, public open space). If sensitive land uses are present, the acoustical analysis must recommend measures to reduce potential impacts.

b) During the hours of 7 p.m. to 7 a.m. on weekdays and 8 p.m. to 9 a.m. on weekends and federal holidays, noise levels received by any land use from construction or demolition shall not exceed the applicable nighttime operational noise level standard (see **Table 4.10-5**);

c) Generate noise in violation of the City of Oakland nuisance standards (Oakland Municipal Code section 8.18.020) regarding persistent construction-related noise;

d) Generate noise in violation of the City of Oakland Noise Ordinance (Oakland Planning Code section 17.120.050) regarding operational noise (see **Table 4.10-5**).

e) Generate noise resulting in a 5 dBA permanent increase in ambient noise levels in the project vicinity above levels existing without the project; or, if under a cumulative scenario where the cumulative increase results in a 5 dBA permanent increase in ambient noise levels in the project vicinity without the project (i.e., the cumulative condition including the project compared to the existing conditions) and a 3 dBA permanent increase is attributable to the project (i.e., the cumulative condition including the project compared to the cumulative baseline condition without the project) [NOTE: Outside of a laboratory, a 3 dBA change is considered a just-perceivable difference. Therefore, 3 dBA is used to determine if the project-related noise increases are cumulative considerable. Project-related noise should include both vehicle trips and project operations.];

f) Expose persons to interior L_{dn} or CNEL greater than 45 dBA for multi-family dwellings, hotels, motels, dormitories and long-term care facilities (and may be extended by local legislative action to include single-family dwellings) per California Noise Insulation Standards (CCR Part 2, Title 24);

g) Expose the project to community noise in conflict with the land use compatibility guidelines of the Oakland General Plan after incorporation of all applicable Standard Conditions of Approval [see **Table 4.10-4** earlier in this section];[6]

h) Expose persons to or generate noise levels in excess of applicable standards established by a regulatory agency (e.g., occupational noise standards of the Occupational Safety and Health Administration [OSHA]);

i) During either project construction or project operation expose persons to or generate groundborne vibration that exceeds the criteria established by the Federal Transit Administration (FTA):[7]

j) Be located within an airport land use plan and would expose people residing or working in the project area to excessive noise levels; or

k) Be located within the vicinity of a private airstrip, and would expose people residing or working in the Project area to excessive noise levels.

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6 The evaluation of land use compatibility should consider the following factors: type of noise source; the sensitivity of the noise receptor; the noise reduction likely to be provided by structures; the degree to which the noise source may interfere with speech, sleep or other activities characteristic of the land use; seasonal variations in noise source levels; existing outdoor ambient levels; general societal attitudes towards the noise source; prior history of the noise source; and tonal characteristics of the noise source. To the extent that any of these factors can be evaluated, the measured or computed noise exposure values may be adjusted in order to more accurately assess local sentiments towards acceptable noise exposure. (Oakland General Plan, Noise Element, 2005)

7 The FTA criteria were developed to apply to transit-related groundborne vibration. However, these criteria should be applied to transit-related and non-transit-related sources of vibration.

Approach to Analysis

The methodology for analysis of noise impacts includes an assessment of both construction and operational noise impacts. To assess potential short-term construction noise impacts, sensitive receptors and their relative exposure (considering structural barriers and distance) were identified. Combined intermittent noise levels from the simultaneous operation of onsite equipment expected to be used in Project construction were estimated based on equipment noise data published by the Federal Highway Administration (FHWA).

Construction vibration impacts are considered significant if they would either result in levels substantial enough to result in damage to nearby structures or buildings, or result in vibration levels that exceed FTA's groundborne vibration impact criteria presented in **Table 4.10-7**.

TABLE 4.10-7
FTA GROUNDBORNE VIBRATION IMPACT CRITERIA

Land Use Category	Frequent Events[1]	Occasional Events[2]	Infrequent Events[3]
Category I: Buildings where vibration would interfere with interior operations	65 VdB4	65 VdB4	65 VdB4
Category II: Residences and buildings where people normally sleep	72 VdB	75 VdB	80 VdB
Category III: Institutional land uses with primarily daytime use	75 VdB	78 VdB	83 VdB

1 More than 70 vibration events of the same source per day.
2 Between 30 and 70 vibration events of the same source per day.
3 Less than 30 vibration events of the same source per day.
4 This criterion is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. Vibration sensitive manufacturing or research should always require detailed evaluation to define the acceptable vibration levels. Ensuring low vibration levels in a building requires special design of HVAC systems and stiffened floors.

SOURCE: Federal Transit Administration, Transit Noise and Vibration Impact Assessment, 2006

Operational noise issues evaluated in this section include (1) noise generated by automobile and bus traffic that would occur during typical daily conditions with the project; (2) building operations/systems such as generators, air conditioners, etc; and (3) compatibility of potential future uses with Oakland Land Use Compatibility Guidelines for Community Noise.

Traffic noise modeling to address the effects of the traffic generated by the Project on roadway noise (project and cumulative, as part of criterion d under Impact NOI-5 and Impact NOI-6, respectively) was completed using the Federal Highway Administration Traffic Noise Model. Traffic noise level significance is determined by comparing the increase in noise levels (traffic contribution only) to increments recognized by Caltrans as representing a readily perceptible increase in noise levels of 5 dBA or more.

Impacts Not Further Evaluated

Airport-related Noise (Criterion i)

The proposed Project would not result in significant impacts pursuant to criteria "i" and "j" (airport-related noise impact), listed above. The Project site is not located within an airport influence area of either Oakland International Airport or San Francisco International Airport (ACCDA, 2012 and C/CAG, 2012) or in the vicinity of a private airstrip; therefore, neither the proposed Project nor the Maximum Capacity Alternative analyzed in the 1998 EIS/EIR would result in an impact related to exposure to excessive aircraft noise. Since the certification of the 1998 EIS/EIR, there have been no substantial changes in circumstances and no new information of substantial importance that would result in a new impact regarding airport noise impacts. Therefore, these topics are not addressed further in this document.

Standards Established by a Regulatory Agency (Criterion g)

The proposed Project would not result in significant impacts pursuant to criteria "g" (noise levels in excess of applicable standards established by a regulatory agency). The proposed Project does not propose heavy industrial land uses that might require operation of heavy duty equipment or other substantial noise sources for which worker hearing protection standards would apply. Therefore, this topic is not addressed further in this document.

Operational Vibration (Criterion h)

Addressed in criterion "h", the proposed Project would not introduce new operational vibration sources (e.g., impact equipment, streetcar and rail operations, and blasting activities), and therefore, there would be no operational vibration impacts, and operational vibration is not discussed further.

Impacts and Mitigation Measures

Construction

Impact NOI-1: Construction of the proposed Project would not result in substantial temporary or periodic increases in ambient noise or vibration levels in the Area above existing levels or in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. (Criteria a, b, and h) (*Less than Significant with SCAs*)

1998 EIS/EIR.

The 1998 EIS/EIR identified that construction of the Maximum Capacity Alternative would result in potentially significant construction noise impacts that could be mitigated to less than significant levels. During the construction period, a wide variety of construction and demolition equipment would be used, and material would be transported to and from the site by truck. These activities would intermittently and temporarily increase ambient noise levels in the project vicinity over the duration of project construction. The 1998 EIS/EIR includes mitigation that would restrict most construction activity to normal daytime periods and would use various sound control and site planning methods to reduce impacts to less than significant. These two measures are provided below:

Mitigation 1: Construction and Demolition. Construction noise impacts could be reduced by restricting most construction activity to normal daytime periods. Careful phasing of demolition, construction, and remodeling activities should be implemented to minimize the extent to which occupied areas are exposed to construction noise.

Mitigation 2: Noise Exposure of Proposed Land Uses. Indoor noise levels could be adequately reduced through building design. Outdoor noise levels could be controlled through the use of berms/sound walls, vegetation buffer areas, building configurations, and other site planning tools, or by placing sensitive land uses beyond 500 feet from Mountain Boulevard.

Proposed Project.

Construction Noise

The Project's noise impacts would be similar to the Maximum Capacity Alternative described in the 1998 EIS/EIR. Through the SCAs, the Project will include various conditions to manage noise impacts, including conditions similar to the 1998 EIS/EIR mitigation. 1998 EIS/EIR Mitigation 1 is reflected by the City's current SCA NOI-1, while the various current noise-related SCAs meet and exceed the objectives of 1998 EIS/EIR Mitigation 2.

The proposed Project would allow for construction for a net increase of 935 residential units, 72,000 square feet of commercial activity with an additional 10,000 square feet of community retail, and 62 acres of open space on a total site area of about 188 acres. Furthermore, the Project would include infrastructure improvements, including such items as streetscape improvements, utility and storm drainage improvements. Portions of the existing Club Knoll structure would be relocated and renovated for re-use, which would involve the same types of construction equipment and occur during the same work hours. Additionally, remediation of soils impacted with lead from structures painted with lead-based paint) will be required (see Section 4.7, *Hazards and Hazardous Materials*, of this Draft SEIR). Subject to approval by California Department of Toxic Substances Control, remediation would be implemented during the construction phase of the Project and may be conducted in a single, continuous task over the entire Project site.

Construction, although typically short-term, can be a significant source of noise. Construction is most significant when it takes place near sensitive land uses, occurs at night, or in early morning hours. Local governments typically regulate noise associated with construction equipment and activities through enforcement of noise ordinance standards, implementation of General Plan policies and imposition of conditions of approval for building or grading permits. **Table 4.10-8** shows typical noise levels associated with various types of construction equipment including the proposed concrete crushing operation.

Construction-related activities would temporarily increase ambient noise levels within and around the Project site Area over the duration of construction. Construction-related noise levels within and adjacent to the Project Area would fluctuate depending on the particular type, number, and duration of use of various pieces of construction equipment. The effect of construction noise would depend upon the level of construction activity on a given day, the related noise generated by that activity, the distance between construction activities, the nearest noise-sensitive uses, and the existing noise levels at those uses.

TABLE 4.10-8
TYPICAL MAXIMUM NOISE LEVELS FROM CONSTRUCTION EQUIPMENT

Construction Equipment	Noise Level (dBA, L_{max} at 50 feet)
Backhoe	78
Excavator	81
Air Compressor	78
Dozer	82
Crane	81
Grader	85
Front End Loader	79
Trucks	76
Concrete Crusher	79

NOTE: These are maximum field measured values at 50 feet as reported from multiple samples. Concrete crusher processing noise level based on data from H.M. Pitt Labs, 2006.

SOURCE: FHWA, 2006.

The dominant construction equipment noise source is usually a diesel engine. Stationary equipment consists of equipment that generates noise from one general area and includes items such as pumps, generators, compressors, etc. These types of equipment operate at a constant noise level under normal operation and are classified as non-impact equipment. Other types of stationary equipment such as pile drivers, jackhammers, and pavement breakers, etc., produce variable and sporadic noise levels and often produce impact-type noises. Impact equipment is equipment that generates impulsive noise, where impulsive noise is defined as noise of short duration (generally less than one second), high intensity, abrupt onset, rapid decay, and often rapidly changing spectral composition. For impact equipment, the noise is produced by the impact of a mass on a surface, typically repeating over time. Mobile equipment such as dozers, scrapers, graders, etc., may operate with power applied in a cyclic fashion in which a period of full power is followed by a period of reduced power. Other equipment such as compressors, although generally considered to be stationary when operating, can be readily relocated to another location for the next operation.

Construction-related noise levels generally fluctuate depending on the construction phase, equipment type and duration of use, distance between noise source and receptor, and presence or absence of barriers between the noise source and receptor. The Project would be developed in multiple phases over approximately six years, with the initial phase of work anticipated to commence in 2017. The initial phase of work (Phase 1) would include the creek improvements, completion of backbone roads, project entrances and related infrastructure, and construction of the commercial and residential structures in the Village area and construction of some residential development in the south and west portions of the site. Subsequent phases would generally occur in the east, west, and north areas of the site, with development of most of the Uplands neighborhoods taking place in Phase 2, and development of the North Creekside neighborhood taking place during Phase 3 of Project construction.

Existing sensitive receptors within and near the Project area were presented in **Table 4.10-3** in the *Environmental Setting* section. Phased development of the Project could introduce new sensitive

land uses (residences) that may be occupied while other phases are being constructed. Also, as described further below, the proposed introduction of a school at Seneca is assumed to be and existing condition for this topical analysis, although it is anticipated to be operational by Phase 3 of the proposed Project, which is located nearest to Seneca.

As discussed above, the nearest existing sensitive uses on Sequoyah Road, St. Andrews Road, and Barcelona Road could be as close as 50 feet from a given construction areas. Seneca has submitted an application for a school, and this Draft SEIR conservatively treats Seneca as a school for the impact analysis. For the analyses concerning effects, such as noise and vibration, on sensitive receptors, this Draft SEIR conservatively considers the Seneca school as an existing condition. If approved and constructed, a school at Seneca would similarly be located as close as 50 feet from a given construction area. These areas would temporarily and intermittently experience maximum noise levels of up to 85 dBA, as shown in Table 4.10-8, when grading equipment is operating during Phase 1 and Phase 3.

Existing noise levels at these receptor locations vary with distance from the I-580 freeway. Consequently, construction-related noise could temporarily range from 15 to 25 dBA above existing ambient daytime noise levels during periods when activity occurs near the property line.

Significant noise impacts do not normally result when standard construction noise control measures are enforced and when the predominant noise-generating activities are of limited duration. City SCA NOI-1 (Days/Hours of Construction Operation) regulates the hours of construction. SCA NOI-2 (Construction Noise), SCA NOI-3 (Extreme Construction Noise), and SCA NOI-4 (Project-Specific Construction Noise Reduction Measures) are consistent with the mitigation measures identified in the 1998 EIR/EIS, and would provide comparable and/or more effective means to require noise reduction measures for the Project that address the design, use, location and shielding of construction vehicles and equipment that would ensure that maximum feasible noise attenuation would be achieved. To implement these SCAs, the Project applicant would be required to have a qualified acoustical consultant prepare a project-specific construction noise management plan (SCA NOI-4) for City review and approval. Specifically, SCA NOI-2 requires stationary noise sources to be muffled and enclosed within temporary sheds, incorporate insulation barriers, or use other measures as determined by the City to provide equivalent noise reduction. An initial construction noise strategy for the Project considers the use moveable sound barrier curtains, which can provide 15 dBA of sound attenuation and may be viable for noise attenuation at the areas of the sensitive receptors noted above (INC, 2014). The City's comprehensive construction noise-related SCAs already address a wide range of practices and requirements for equipment, timing and duration, implementation practices, and public information to address construction noise and vibration effects. As required by SCA NOI-4, the draft Project-specific construction noise management plan considers moveable sound barrier curtains (to the extent they are feasible given the expanse and topography of the Project site) to reduce temporary construction noise levels to below the thresholds for nearby sensitive uses. SCA NOI-5 further requires measures to respond to and track complaints.

All construction activities would occur in accordance with applicable federal and state requirements relative to health and safety. The Project contractors will thus be required to comply

with all applicable hearing conservation standards under OSHA which primarily consist of the use of hearing protection by equipment operators.

Although the potential exists for daytime construction noise to temporarily exceed the 65 dBA residential standard for long-term construction sources (as identified in **Table 4.10-6**) at the nearest residences, the above SCAs would mitigate this potential and result in a less than significant construction noise impact.

Construction Vibration

1998 EIS/EIR.

Vibration associated with the Maximum Capacity Alternative was not addressed in the 1998 EIS/EIR. No significant impact was thus identified in that document.

Proposed Project.

Depending on the construction equipment used, groundborne vibrations can be perceptible within 30 to 100 feet of a source. Pile driving is not a proposed method of construction for the Project. Standard construction equipment proposed, such as bulldozers and drill rigs, generate relatively more modest vibration levels on the order of 0.089 inches per second at 25 feet (FTA, 2006), which would be further reduced to 0.03 inches per second (or 78 VdB) at the nearest structure, approximately 50 feet away, and would be below the 80 vdB and 83 vdB criteria in Table 4.10-7 for residential or institutional (school) uses, respectively, exposed to infrequent events such as the dropping of a bulldozer blade. These vibration levels would also be below FTA criteria for damage to buildings extremely susceptible to vibration damage (FTA, 2006), such as Club Knoll.

Implementation of SCA NOI-8 (Exposure to Vibration) and SCA NOI-9 (Vibration Impacts on Adjacent Historic Structures or Vibration-Sensitive Activities) would reduce impacts from construction vibration. SCAs have been developed by the City of Oakland over the past decade to reduce construction vibration impacts. SCA NOI-8 would include vibration reduction measures to reduce groundborne vibration to acceptable levels per FTA standards. SCA NOI-9 requires preparation of a Vibration Analysis for construction adjacent to historic structures that would establish pre-construction baseline conditions and threshold levels of vibration that could damage the historic structure, and would also necessitate identification of methods that would prevent construction from exceeding these thresholds. SCA NOI-9 would be required for any proposed construction activities within 25 feet of the Club Knoll structure, prior to or after its relocation. These SCAs include best management practices for reducing construction vibration.

The applicable SCAs minimize construction impacts associated with noise actions and vibration and maintain potential impacts at less than significant levels.

> **Impact Conclusion:** Less than Significant with SCAs.
>
> **Comparison to 1998 EIS/EIR Findings:** No New Significant Impact; Previous Mitigation Measures Replaced with SCAs.

Operational Noise

Impact NOI-2: The proposed Project would not increase operational noise levels in the project vicinity to levels in excess of standards established in the Oakland Noise Ordinance (Oakland Planning Code Section 17.120.050) regarding operational noise. (Criterion c) (*Less than Significant with SCA*)

1998 EIS/EIR.

The 1998 EIS/EIR indicated that traffic generated by the Maximum Capacity Alternative would not result in a significant operational noise impact since the amount of new traffic would not increase noise levels by more than 1 dB (near noise-sensitive uses) or result in an overall noise level increase of 5 dB or more above the applicable land use compatibility criteria (60 dB). The impact would be less than significant.

Proposed Project.

Chapter 17.120.050 of the City of Oakland Planning Code specifies the maximum sound level received at residential, public open spaces and commercial land uses. The maximum sound level (L_{max}) received by residential uses cannot exceed 80 dBA and the L_{max} received by commercial land uses cannot exceed 85 dBA. Per **Table 4.10-5**, stationary source noise received at residential uses must not exceed 60 dBA and commercial land uses cannot exceed 65 dBA during daytime hours as measured at the property line over a 20 minutes in a one-hour time period. However, per the City of Oakland, if existing noise is measured to be louder than the applicable noise level standard, the existing noise level shall be considered the maximum allowed, which is the case at some portions of the Project site nearest to I-580 (see **Table 4.10-2**).

Development of the proposed Project would generate some noise from heating, ventilating, and air conditioning mechanical equipment. Since the mechanical equipment would be standardized the equipment's noise generation would not be expected to exceed the City's established thresholds presented in **Table 4.10-5**. Also, development would adhere to SCA NOI-7 (Operational Noise, General).

Therefore, operational noise impacts from the proposed Project related to stationary sources would be less than significant.

Impact Conclusion: Less than Significant with SCA.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact, No New Mitigation Measures Identified.

Impact NOI-3: The proposed Project would not propose land uses in conflict with the land use compatibility guidelines of the Oakland General Plans. (Criterion f) (*Less than Significant*)

Exposure of Residential Uses to Noise

1998 EIS/EIR.

The 1998 EIS/EIR identified a potentially significant impact associated with noise exposure of the Maximum Capacity Alternative land uses that could be mitigated to less than significant levels. Specifically, traffic noise levels on I-580 and Mountain Boulevard would expose areas within 500 feet of these roadways to Community Noise Equivalent Levels (CNEL) above 65dB. As determined for the 1998 EIS/EIR analysis, levels of 65dB or higher would be considered higher than normally acceptable for residential or other noise sensitive uses, and interior noise levels in residential or other noise sensitive uses located close to these roadways would exceed the State Title 24 DNL or CNEL[8] noise level limit 45 dBA. The 1998 EIS/EIR identified mitigation, described above in Impact NOI-1, requiring use of sound control measures and site planning tools to reduce the impact to less than significant.

Proposed Project.

The City of Oakland uses Land Use Compatibility Guidelines to determine noise-affected uses (see **Table 4.10-4** above). For commercial uses, noise environments of 65 DNL or less represent the normally acceptable noise exposure. Noise environment between 65 DNL and 75 DNL are considered conditionally acceptable, and noise environments noisier than 75 DNL are considered normally unacceptable. For family residential uses, noise environments of 60 DNL or less represent the normally acceptable noise exposure. Noise environments between 60 DNL and 70 DNL are considered conditionally acceptable, while noise environments between 70 DNL and 75 DNL are considered normally unacceptable. For neighborhood parks, noise environments of 65 DNL or less represent the normally acceptable noise exposure. Noise environment between 65 DNL and 75 DNL are considered normally unacceptable, and noise environments noisier than 75 DNL are considered clearly unacceptable.

"Normally unacceptable" means that development of such uses should generally be discouraged but may be undertaken if a detailed analysis of the noise-reduction requirements is conducted and if highly effective noise mitigation features are included. Conditionally acceptable means that new construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features are included in the design.

Noise measurements were conducted at four representative locations of proposed residential land uses and are presented in **Table 4.10-2**.

8 "CNEL" is similar to the DNL (or Ldn) described above, but adds a 5-dBA "penalty" for the evening hours between 7:00 PM and 10:00 PM in addition to a 10-dBA penalty between the hours of 10:00 PM and 7:00 AM.

Exposure of Retail Uses to Noise

Noise monitoring closest to the Village Center indicates that proposed retail uses are in a noise environment that would be considered conditionally acceptable for such uses. Adherence to SCA NOI-6 (Exposure to Community Noise) would ensure that buildings achieve an acceptable interior noise level (55 dBA) in accordance with the land use compatibility guidelines of the Noise Element of the Oakland General Plan. No mitigation is required.

Exposure of Parks to Noise

Figure 3-8 in the Project Description identifies the locations of proposed parks within the Project site. These include Oak Knoll Memorial Park where monitored noise levels were 64 DNL which would be within the normally acceptable for park uses (pursuant to the General Plan land use noise compatibility guidelines, see Table 4.10-1). Noise levels at the location of the proposed Community Center and the Creekside Village Pocket Park (as detailed in the draft Oak Knoll Final Development Plan [FDP] for public areas) near the creek corridor were monitored at 57 DNL which would be normally acceptable environments for park uses.

The draft FDP also describes the South Creekside Entry Park and a pocket park with a "dog park" designation that are located on the western project boundary adjacent to the I-580 freeway where monitored noise levels were recoded to be 74 and 75 DNL which would be normally unacceptable environments for active park uses with playground structures where children would be regularly exposed to such elevated noise levels considered unacceptable for park uses. The South Creekside Entry Park proposes a passive lawn for informal use and benches; no playgrounds or structures are proposed, as detailed in the draft FDP. Therefore, the proposed parks are compatible with the land use noise environment guidelines.

Exposure of Residential Uses to Noise

Noise measurements taken at the Uplands North Townhome Area and the Creekside South Townhome Area indicate that the noise environment in these areas would be in the normally unacceptable category for residential uses. Measurements taken at the other two locations indicate that the noise environment in these areas would be in the normally acceptable and conditionally acceptable category for residential uses.

For interior noise levels, noise analysis and noise reduction measure implementation would be achieved by adherence to SCA NOI-6 which requires the project applicant to submit a Noise Reduction Plan prepared by a qualified acoustical engineer for City review and approval that contains noise reduction measures (e.g., perimeter sound walls, sound-rated window, wall, and door assemblies) to achieve an acceptable residential interior noise level of 45 DNL in accordance with the land use compatibility guidelines of the Noise Element of the Oakland General Plan.

While, exterior areas at future residences such as yards, patios and balconies could still be exposed to relatively high noise levels that would be unabated by implementation of SCA NOI-6, the City has not established standards for noise exposure in private outdoor areas. Additionally, the California Supreme Court recently California Supreme Court decision held in *CBIA v.*

BAAQMD held that impacts of the environment on the project are not within the purview of CEQA except in very specific circumstances which do not apply to the proposed Project.

Noise Reduction Benefits to Existing Residential Uses

Construction of the proposed Project would result in new structures that would have a limited ability to decrease noise exposure of existing residences surrounding the Project site from vehicle traffic noise on Interstate 580. This potential would exist for only a few, if any, residences because of the building height limitations and the increased grade with distance from the freeway. The only existing residential area to potentially receive line-of-sight shielding[9] are located in the vicinity of St. Andrews Road over 900 feet from the freeway where noise levels are 63 dBA or less. These residences are positioned at an elevation of 380 feet above sea level. Proposed townhomes of the Creekside South area would be at an elevation of 270 feet with a maximum building height of 35 feet. Consequently these structures would not result in a meaningful freeway noise reduction because they would not block the line-of-sight of existing residences. Proposed single family homes of the Uplands East area would be closer and may offer modest beneficial noise attenuation (5 dBA or less) to the first row of existing residences on the west side of St. Andrews Drive where it abuts the Project site.

Summary

The Project proposes retail, commercial retail and parks/open space uses, all of which would be developed in areas where they would be consistent with the General Plan's noise compatibility guidelines. The implementation of SCAs will ensure any effects are less than significant, including NOI-6 to ensure acceptable noise levels for residential (interior) and commercial uses. The Project would create unacceptable community noise levels. The impact is less than significant.

Impact Conclusion: Less than Significant.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact, No New Mitigation Measure Identified.

Impact NOI-4: The proposed Project would not expose persons to interior Ldn or CNEL greater than 45 dBA for residential dwellings to noise levels in excess of standards established in the Oakland Noise Ordinance and Planning Code or the California Noise Insulation Standards. (Criterion e) (*Less than Significant with SCAs*)

1998 EIS/EIR.

The 1998 EIS/EIR identified a potentially significant impact associated with noise exposure of the Maximum Capacity Alternative land uses that could be mitigated to less than significant levels. Specifically, traffic noise levels on I-580 and Mountain Boulevard would expose areas within 500 feet of these roadways to Community Noise Equivalent Levels (CNEL) above 65dB.

9 The line-of-sight is blocked by existing vegetation in the area.

As determined for the 1998 EIS/EIR analysis, levels of 65dB or higher would be considered higher than normally acceptable for residential or other noise sensitive uses, and interior noise levels in residential or other noise sensitive uses located close to these roadways would exceed the State Title 24 DNL or CNEL[10] noise level limit 45 dBA. The 1998 EIS/EIR identified Mitigation 2, described above, requiring use of sound control measures and site planning tools to reduce the impact to less than significant.

Proposed Project.

The Land Use Compatibility standards of the City's General Plan are exterior noise standards which allow for an assessment of exterior noise levels to determine whether standard construction techniques would be sufficient to achieve appropriate noise levels for each land use. For residential dwellings, the land use compatibility standard of 60 dBA for normally acceptable environments assumes that standard construction techniques would achieve 15 dBA of attenuation and provide for an interior environment of 45 dBA. As discussed in Impact NOI-3, portions of the Project site exhibit noise levels considered normally unacceptable for residential uses. However, SCA NOI-6 (Exposure to Community Noise) would ensure that appropriate sound-rated assemblies, and/or other features/measures would be implemented to meet interior noise levels requirements. SCA NOI-6 requires a noise reduction plan be prepared by a qualified acoustical engineer for City review and approval that contains noise reduction measures (e.g., sound-rated window, wall, and door assemblies) to achieve an acceptable interior noise level in accordance with the land use compatibility guidelines of the Noise Element of the Oakland General Plan. Consequently, the proposed Project would have a less than significant impact with regard to interior noise exposures.

Impact Conclusion: Less then Significant with SCAs.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact, No New Mitigation Measure Required.

Traffic Noise

Impact NOI-5: The proposed Project would not generate noise resulting in a 5 dBA permanent increase in ambient noise levels in the project vicinity, above existing levels without the Project. (Criterion d) (*Less than Significant*)

1998 EIR/EIS.

The 1998 EIS/EIR indicated that the traffic generated by the Maximum Capacity Alternative would not result in a significant operational noise impact since the amount of new traffic would not increase noise levels by more than 1 dBA (near noise-sensitive uses) nor would it result in an overall noise level increase of 5 dBA or more above the applicable land use compatibility criterion of 60 dBA. The 1998 EIS/EIR did not present a quantitative analysis, but stated that that

[10] "CNEL" is similar to the DNL (or Ldn) described above, but adds a 5-dBA "penalty" for the evening hours between 7:00 PM and 10:00 PM in addition to a 10-dBA penalty between the hours of 10:00 PM and 7:00 AM.

the Maximum Capacity Alternative (project) and the combination of the Maximum Capacity Alternative with other regional development (cumulative) would not significantly alter traffic volumes or speeds in the vicinity of the project area, and because peak traffic volumes must double along the I-580 corridor before traffic noise levels increase by 3 dBA, there would be no significant noise impacts associated with the project or cumulative conditions. Thus, the 1998 EIS/EIR concluded that the Maximum Capacity Alternative would result in a less-than-significant project and regional-level impact for operational traffic-related noise. No mitigation measure was required.

Proposed Project.

Modeled Traffic Noise

Additional vehicles traveling throughout the local roadway network as a result of operation of the proposed Project would increase noise levels adjacent to nearby roads. Based on the City of Oakland's CEQA Thresholds, a project would be considered to generate a significant impact if it resulted in a 5 dBA permanent increase in ambient noise levels in the Project vicinity above levels existing without the Project. Noise levels were determined for this analysis using the Federal Highway Administration (FHWA) Traffic Noise Prediction Model and the vehicle turning movements for Existing (2014) and Existing Plus Project conditions (see *Transportation and Circulation* **Appendix V-B** to this Draft EIR). The analysis detail is provided in **Appendix Z** to this Draft SEIR.

Trips associated with the proposed Project would be distributed over the local street network and would affect roadside noise levels. Peak hour (evening) intersection turning data from the traffic study were analyzed to evaluate increases and resulting traffic-generated noise increases on roadway links most affected by Project-related traffic and nearest the Project Area. Noise levels at other times would be lower. The segments analyzed and the results of the noise increases resulting from modeling are shown in **Table 4.10-9**, below. The increase in traffic noise from the Existing Plus Project scenario compared to the Existing scenario would increase peak hour noise levels by 1 dBA or less, well below the 5 dBA threshold at all studied roadway segments. Consequently, localized increases in noise would be a less than significant impact.

Stationary/ Operational Noise

The analysis supporting an assessment of criterion d as it pertains to the Project's stationary building operations/systems (such as generators, air conditioners, etc.) compared to existing monitored (ambient) noise levels is presented in **Table 4.10-10** under Impact NOI-7, cumulative combined noise sources. That assessment and table present the potential effects of stationary noise combined with traffic noise, as it occurs in reality; it is not possible to obtain existing monitored (ambient) noise levels for stationary sources isolated from existing traffic noise, therefore the sources are assessed combined or cumulatively (see Impacts NOI-6 and NOI-7.) What is evident from Table 4.10-10 is that the existing ambient noise levels currently exceed the restricted noise level (60 permitted for stationary systems, and that the combined noise would not exceed existing ambient noise levels the applicable threshold (see Impact NOI-7).

TABLE 4.10-9
PEAK-HOUR TRAFFIC NOISE LEVELS IN THE VICINITY OF THE PROJECT AREA

Roadway Segment	(A) Existing	(B) Existing Plus Project	(B-A) Difference between Existing Plus Project and Existing	(C) Cumulative No Project (2040)	(D) Cumulative Plus Project (2040)	(D-A) Difference between Cumulative Plus Project and Existing[d]	(D-C) Difference between Cumulative Plus Project and Cumulative No Project[e]
Keller Avenue between I-580 and Canyon Oaks Drive	65.2	66.1	0.9	65.6	66.4	1.2	0.8
Keller Avenue between Canyon Oaks Drive and Campus Drive	64.0	64.2	0.2	64.5	64.6	0.6	0.1
Keller Avenue between Campus Drive and Surrey Lane	62.7	62.9	0.2	63.2	63.4	0.7	0.2
Mountain Boulevard between I-580 Ramp and Main Street	65.5	66.7	0.2	66.0	67.1	1.6	1.1
Mountain Boulevard between Sequoyah Road and Calafia Avenue	65.3	66.3	1.0	65.8	66.6	1.3	0.8
98th Avenue between Stanley Avenue and I-580	68.8	69.0	0.2	69.2	69.4	0.6	0.2
Sequoyah Road between Mountain Boulevard and Keller Avenue	55.6	55.8	0.2	56.4	56.5	1.1	0.1

[a] Considered significant if the incremental increase in noise from traffic is greater than the existing ambient (modeled) noise level by 5 dBA Leq, per City of Oakland, CEQA Thresholds/Criteria of Significance Guidelines. Violations are in **bolded** text.
[b] Road center to receptor distance is 15 meters (approximately 50 feet) for all roadway segments. Noise levels were determined using the Federal Highway Administration (FHWA) Traffic Noise Prediction Model.
[c] The analysis considered the vehicle mix based on – cars 97 percent, medium trucks 2 percent, and heavy trucks 1 percent. Traffic speeds for all vehicle classes were set at 35 mph for Mountain Boulevard and Keller Avenue, 30 mph for 98th Avenue and 25 mph for Sequoyah Road.
[d] Considered significant if the incremental increase in noise is greater than 5 dBA.
[e] Considered a cumulatively considerable contribution to a significant noise increase if the incremental increase in noise is greater than 3 dBA when the cumulative increase in the preceding column is greater than 5 dBA.

SOURCE: ESA, 2015 (Included in Appendix Z to this Draft EIR)

Impact Conclusion: Less than Significant.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact, no New Mitigation Measure Identified.

Cumulative

Impact NOI-6: Traffic generated by the proposed Project, in combination with traffic from past, present, existing, approved, pending and reasonably foreseeable future projects, would not substantially increase ambient noise levels in the Project Area; and construction and operational noise levels from the Project combined with noise levels from past, present, existing, approved, pending and reasonably foreseeable future projects, could increase ambient noise levels. (*Less than Significant with SCAs*)

Geographic Context

The geographic area considered for cumulative noise analysis in this Draft SEIR includes areas within and surrounding the Project Area and roadways examined in the transportation analysis in Section 4.13, *Transportation and Circulation*. These include area projects incorporated into the regional travel demand model, as discussed in Section 4.0.6, *Cumulative Context*, in the front of Chapter 4 of this Draft SEIR.

1998 EIR/EIS.

The 1998 EIS/EIR did not present a quantitative cumulative analysis, but stated that that the Maximum Capacity Alternative and the combination of the Maximum Capacity Alternative with other regional development (cumulative) would not significantly alter traffic volumes or speeds in the vicinity of the project area, and because peak traffic volumes must double along the I-580 corridor before traffic noise levels increase by 3 dBA, there would be no significant noise impacts associated with the Maximum Capacity Alternative or cumulative conditions. Thus, the 1998 EIS/EIR concluded that the Maximum Capacity Alternative would result in a less-than-significant regional-level impact for operational traffic-related noise.

Impact Discussion

Longer-term noise from cumulative development, which is the development under the proposed Project, combined with past, present, pending, and reasonably foreseeable development in the area, would primarily occur from motor vehicle traffic. When considered alone, development of the proposed Project would generate noise mainly by adding more traffic to the area. Other anticipated projects would contribute to noise in the area due to increased traffic volumes.

As noted in Impact NOI-5 and based on the City of Oakland's CEQA Thresholds, a project would be considered to gene rate a significant impact if it resulted in a 5 dBA permanent increase in ambient noise levels in the Project vicinity above levels existing without the Project. As for Impact NOI-5, noise levels were determined for using the FHWA Traffic Noise Prediction Model and the vehicle turning movements for the Cumulative Plus Project (2040) conditions (see *Transportation and Circulation* Appendix V-B). The segments analyzed and the results of the noise increases resulting from modeling are also shown in **Table 4.10-9** for Cumulative Plus Project traffic, which includes Project traffic combined with traffic from other approved or pending projects for the year 2040.

Table 4.10-9 shows the increase in traffic from between the Cumulative Plus Project (2035) scenario and Existing (2014) would increase peak hour noise levels by less than 5 dBA at all roadway segments. Consequently, localized increases in traffic noise would be a less than significant impact under cumulative conditions.

The proposed construction of a school at the Seneca site is the only other project anticipated to occur in the area during the same time frame as the proposed Project. The overlapping construction activities are not anticipated to result in significant cumulative impacts, given implementation of SCAs. In addition, the operational noise from the Project, when combined with noise from the proposed school on the Seneca site, would not create significant cumulative noise impacts. The noise produced by the uses allowed by the Project and that proposed by Seneca are compatible with the City's noise requirements.

Construction impacts resulting from cumulative development would remain less than significant as all cumulative development in the cumulative geographic context would incorporate SCAs for construction activities, as discussed in Impact NOI-1. Similarly, operational noise associated primarily with mechanical operations of cumulative development also would be at less than significant levels; all development would adhere to SCAs for operational noise, as discussed in Impact NOI-2.

All cumulative noise impacts associated with traffic noise would be less than significant. Cumulative noise impacts associated with construction and operations would also be less than significant.

Impact Conclusion: Less than Significant with SCAs.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact, New Mitigation Measure Identified.

Impact NOI-7: The proposed Project would not have stationary noise sources (such as rooftop mechanical equipment and back-up generators) that, in combination with traffic generated by the proposed Project and from past, present, existing, approved, pending and reasonably foreseeable future projects, would result in a significant cumulative impact. (Criterion d, cumulative, combined sources) (*Less than Significant with SCAs*)

1998 EIS/EIR.

The 1998 EIS/EIR did not present an analysis of non-traffic operational noise for the Maximum Capacity Alternative.

Proposed Project.

The proposed Project would generate some noise from heating, ventilating, and air conditioning mechanical equipment. Specificity in terms of the size or specifications of stationary noise sources or their location is not available at the time of this analysis. However, it is reasonable to conclude that such sources would operate within the restrictions of the City's Noise Ordinance.

Chapter 17.120.050 of the City of Oakland Planning Code specifies the maximum sound level received at residential, public open spaces and commercial land uses. These restrictions can be used in combination with the predicted roadway noise levels presented in Table 4.10-9 to estimate a worst-case prediction of cumulative noise increase from both stationary and roadway noise sources.

Table 4.10-10 presents the cumulative noise increase at existing sensitive receptors in the Project vicinity from both roadway and stationary sources. These noise levels reflect daytime conditions which are when peak traffic contributions would occur. Stationary source noise levels are considered in terms of the L_{33} (the noise levels exceeded 20 minutes of a one hour period) as this is the noise descriptor of the City's noise ordinance which best lends itself to addition to roadway noise estimates which are calculated in terms of a peak-hour hourly average. The roadway noise contribution is assumed to occur from the cumulative increase from the nearest arterial roadway analyzed in Table 4.10-9. This analysis uses the existing monitored noise level as a baseline for comparison, unlike the analysis in Table 4.10-9 which solely analyzes modeled traffic volumes, because this cumulative analysis considers multiple sources, not just vehicle traffic.

TABLE 4.10-10
PEAK-HOUR CUMULATIVE NOISE LEVELS AT SENSITIVE RECEPTORS IN THE PROJECT AREA

Location	(A) Monitored Noise Level (Leq, dBA)	(B)Stationary Source Restriction (L_{33}, dBA)	(C) Cumulative Roadway only Noise Level (Leq)	(B+C) Resulting Cumulative Noise Level	Increase in Noise level over Existing Monitored
Mountain Boulevard Residential Area (Oak Knoll Heights)	66.	60	67	68	+2
Sequoyah Drive Residential Area	63	60	57	62	-1[b]
Coach Drive Residential Area (Sequoyah Hills)	63[a]	60	63	65	+2

[a] Noise level for the western side of Sequoyah Hills residences, facing the project site and Keller Avenue approximated by measurement on eastern project site facing Keller Avenue.
[b] A negative increase is indicated because the influence of traffic on I-580 at this location results in an elevated existing monitored noise level.

SOURCE: ESA, 2015. (Included as Appendix Z to this Draft SEIR)

Cumulative noise increases are predicted to be less than 5 dBA at all three locations. In lieu of project-specific data, these potentially significant impacts assume stationary sources operating at an adjacent property at the maximum property line limit allowed by the noise ordinance. Consequently, cumulative noise impacts are less than significant.

Impact Conclusion: Less than Significant.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact, no New Mitigation Measure Identified.

References – Noise and Vibration

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U.S. Department of the Navy Engineering Field Activity and City of Oakland, *Final Environmental Impact Statement / Environmental Impact Report for the Disposal and Reuse of Naval Medical Center Oakland - SCH 95103035*, April 1998.

U.S. Environmental Protection Agency (EPA), *Construction Noise Control Technology Initiatives*, http://www.nonoise.org/epa/Roll5/roll5doc22.pdf, September 1980.

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4.11 Population and Housing

4.11.1 Introduction

To determine whether the proposed Project would result in any new impacts related to population and housing, or increases in the severity of population and housing impacts previously discussed in the 1998 EIS/EIR, this analysis considers the population and housing impacts that would result from the proposed Project, and compares these impacts to those identified in the 1998 EIS/EIR, and to the applicability of mitigation measures in that document.

4.11.2 Setting

Regional and Local Setting

The population of the Bay Area, which consists of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma Counties, was approximately 7.1 million in 2010. Population in the area is growing rapidly, with approximately 30 percent growth expected to occur from 2010 to 2040 (ABAG, 2013a). In 2010, the population of Alameda County was approximately 1,510,721 (ABAG, 2013a).

In 2015, total employment in Alameda County was approximately 772,500 workers, which represents an approximately 17 percent increase (or approximately 29,600 workers) from 2010 (EDD, 2015). The unemployment rate for California as a whole reached a peak at 12.2 percent in 2010, and declined to 7.5 percent in 2014 (EDD, 2015), and to 6.1 percent in August, 2015. Similarly, unemployment rate in Alameda County declined by approximately half to 4.7 percent in 2015 (EDD, 2015). There were approximately 38,400 unemployed persons in Alameda County in March 2015 (EDD, 2015).

Over the past few years, the Bay Area's economy has produced more jobs than housing units, particularly in job-rich communities. Consequently, the cost of buying or renting a place to live in the region has escalated. Given the amount, location, and type of housing being planned, and the continual high demand for housing at all income levels, the region's housing costs are expected to remain among the highest in the nation.

Long-term projections for the City of Oakland by the Association of Bay Area Governments (ABAG) indicate substantial growth of housing, households, and population, as shown in **Table 4.11-1**, at rates exceeding those of the forecasted growth for Alameda County and the Bay Area overall. The ABAG projections reflect market factors as well as regional and local policies that direct an increase in the share of regional development that occurs in the Bay Area's major cities and in higher-density, urban locations.

TABLE 4.11-1
ESTIMATED DEMOGRAPHIC DATA FOR CITY OF OAKLAND, ALAMEDA COUNTY AND BAY AREA – 2010 TO 2040

	2010	2015	2020	2030	2040	Percent Change, 2015-2040
City of Oakland						
Total population (residents)	390,720	414,700	439,600	492,100	551,100	**32.9%**
Total household population	382,590	406,200	430,600	482,000	539,100	**32.7%**
Total households	153,790	163,400	173,270	192,790	212,470	**30.0%**
Persons per household (pph)	2.49	2.49	2.49	2.50	2.54	**2% pph**
Total jobs	190,490	210,780	233,630	250,800	275,760	**30.8%**
Total employed residents	171,450	188,460	206,840	221,670	241,750	**28.3%**
Alameda County						
Total population (residents)	1,510,270	1,580,800	1,654,200	1,810,300	1,987,900	**25.8%**
Total household population	1,472,830	1,541,900	1,612,900	1,764,700	1,934,600	**25.5%**
Total households	545,140	571,370	598,430	651,720	705,330	**23.4%**
Persons per household (pph)	2.70	2.70	2.70	2.71	2.74	**1.6% pph**
Total jobs	694,460	757,010	826,790	875,390	947,650	**25.2%**
Total employed residents	669,770	728,760	792,510	835,770	899,070	**23.3%**
Bay Area[1]						
Total population (residents)	7,150,740	7,461,400	7,786,800	8,496,800	9,299,100	**24.6%**
Total household population	7,003,060	7,307,400	7,623,700	8,313,900	9,084,800	**24.3%**
Total households	2,608,020	2,720,410	2,837,680	3,072,920	3,308,090	**21.6%**
Persons per household (pph)	2.69	2.69	2.69	2.71	2.75	**2.2% pph**
Total jobs	3,268,680	3,547,310	3,849,790	4,052,020	4,350,070	**22.6%**
Total employed residents						

1 Includes Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma counties.

SOURCE: ABAG, 2013a. 2010 figures are consistent with the U.S. Census.

Population

As shown in **Table 4.11-1**, approximately 390,720 people were living in Oakland in 2010, about 56 percent of the total population of the Inner East Bay,[1] and nearly 6 percent of the total Bay Area population. Population in the City and for the Bay Area region as a whole is anticipated to grow substantially – by approximately 33 and 25 percent, respectively – between 2015 and 2040 (see Table 4.11-1).

1 The Inner East Bay includes Oakland and nearby cities of Albany, Alameda, Berkeley, Emeryville, Piedmont, and San Leandro. The estimated total population of the Inner East Bay in 2010 was 701,350 (ABAG, 2013).

Housing and Households

The development of new housing in the City and for the region is anticipated to also grow substantially through 2040, as shown in **Table 4.11-2**. Approximately 51,114 new housing units are projected to occur in Oakland between 2015 and 2040, an increase of approximately 30 percent.

As shown in Table 4.11-1, there were approximately 153,790 households in Oakland in 2015, with an average household size of 2.49 persons per household; the projected number of households is expected to be a 30 percent increase between 2015 and 2040.

TABLE 4.11-2
HOUSING UNIT TRENDS AND PROJECTIONS – 2010 TO 2040

	Total Units and Projections[1]			
	2010	**2015**	**2040 Projection**	**Percent Change, 2015-2040**
City of Oakland	160,197	170,208	221,322	+30%
Alameda County	567,854	623,364	734,719	+24%
Bay Area	2,716,687	2,839,579	3,445,927	+21%

SOURCE: ABAG, 2013a

Employment

Business activity and employment have been growing substantially, and unemployment has decreased substantially in Oakland and Alameda County, as the region rebounds from the national recession, as shown in **Table 4.11-3**. Projections shown in Table 4.11-1, business activity and employment are projected to continue to grow in the future. Projections for Oakland show growth of about 64,980 jobs from 2015 to 2040 – an increase of approximately 31 percent, greater than the increases projected for the County and the region during the same 25-year period.

TABLE 4.11-3
RECENT EMPLOYMENT TRENDS – 2010 TO 2014/2015

	Total Employed			Unemployment Rate		
	2010	**2014**	**2015 (March Only)**	**2010**	**2014**	**2015 (March Only)**
City of Oakland	170,300	194,600	199,900	**16.9%**	**7.3%**	**NA**
Alameda County	676,000	764,300	772,500	**11.3%**	**5.9%**	**4.7%**
Bay Area	3,291,500	3,778,500	3,851,200	**10.2%**	**5.4%**	**4.4%**

NA = Not Available

SOURCE: EDD, 2015

Overall Relationship of Jobs and Housing

Jobs/housing balance evolves over time and reflects the role and location of particular areas within a larger regional context. In the short term as well as the long term, the projected total

number of jobs in the City of Oakland and total number of employed residents indicates that the jobs-housing ratio for the City is only slightly imbalanced (at about 1.11 to 1.14). These ratios indicate that the growth of housing in the City is not occurring, and is not expected to occur, at the same rate as the increase in jobs, although this imbalance is relatively minor in comparison to other cities in the region; and Oakland, in general, has a good balance of jobs and housing (ABAG, 2013a).

Project Setting

The Project is located in the South Hills neighborhood of Oakland, within U.S. Census Tract 4099.[2] This Census tract has a population of approximately 3,267 living in approximately 1,328 households (U.S. Census, 2015b), with an average persons per household rate of 2.46. The labor force in Census Tract 4099 is approximately 1,658 workers (U.S. Census, 2015b).

The Project site does not include any existing housing units.

4.11.3 Contributions to Citywide Growth from the Project

This section describes and quantifies the potential growth in employment, households, and population that could occur from development of the Project. Population and employment changes, in and of themselves, are not normally considered to be significant environmental effects under CEQA. However, these changes and effects can be indicators of other impacts, and they can have influence on the significance of those impacts. Thus, the description of population and employment changes that follows is included to provide context for considering and understanding potential physical environmental impacts associated with changes in employment, housing, and population that are analyzed later in this section and in other sections of this EIR (e.g., traffic, public services, and air quality).

Employment, Housing, and Population Growth

Buildout of the proposed Project would introduce residential and employment population growth in the South Hills neighborhood. The Project would include up to 935 new housing units. The new units would accommodate approximately 898 households, with 2,236 residents. Estimates of potential housing and population growth are presented in **Table 4.11-4**.

TABLE 4.11-4
PROJECT HOUSING DEVELOPMENT AND ESTIMATED DIRECT POPULATION GROWTH

Potential Development	Housing Units	Households[a]	Population[b]
Total (rounded)	935	898	2,236

[a] Assumes an average four percent ownership vacancy factor (ABAG, 2013).
[b] Assumes an average 2.49 persons per household (ABAG, 2013).

[2] The 1998 EIS/EIR also includes large tracts 4081 and 4100, however, the project site is located within tract 4099.

The Project would include approximately 72,000 square feet of commercial space (grocery, retail, and restaurant), up to 10,000 square feet of community center-related commercial uses, and a 4,000 square-foot community center/clubhouse use. Businesses and community activities on the Project site would support employment of approximately 180 jobs at full occupancy, as summarized in **Table 4.11-5**.

TABLE 4.11-5
PROJECT NON-RESIDENTIAL SPACE AND PROJECTED EMPLOYMENT GROWTH

Potential Development	Use (square feet)	Employees[a]
Commercial Retail (Convenience Retail)	36,000	66
Grocery Store	30,000	72
Community Center Retail	10,000	20
Restaurant (Sit down)	6,000	18
Community Center	4,000	4
Total	**86,000**	**180**

[a] Employment estimated by ESA, based on common density factors by use, for the types of development proposed, consistent with the Alameda Countywide Travel Demand Model and other City of Oakland certified EIRs (commercial/convenience retail 2.0 employees/ksf; grocery store 2.2 employees/ksf; community center retail 2.0 employees/ksf; restaurant 3.0 employees/ksf; community center 1.0 employees/ksf).

SOURCE: ESA, 2016

Regulatory Setting

Regional Housing Needs Allocation

On July 18, 2013, ABAG adopted the Final Regional Housing Need Plan (RHNP) for the period of 2014 to 2022. The RHNP outlines the Regional Housing Needs Allocation (RHNA), which allocates housing needs for communities within the nine-county Bay Area for an eight-year period. Cities and counties are required by State law to account for the RHNA in the housing elements of their General Plans.

The City's Housing Element discusses the City's "fair share allocation" of regional housing, as projected by ABAG and presented in the RHNA. For the 2014-2022 period, per the RHNA, the City of Oakland is responsible for 14,765 new housing units, out of a total of 187,990 units identified as needed for the entire Bay Area for this period (ABAG, 2013b).

The City's current Housing Element assumes 935 projected future units of housing will be developed at the Project site (a number associated with the former version of the Project).

Plan Bay Area (SB 375)

Plan Bay Area, the Bay Area's Sustainable Communities Strategy pursuant to SB 375, is a state-mandated, integrated long-range transportation, land use, and housing plan designed to support a growing economy, provide more housing, improve transportation infrastructure, and reduce transportation-related pollution in the nine-county San Francisco Bay Area. Plan Bay Area

identifies areas within the region sufficient to house all the population of the region for at least the next 25 years. The Project site is not identified as a transit priority area or priority development area, but is identified as urban and built-up; the Project site is not in a priority conservation area. Although the Project does not conflict with Plan Bay Area, individual projects are not required to be consistent with Plan Bay Area.

Plan Bay Area is updated by the Association of Bay Area Governments (ABAG) and the Metropolitan Transportation Commission (MTC) every four years to reflect new priorities. The most recent iteration, Plan Bay Area 2035, was adopted in 2013. Plan Bay Area 2040 is scheduled for adoption in 2017.

Oakland General Plan

The Oakland General Plan includes the following policies that pertain to population, housing, jobs, and related effects, and that apply to the Project.

Land Use and Transportation Element (LUTE). The LUTE of the Oakland General Plan contains the following policies that address issues related to population, housing, jobs, and related effects:

- ***Policy N.2:*** Facilitating the construction of housing units should be considered a high priority for the City of Oakland.
- ***Policy N3.5:*** The City should actively encourage development of housing in designated mixed housing type and urban housing areas through regulatory and fiscal incentives, assistance in identifying parcels that are appropriate for new development, and other measures.
- ***Policy N4.1:*** The City is generally supportive of any efforts to establish accountability for communities that do not provide their fair share of affordable housing units.
- ***Policy N4.2:*** The City encourages local non-profit organizations, affordable housing proponents, the business community, the real estate industry, other local policy makers to join in efforts to advocate for the provision of affordable housing in communities throughout the Bay Area region.
- ***Policy N6.1:*** Mixing Housing Types. The City will generally be supportive of a mix of projects that provide a variety of housing types, unit sizes, and lot sizes which are available to households with a range of incomes.
- ***Policy N6.2:*** Housing developments that increase home ownership opportunities for households of all incomes are desirable.

Housing Element. The Housing Element of the Oakland General Plan contains the following policies that address issues related to population, housing, jobs, and related effects:

- ***Policy 1.2:*** Maintain an adequate supply of land to meet the regional housing share under the ABAG Regional Housing Needs Allocation.
- ***Policy 1.7:*** The City of Oakland will strive to meet its fair share of housing needed in the region.

City of Oakland Standard Conditions of Approval and Uniformly Applied Development Standards Imposed as Standard Conditions of Approval

There are no City of Oakland Standard Conditions of Approval and Uniformly Applied Development Standards (SCAs) that are specific to population and housing that would be applicable to the proposed Project.

4.11.4 Discussion of Impacts

Significance Criteria

The City of Oakland has established thresholds of significance for CEQA impacts (City of Oakland, 2013). Per these thresholds, the Project would cause significant adverse impacts to population and housing if it would:

a) Induce substantial population growth in a manner not contemplated in the General Plan, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extensions of roads or other infrastructure), such that additional infrastructure is required but the impacts of such were not previously considered or analyzed;

b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere in excess of that contained in the City's Housing Element; or

c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere in excess of that contained in the City's Housing Element.

Approach

To the extent the Project's temporary and permanent population growth would cause environmental impacts not discussed in this section, those impacts are addressed in the relevant section of this EIR.

No mitigation measures addressing population and housing were adopted as part of the 1998 EIS/EIR, and there are no previously adopted project features or mitigation measures addressing population and housing that would be applicable to the proposed Project.

Impacts Not Further Evaluated

The Project would not displace substantial numbers of existing housing units or people necessitating the construction of replacement housing elsewhere in excess of that contained in the City's Housing Element. (Criteria b and c)

The 1998 EIS/EIR did not assess the Maximum Capacity Alternative's effect regarding displacing existing housing or people, nor assess whether the Maximum Capacity Alternative would displace existing business or jobs. The 1998 EIS/EIR identified one base tenant on the NMCO site, the Sea West Coast Guard Credit Union; it is reasonable to assume that this tenant

would have been retained and incorporated within the retail or mixed use areas shown on the conceptual development plan for the Maximum Capacity Alternative. No impact was identified.

Since the certification of the 1998 EIS/EIR, there have been no substantial changes in circumstances and no new information of substantial importance that would result in a new impact related to the displacement of existing housing or people. The proposed Project would not result in significant impacts pursuant to Significance Criteria "b" and "c" (displacement of existing housing or people), listed above. The Project site currently does not include any housing, and the Project would not result in the displacement of any existing housing or people, including Sea West or Seneca workers; therefore, the proposed Project would not result in an impact. Therefore, these topics are not addressed further in this document.

Relevant Changes in Circumstances and Information Since the 1998 EIS/EIR

As discussed in Chapter 1, Introduction, of this SEIR, changes in circumstances and conditions since preparation of the 1998 EIS/EIR include new or amended applicable City plans and policies adopted after preparation of the 1998 EIS/EIR, including General Plan (LUTE and Housing Element) policies. Current policies in the LUTE and Housing Element address considerations that are largely the same as those addressed by the Comprehensive Plan policies, against which the Maximum Capacity Alternative was measured in the 1998 EIS/EIR. Because policies related to population and housing adopted after preparation of the 1998 EIS/EIR are generally consistent with policies considered in the 1998 EIS/EIR analysis, and moreover, since inconsistency or conflict with individual policies do not necessarily constitute a significant environmental impact, this "change in conditions" would not result in the proposed Project having a new significant impact that was not identified for the Maximum Capacity Alternative.

The Oak Knoll project is specifically identified in both the LUTE and the Housing Element. The Housing Element describes the "Oak Knoll Redevelopment Project" as a private sector, market rate project in a pre-planning stage consisting of 935 housing units and 86,000 square feet of commercial uses (City of Oakland, 2014). The updated General Plan policies related to population and housing still anticipate the Project, and therefore the Project would not have significant environmental effects or cause a substantial increase in the severity of previously identified significant effects.

One change in circumstances on the Project site that has occurred since the 1998 EIS/EIR is the demolition of former housing on the property. After certification of the 1998 EIS/EIR, housing units on the Project site consisted of 38 unoccupied family housing structures (and other group barrack housing) primarily constructed after 1950, and at that time in a condition of disrepair. Based on the conceptual development plan of the Maximum Capacity Alternative shown in Figure 2-5 of the 1998 EIS/EIR, it is likely that the Maximum Capacity Alternative proposed to remove all housing on the property. Between 1998 and 2011, all structures, including housing, on the Project site were demolished. Because the former housing structures on the site were demolished under ministerial permits issued by the City of Oakland prior to the issuance of the NOP for this DEIR, their demolition is not part of the proposed Project.

Comparison of the Proposed Project and the 1998 EIS/EIR Maximum Capacity Alternative, Relevant to Population and Housing

Like the Maximum Capacity Alternative, the proposed Project would create new residential and commercial development at the site. However, whereas the Maximum Capacity Alternative proposed 584 homes and approximately 400,000 square feet of commercial development, the Oak Knoll Project proposes approximately 935 homes and approximately 86,000 square feet of new commercial and community center uses (72,000 s.f. commercial, 10,000 sf. community center retail, and 4,000 sf community center/clubhouse).

The 1998 EIS/EIR determined that the Maximum Capacity Alternative would generate an increase in population in the Region of Influence (ROI)[3] of approximately 3,006 persons. This estimate assumed that up to 75 percent of new employees generated by the Maximum Capacity Alternative would also be new residents in the ROI. The gain in population due to jobs was added to the gain in population due to the addition of housing in the Maximum Capacity Alternative, assuming a dependents-per-household rate of 1.68, and a total persons per household rate of 2.68.

For comparative purposes only, using the same method of comparison used in the 1998 EIS/EIR analysis but using the current and lower total persons per household rate of 2.49 described in Table 4.11-4 (based on decreases in City and regional population per household and recent housing market trends), the proposed Project is estimated to generate approximately 434 fewer total new residents within the ROI compared to the Maximum Capacity Alternative.[4]

As shown in **Table 4.11-6** for *comparative purposes to the 1998 EIS/EIR ROI evaluation*, the estimated percentages of population increase from the Maximum Capacity Alternative as part of population growth in the City of Oakland and Alameda County during the 15-year period of 1995 to 2020 were 14 and 2 percent, respectively. By comparison, estimated percentages of population increase from the proposed Project as part of population growth in the City of Oakland and Alameda County ROI during the 15-year period of 2015 to 2040 are 1.9 and 0.6 percent, respectively. This indicates that the projected growth in population from the proposed Project (including population growth outside of the Project due to Project jobs) - both in total as well as a portion of overall growth citywide and in the County - is less than the growth that was projected for the Maximum Capacity Alternative.

The substantial difference in total population between the proposed Project and the Maximum Capacity Alternative is largely attributed to the greater employment population that would be generated by the Maximum Capacity Alternative given its greater amount of commercial use, described above. The proposed Project is estimated to result in approximately180 employees, or 537 fewer employees than the 771 employees estimated for the Maximum Capacity Alternative.

3 In the 1998 EIS/EIR, the ROI for population impacts included the City of Oakland and Alameda County.
4 This compares total new population (residents and employees),

TABLE 4.11-6
REGION OF INFLUENCE[a] POPULATION COMPARISON – 1998 EIS/EIR MAXIMUM CAPACITY ALTERNATIVE AND THE PROPOSED PROJECT

Population Impact	1998 EIS/EIR Maximum Capacity Alternative (MCA)	Proposed Project
Total Jobs /Employees	717	180
New Employees who may be New Residents within the ROI, but not in the Maximum Capacity Alternative or Project [a,b]	538	135
New Employees' Dependents not in the Maximum Capacity Alternative or Project[c]	903	201
New Resident Population in the ROI due to New Jobs[d]	1,441	336
Number of housing units	584	935
New Resident Population in the ROI due to New Housing Units[c]	1,565	2,236
Total New Residential Population in the ROI	**3,006**	**2,572**[e]
Population Impact in Oakland		
Projected population growth in City between 1995 and 2020 [f]	21,000	
Projected population growth in City between 2015 and 2040 [g]		136,400
Contribution to Projected Citywide Growth	**14%**	**1.9%**
Population Impact in Alameda County		
Projected population growth in County between 1995 and 2020 [f]	143,972	
Projected population growth in County between 2015 and 2040 [g]		407,100
Contribution to Projected Countywide Growth	**2%**	**0.6%**

a The 1998 EIS/EIR defined the Region of Influence (ROI) for land use analysis includes Alameda County, including the City of Oakland.

b The 1998 EIS/EIR assumed that 75 percent of jobs would attract new residents to Alameda County, including the City of Oakland); the same is assumed for the proposed Project for comparison with the Maximum Capacity Alternative only. Note that total employees, regardless of change in resident location (180 employees), is considered in the "service population" or "Project population" factored in the population-based impact analyses for the proposed Project in this Draft SEIR. The analysis here is conservative as it is unlikely that 75 percent of jobs would actually attract new residents to Alameda County.

c Average household size applied in the 1998 EIS/EIR for the Maximum Capacity Alternative was 2.68 persons per household (employee = 1; dependents = 1.68). Average household size applied in this Draft SEIR for the proposed Project is 2.49 persons per household (employee = 1; dependents = 1.49. (Note that school-aged students are based on a different ratio, as discussed in Section 4.12, *Public Services and Recreation.*)

d The total 180 employees/jobs generated by the proposed Project based on proposed non-residential land uses (see Table 4.11-5 in this Draft SEIR section) is factored into the "service population" (for GHG emissions analysis) or factored into the "Project population" for public services analyses, where applicable.

e This total is for comparative purpose with the 1998 EIS/EIR for this discussion only. The total "service population" or "Project population" factored into the population-based impact analyses in this Draft SEIR for the proposed Project is 2,416 and represents total Project-generated employees, regardless of residence location [180] + total Project residents based on 2.49 persons per household [2,236]).

f Table 3-4 in the 1998 EIS/EIR.

g Table 4.11-1 in this Draft SEIR section.

Impacts and Mitigation Measures

Impact POPU-1: The Project would not induce substantial population growth in a manner not contemplated in the General Plan, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extensions of roads or other infrastructure), such that additional infrastructure is required but the impacts of such were not previously considered or analyzed. (Criterion a) (*Less than Significant)*

1998 EIS/EIR.

The 1998 EIS/EIR indicated that development of the Maximum Capacity Alternative would result in "no impact" regarding population and housing growth. As discussed above, based on maximum buildout of 584 dwelling units and approximately 400,000 square feet of employment generating commercial and community uses, the Maximum Capacity Alternative was estimated to generate a population increase of approximately 3,006 persons – approximately half being generated by new project housing and approximately half generated by new project jobs (Table 4.11-6). While "no impact" was identified in the 1998 EIS/EIR, the analysis acknowledged that population and housing growth resulting from the Maximum Capacity Alternative could lead to secondary impacts that may be adverse, such as potential traffic impacts, and alludes to the potential for population growth to induce the need for new infrastructure.

The 1998 EIS/EIR identified land use policies from the Oakland Comprehensive Plan (amended to the Oakland General Plan) that applied when the 1998 EIS/EIR analysis was prepared, indicated that development of the Project site would not conflict with land use policies of the City's Comprehensive Plan applicable at that time, and concluded that the Maximum Capacity Alternative would have a "nonsignificant" (i.e., less than significant) impact regarding consistency with such policies (1998 EIS/EIR, p.4-5).

Proposed Project.

Similar to the 1998 EIS/EIR, the proposed Project aligns with goals, policies, and proposed land use designations in the General Plan that are intended to promote transformation of the former NMCO site to a new mixed-use community with a substantial amount of new housing and commercial and community areas. Further, the development program of the proposed Project was assumed in the City's Housing Element of its General Plan. Comparing projected Project growth *within the ROI* to projected growth in the City of Oakland and Alameda County, Table 4.11-6 shows that, by 2040, the amount of residential growth anticipated from development of the Project would account for about 1.9 percent of total growth projected for Oakland and about 0.6 percent of total growth projected for the County.

Direct Inducement of Population Growth

Population and employment growth due to the development of the Project would contribute to growth expected in Oakland, Alameda County, and the region. Trends of growth for the City and the region presented in this section are based largely on regional projections data published by ABAG in its *Projections 2013* (ABAG, 2013a). ABAG's methodology considers existing and

planned land use data provided by local jurisdictions (typically, assumptions underlying the jurisdictions' general plans) in formulating local and regional projections.

As discussed above, housing development anticipated with construction of the proposed Project would add up to 935 housing units in the Plan Area, and accommodate growth of up to approximately 898 households and 2,236 new residents (from Tables 4.11-4, which estimates Project residents based on the applicable ratio of 2.49 persons per household). As presented for comparison to the 1998 EIS/EIR for informational purposes in Table 4.11-6, if up to 75 percent of the 180 people anticipated to be employed by new commercial and community uses on the Project site were to be new residents to the City or Alameda County, this could result in a total residential population of up to 2,572 – or an additional 336 residents.

Growth as a result of the Project would be consistent with that assumed in the City's General Plan since the current General Plan land use classifications on the Oak Knoll site anticipate residential, commercial, and institutional development to the level consistent the proposed Project, including consideration of the proposed Oak Knoll Zoning District (discussed in Section 4.9, *Land Use and Planning*). Also, the proposed Project growth is within the estimates presented in the current Housing Element for the "Oak Knoll Redevelopment Project." Because a project with a substantial amount of housing has been anticipated at the Project site by the City since the adoption of the 1998 EIS/EIR, and because, more specifically, a future project with up to 935 housing units and 86,000 square feet of non-residential uses has been assumed in the City's Housing Element, the growth envisioned for the Project site in the City of Oakland's General Plan is also therefore generally reflected in the *Projections 2013* data presented in Table 4.11-1.

In terms of the overall land use program, the City has determined the Oak Knoll Project is generally consistent with the 1996 Final Base Reuse Plan, the 1998 General Plan Land Use Diagram, and the 1998 Maximum Capacity Alternative (City of Oakland, 2006); thus, the City has previously considered increased housing, population, and infrastructure at Oak Knoll.

Although the project would result in population growth, it would not directly induce substantial population growth requiring new infrastructure not previously contemplated in the General Plan, or in regional projections.

Housing and Jobs

The Project would result in the construction of housing in a region that is experiencing a housing shortage as identified by ABAG. The role of the proposed Project in supporting economic development and job growth, but especially in providing new housing, is important to City and regional goals for maintaining a "balance" of jobs and housing. The proposed Project will help facilitate a better balance of jobs and housing in Oakland, by proposing a mix of housing and commercial uses. It is reasonable and feasible that new employees could reside within the proposed Project, or within the City, or Alameda County (the ROI).

Indirect Inducement of Population Growth

Indirect inducement of growth could occur if the proposed Project could encourage or spur growth in areas outside of the Project site due to the construction of infrastructure – such as roads or utilities – that would open undeveloped areas to new growth, or stimulate additional growth in existing developed areas. The Project site constitutes an infill site surrounded by existing developed areas currently served by existing infrastructure, although certain utilities require replacement or upgrading throughout the Project site to adequately serve the proposed development.

As described in Chapter 3, Project Description, and in Section 4.14, *Utilities and Service Systems*, the Project would remove the existing onsite water lines and replace them with updated lines that are better suited to serve the Project. Similarly, the Project would remove the existing natural gas and electrical infrastructure to be replaced in new joint trenches. These improvements would be developed almost solely within the Project site, except where offsite connections to main lines is necessary and would be developed specifically to serve the needs of the Project. The proposed level of improvements would be required for any substantive redevelopment of the Project site, including that envisioned in the Housing Element and General Plan, as well as for the Maximum Capacity Alternative analyzed in the 1998 EIS/EIR. Development of the proposed Project could encourage new nearby commercial development outside of the Project site, as new residents, employees, and visitors on the Project site create new demand for services and goods in close proximity. Whether and to what extent this would occur, and when, cannot be predicted at this stage, given that development of the Project would occur over time for several years, and development of nearby commercial areas may occur regardless and independently, though concurrently. Any such ancillary development in areas near the Project site would be fully served by existing services and utilities, and would not be of a size likely to require the development of new housing for additional new commercial employees. (Also see *Growth Inducing Impacts*, in Chapter 6 of this EIR.) The impact would be less than significant. The proposed Project would not indirectly induce substantial growth not previously anticipated.

Other Secondary and Temporary Effects of Growth

Construction of the proposed Project will require temporary construction employment. Such employment growth would be limited to the periods of phased construction. The potential temporary effects of this interim employment would not be substantial and theoretically associated with employee parking and/or peak-hour vehicle trips to and from the Project site. As discussed in Section 4.13, *Transportation, Circulation and Parking*, it is expected that construction worker parking (and construction staging) would be accommodated within the Project site and therefore would not be expected to spill over into the adjacent neighborhoods. Moreover, peak-hour trips from construction workers would be substantially fewer than peak-hour vehicle trips associated with the Project, which are fully analyzed and disclosed in Section 4.13 of this chapter. The potential for secondary or temporary effects of growth associated with construction employment growth with the proposed Project would be less than significant.

Cumulative Impacts

As discussed above, the Project is generally consistent with the 1996 Final Base Reuse Plan, the 1998 General Plan Land Use Diagram, and other relevant General Plan policies regarding population and housing. The Project contributes to the provision of needed regional housing. The cumulative population and housing analysis considers the proposed Project in the context of the City, County, and Bay Area projected growth (see Tables 4.11-1 through 4.11-5). Therefore, by its nature, the analysis presented throughout this section considers the Project's contribution in combination with other past, present, existing, approved, pending, and reasonably foreseeable future projects on a local and regional level.

Based on the methodology applied in the 1998 EIS/EIR (see Table 4.11-6), the amount of population growth anticipated from the proposed Project (2,572) would account for about 1.9 percent of total population growth projected for Oakland between 2015 and 2040 (136,400), and approximately 0.6 percent of the total population growth projected for Alameda County between 2015 and 2040 (407,100).

Similarly, based on the Project's night-time residential population estimated in this Draft EIR (Table 4.11-4, which does not factor in additional day-time residents generated by the new jobs), the number of residents with the proposed Project (2,236) would account for about 1.6 percent of total population growth projected for Oakland between 2015 and 2040 (136,400), and approximately 0.5 percent of the total population growth projected for Alameda County between 2015 and 2040 (407,100). [5] The Project's service population (residents and employees) would account for about 1.7 percent of total population growth projected for Oakland between 2015 and 2040 (136,400), and approximately 0.6 percent of the total population growth projected for Alameda County between 2015 and 2040 (407,100).

The estimated Project night-time residential population (2,236) would account for approximately 0.4 percent of the *total* population anticipated in Oakland in 2040 (551,100). The estimated Project service population (2,416) would account for approximately 0.44 percent of the *total* population anticipated in Oakland in 2040 (551,100).The estimated number of new permanent jobs created by the proposed Project (180) would represent approximately 0.07 percent of the total Oakland employment estimated for 2040 (275,760).

Further, as discussed above, the proposed Project would provide needed regional housing and is generally consistent with the 1996 Final Base Reuse Plan, the 1998 General Plan Land Use Diagram, other relevant General Plan policies regarding population and housing, and the Plan Bay Area.

Taking these considerations together, the proposed Project, combined with other cumulative development locally and regionally, would not result in substantial population growth in comparison to the total growth anticipated for Oakland, Alameda County, and the Bay Area region. Nor would the Project's growth represent a cumulatively considerable contribution to local or regional growth. The impact is less than significant.

5 From Table 4.11-1, Table 4.11-4 and Table 4.11-5.

Impact Conclusion: Less than Significant.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact; No New Mitigation Measures Identified.

References – Population and Housing

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City of Oakland, 2006. "General Plan Conformity Determination for Oak Knoll Naval Medical Center (NMCO) Property; Mountain Boulevard." Letter from Gary Patton, Deputy Director of Planning and Zoning, to Pat Keliher, Project Manager, SunCal Oak Knoll LLC. May 25.

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4.12 Public Services and Recreation

4.12.1 Introduction

This section assesses the potential for the Project to result in significant adverse environmental impacts related to public services and recreation. To determine whether the proposed Project would result in any new impacts, or increases in the severity of impacts related to public services and recreation previously disclosed for the Maximum Capacity Alternative in the 1998 EIS/EIR, this analysis considers the impacts that could result with the proposed Project, specifically to fire protection and emergency services, police protection services, public schools, and parks and recreation facilities, and compares these impacts to those identified in the previous EIS/EIR, and mitigation measures in that document.

4.12.2 Setting

Local Services

Fire Protection and Emergency Medical Services

The Oakland Fire Department (OFD) provides fire protection services and emergency medical services throughout the City. OFD operates 25 fire stations and maintains a fleet of 24 engines, 7 trucks, and numerous other special operations, support, and reserve units throughout 3 battalions. Total Operations Division staffing consists of 508 authorized uniformed personnel. The actual number of assigned personnel per station varies depending on the specific needs of individual stations. All personnel are trained as Paramedics or Emergency Medical Technicians (OFD, 2015).

In addition to firefighting and emergency medical response capabilities, the Fire Department also has a hazardous materials unit that operates from Station 3 at 1445 14th Street and responds citywide to emergencies involving hazardous materials (OFD, 2015). In addition, under its Vegetation Management Program, the City conducts an annual fire code inspection of private and public properties, including open spaces (City of Oakland, 2015a).

The closest OFD facility to the Project site is Station 26, located about 1.7 miles south of the Project site at 2611 98th Ave. Station 23 is located about 2.5 miles west of the Project site at 7100 Foothill Boulevard, and Station 21 is located at 13150 Skyline Boulevard, about 5 miles from the Project site.

The Oakland Fire Department Dispatch Center is responsible for fire and medical emergency coordination and response, and receives approximately 60,000 calls for response annually, of which approximately 80 percent are medical in nature (OFD, 2015).The City's response time goal for the Fire Department is seven minutes or less, 90 percent of the time (City of Oakland, 2015a). The Oakland Fire Department meets a 7.5-minute response time 90 percent of the time, and meets 8-minute response time standard for medical calls (City of Oakland, 2015b).

Oakland Fire Suppression, Prevention, and Preparedness District Ordinance

The Oakland Fire Suppression, Prevention, and Preparedness District Ordinance was formed in response to the Oakland Hills Fire of 1991. That disaster brought to light the need to take preventative steps both to reduce the likelihood of another fire occurring, and to reduce the severity if such an event were to occur. The ordinance called for the formation of a locally-funded mechanism to implement a program of fire suppression, prevention and preparedness in areas of the city especially in need of such services to supplement and augment the provisions of state law. The resolution created the district to receive such services and allowed for the determination and annual levy of assessment for the district (Ord. 12556 § 2, 2003).

City of Oakland Wildfire Prevention Assessment District

The Project is within the previously enacted Wildfire Prevention Assessment District, which lost a November 2013 ballot bid to raise property taxes to fund fire prevention efforts. The District parcel tax expired in 2014, and voters chose not to renew it. The Oakland's Wildfire Prevention District is set to sunset once all of its funds are expended, anticipated by the end of June 2017 (Oakland Firesafe Council). As part of its Standard Conditions of Approval and Uniformly Applied Development Standards Imposed as Standard Conditions of Approval, the City requires all projects to prepare and implement a Vegetation Management Plan focused on reducing fire risks.

Police Protection

The Oakland Police Department (or OPD) is geographically divided into two Bureaus of Field Operations (BFO) and into 5 Police Districts. The BFO is the largest component of OPD. Patrol personnel provide day-to-day police services that include response to emergency and non-emergency calls for service and critical incidents, conducting preliminary investigations and evidence collection, engaging in community-oriented problem solving, and crime-fighting efforts (OPD, 2015a).

The Project site is located in BFO 2 and in District or Area 5 which is home to a large, diverse community that includes the Coliseum Complex and Oakland International Airport. Area 5 includes a total of 51 officers assigned to patrol. District 5 also has five neighborhood service coordinators who are civilian employees who serve as a liaison between the community and OPD, and work with residents, businesses, schools, and other institutions to set priorities and develop strategies to improve public safety and reduce crime. Each neighborhood services coordinator handles multiple police beats (OPD, 2015a). The Project site is located within Beat 35Y of Area 5. Beat 35Y comprises the area bounded by Mountain Road, Keller Ave, Skyline Blvd and the border of San Leandro/Lake Chabot (OPD, 2015).

The closest station to the Project site is the Oakland Police Traffic Division, located 1.6 miles west in the Eastmont area. OPD is headquartered at 455 7th Street, approximately 11 miles from the Project site. (OPD, 2015a) All emergency and non-emergency calls for police services are received through the Police Department's communications center located at 1701 Edgewater Drive. Calls for fire and medical services are routed to the Oakland Fire Department for

dispatching (OPD, 2015a).The Police Department's response times to calls for police services are recorded for the City of Oakland as a whole; the Police Department does not track response times for individual service areas.

Response times generally reflect the perceived seriousness of the call. The Police Department ranks incoming calls for police services as follows: Priority 1 means imminent danger of death or serious injury, felonies in progress, or serious public health hazards; Priority 2 refers to disputes with potential for violence, misdemeanor crimes in progress, stolen vehicle reports, and similar matters; and Priority 3 calls are reports of incidents that do not present danger to life or property. City maintains a police response time goal of 5 minutes for priority 1 calls, between 10-15 minutes for Priority 2 calls, and 30 minutes for Priority 3 calls. In 2011, citywide average response times for Priority 1, 2, and 3 calls were 10 minutes, 23 minutes, and 24 minutes respectively. The response times for Priority 1 and 2 calls did not meet City goals.

As of late 2015, the Police Department employed 737 police officers, with a budgeted increase to 777 in July 2016 (OPD, 2016). With an estimated citywide population of 414,700 in 2015 (ABAG, 2013), the ratio of police officers to residents based on 777 officers is approximately 1.8 officers per 1,000 residents, or approximately 1 officer per 534 residents.[1] OPD's 2016 Strategic Plan similarly reports the City's ratio as 1 officer per 573 residents (OPD 2016). Both ratios exceed the national average of 1 officer per 487 residents reported for the nation's 10 largest U.S. cities according to the Federal Bureau of Investigations (OPD 2016).

The 2016 OPD Strategic Plan focuses on OPD's limited staffing resources and sets goals for increased staffing and other actions to improve its response times for 911 calls and other police services. The Strategic Plan identifies several goals and actions regarding crime, community relationships, and organization. The Strategic Plan also specifies goals and actions for which additional resources would be required – primarily additional sworn and civilian staff to address response times. No physical facilities are identified in the Strategic Plan or the City's 2015-2017 adopted budget to affect response times or other performance objectives. (OPD, 2016)

Public Schools

The Oakland Unified School District (OUSD) operates the public school system in the City of Oakland. The OUSD administers 68 elementary schools, 16 middle schools, one junior high school, 22 high schools, and three K-12 schools (Ed-Data, 2015). It is also responsible for three alternative schools, one special education school, three continuation schools, two community day schools, and one opportunity school. The District's overall enrollment for the 2014-2015 school year was 48,077 students (Ed-Data, 2015).

The Project site is entirely located within District 7 of the OUSD (OUSD, 2013a). The nearest schools to the Project site include Charles P Howard Elementary School (0.7 miles from the Project site), Frick Middle School (3.1 miles from the Project site), Skyline High School (5.8 miles from

[1] Based on 777 officers budgeted for July 2016, divided by 415 (Citywide population of 414,700 divided by 1,000).

the Project site), Bishop O'Dowd High School (1.2 miles from the Project site) and Bay Area Technology School (1.5 miles from the Project site).

For the 2012-2013 academic year, total enrollment was 197 at Charles P Howard Elementary School, 312 at Frick Middle School, 1,781 at Skyline High School, and 239 students at Bay Area Technology School (California Department of Education, 2015).

Students from the Project may not necessarily attend nearby schools. Oakland Unified allows any student to apply to any school in the District. The goal of this open enrollment practice—called the School Options Program—is to ensure all families have equitable access to high-performing schools across the City (OUSD, 2015). OUSD has offered Options enrollment program since the 2005-2006 school year, and since that time, enrollment patterns across OUSD have changed. OUSD's overall enrollment has previously peaked in the 1999-2000 school year at 55,051, dropping to approximately 46,431 by the 2007-08 school year, where it has remained steady through the 2014-2015 school year (DataQuest, 2015).

The school facility fee study prepared on behalf of the OUSD in 2012 documents student generation rates for elementary school (0.141 students per unit), middle school age (0.060 students per unit), and high school age (0.073 students per unit).

Parks

The City of Oakland's Public Works Agency (Parks, Trees, & City Landscapes Department) manages and maintains the City's parks and recreation centers within the city boundaries. Maintenance includes litter pickup and removal, pruning, weeding, turf mowing, irrigation system repairs and planting (Oakland Public Works Agency, 2015). The Open Space and Recreation Element (OSCAR) of the General Plan includes a parkland acreage goal of 10 acres per 1,000 residents and a local-serving park acreage goal of 4 acres per 1,000 residents (City of Oakland, 1996).

Oakland's parks are categorized by size and intended service area. Generally, local-serving parks "meet the active recreational needs of the community" surrounding the park, rather than the City as a whole (Oakland, 1996). The Project site is located in the City's South Hills Planning area; as discussed in the1996 OSCAR, the South Hills area has 22 acres of local-serving parks and 15,100 residents, for a per capita local-serving park acreage of 1.49 acres per 1,000 residents. The South Hills ratio is less than half the adopted standard of 4 local-serving park acres per 1,000 residents, and substantially below the City's goal of 10 acres per 1,000 residents.

Overall, Oakland has approximately 6,063 acres of parkland, including 4,101 acres of parks managed by Office of Parks and Recreation (OPR), 1,701 acres of open space managed by the East Bay Regional Parks District (EBRPD), and 261 acres of open space managed by the Port of Oakland (Trust for Public Land, 2015). With this acreage, and a population of 390,724 in 2010 (U.S. Census, 2015), Oakland has around 15.5 acres of parkland per 1,000 residents, exceeding its overall parkland acreage goal of 10 acres per 1,000 residents. Oakland also has 73 playgrounds, resulting in 1.8 playgrounds per 1,000 residents (Trust for Public Land, 2015).

Nearby parks and open spaces serve resident, employee, and visitor populations in the South Hills area. The nearest park to the Project site is the EBRPD-owned and maintained Leona Canyon Regional Open Space Preserve, which consists of a 290-acre wooded canyon and trails located on Keller Avenue, north of the Project site. Other public parks near the Project site include the City-owned and maintained Knowland Park and Oakland Zoo southwest of the Project site; and the 1,829-acre Redwood Regional Park, owned and maintained by EBRPD, farther east of the Project site. The South Hills area does not have a community park.

Recreational Facilities

The OPR also operates community-based centers located throughout City. The centers offer various public recreation, programs, including sports (swimming, boating, golf, basketball, soccer, softball, tennis, horseback riding), arts and crafts, culture arts and dance, gardening, computer lab, drama, mentoring, general learning, summer and holiday day camps and after-school activities. OPR provides sports and physical activities for all ages and ability levels. The nearest recreation center to the Project site is the Arroyo Viejo Recreation Center, which is approximately located approximately 3 miles east. The Arroyo Viejo Recreation Center features a football/soccer field, tennis courts, tot lot, patio area, social hall, craft and game room, computer lab, newly renovated baseball field, picnic areas, and a community garden (OPR, 2015).

Regulatory Setting

Senate Bill 50

The Leroy F. Greene School Facilities Act of 1998, or Senate Bill 50 (SB 50), authorizes school districts to levy developer fees to finance the construction or reconstruction of school facilities, and restricts the ability of local agencies to deny project approvals on the basis that public school facilities (classrooms, auditoriums, etc.) are inadequate. School impact fees are collected at the time when building permits are issued. Payment of school fees is required by SB 50 for all new residential development projects and is considered full and complete mitigation of any school impacts. School impact fees are payments to offset capital cost impacts associated with new developments, which result primarily from costs of additional school facilities, related furnishings and equipment, and projected capital maintenance requirements. As such, agencies cannot require additional mitigation for any physical school impacts.

In January 2012, the State Allocation Board (SAB) approved maximum Level 1 developer fees at $0.51 per square foot of enclosed and covered space in any commercial or industrial development, and $3.20 per square foot for residential development (SAB, 2012). These fees are intended to address the increased educational demands on the school district resulting from new development. Public school districts can, however, impose higher fees than those established by the SAB, provided they meet the conditions outlined in the act. Private schools are not eligible for fees collected pursuant to SB 50.

Local Plans and Policies

City of Oakland General Plan

Policies contained in the Oakland General Plan pertain to the various public services and recreation:

Land Use and Transportation Element (LUTE)

- ***Policy N.12.1*:** The development of public facilities and staffing of safety-related services, such as fire stations, should be sequenced and timed to provide a balance between land use and population growth, and public services at all times.

- ***Policy N.12.2*:** Adequate public school capacity should be available to meet the needs of Oakland's growing community. The City and the Oakland Unified School District (OUSD) should work together to establish a continuing procedure for coordinating residential and commercial development and exploring the imposition of mutually agreed upon reasonable and feasible strategies to provide for adequate school capacity. The City and OUSD should jointly consider, where feasible and appropriate, funding mechanisms such as assessment districts, redevelopment Agency funding (AB1290), uses of surplus City-owned land, bond issues, and adjacent or shared use of land or school facilities with recreation, libraries, child care and other public uses.

- ***Policy N.12.3***: High quality day care should be available throughout Oakland, appropriately sited and designed based on its capacity and attributes. The City should, when appropriate and feasible, require major development projects to provide on or off sight facilities or other means to address potential child care inadequacies and encourage the inclusion of child care centers in major residential and commercial developments near transit centers, community centers, and schools.

- ***Policy N.12.5:*** In its capital improvement and public service programs, the City should give priority to reducing deficiencies in, and disparities between, existing residential areas.

Safety Element

- ***Policy FI-1:*** Maintain and enhance the city's capacity for emergency response, fire prevention and fire fighting.

- ***Policy FI-2***: Continue, enhance or implement programs that seek to reduce the risk of structural fires.

Open Space, Conservation and Recreation (OSCAR) Element

- ***Policy OS-3.2****:* Military Base Open Space. Support provisions for park and open space areas in plans for military base re-use. At Oak Knoll Naval Hospital, designate undeveloped areas with high natural resource or scenic value as Resource Conservation Areas. Consider using existing athletic fields and recreation facilities at Oak Knoll as a new Urban Park site.

- ***Policy OS-5.1***: Priorities for Trail Improvement. Improve trail connections within Oakland, emphasizing connections between the flatlands and the hill and shoreline parks; lateral trail connections between the hill area parks; and trails along the waterfront.

- ***Policy REC-3.1:*** Use level of service standards of 10 acres of total parkland and 4 acres of local-serving parkland as a means of determining where unmet needs exist and prioritizing future capital investments.

- ***Policy REC-3.3:*** Consider a range of factors when locating new parks or recreational facilities, including local recreational needs, projected operating and maintenance costs, budgetary constraints, surrounding land uses, citizen wishes, accessibility, the need to protect or enhance a historic resource, and site visibility.

- ***Policy REC-10.2:*** To the extent permitted by law, require recreational needs created by future growth to be offset by resources contributed by that growth. In other words, require mandatory land dedication for large-scale residential development and establish a park impact fee for smaller-scale residential development projects, including individual new dwelling units. Calculate the dedication or fee requirement based on a standard of 4 acres of local-serving parkland per 1,000 residents.

- ***South Hills Planning Area Recommendation:*** Retain open space on the portions of the Oak Knoll Naval Hospital which are greater than 30 percent slope, contain native oak woodlands, or are within the riparian zone along Rifle Range Creek. Consider using the Officer's Club at the Naval Hospital as a recreation center serving the South Hills.

City of Oakland Standard Conditions of Approval and Uniformly Applied Development Standards Imposed as Standard Conditions of Approval

The City of Oakland's standard practice is to incorporate relevant Standard Conditions of Approval (SCAs) as part of project approvals. SCAs relevant to reducing impacts on public services due to construction and operation of the proposed Project are listed below. If the Project is approved by the City, all applicable SCAs would be adopted as conditions of approval. The SCAs are incorporated and required as part of the Project, so they are not listed as mitigation measures. These SCAs would help ensure less-than-significant impacts to public services.

- **SCA PSR-1: Compliance with Other Requirements.** The project applicant shall comply with all other applicable federal, state, regional, and local laws/codes, requirements, regulations, and guidelines, including but not limited to those imposed by the City's Bureau of Building, Fire Marshal, and Public Works Department. Compliance with other applicable requirements may require changes to the approved use and/or plans. These changes shall be processed in accordance with the procedures contained in Condition #4.

The following applicable Standard Conditions of Approval that address fire safety planning and wildfire prevention are stated in full in Section 4.7, *Hazards and Hazardous Materials*:

- **SCA HAZ-4: Fire Safety Phasing Plan.**

- **SCA HAZ-5: Wildfire Prevention Area – Vegetation Management**

    a. Vegetation Management Plan Required.

    b. Fire Safety During Construction.

4.12.3 Discussion of Impacts

Significance Criteria

The City of Oakland has established thresholds of significance for CEQA impacts (City of Oakland, 2013). Per these thresholds, the proposed Project would cause significant adverse impacts related to public services and recreation if it would:

a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

   1. Fire Protection;
   2. Police Protection;
   3. Schools;
   4. Parks; or
   5. Other public facilities

b) Increase the use of existing neighborhood or regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated; or

c) Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

New Information / Changed Circumstances

Modified Criterion for Governmental Facilities

Since preparation of the 1998 EIS/EIR, the significance criterion that the City of Oakland applies to evaluate the potential environmental impacts to public services has been modified to clarify that a significant impact would result if a project would result in

> "…*physical* impacts associated with the provision of, or the need for, new or physically altered governmental *facilities*, (the construction of which could cause significant environmental impacts), *in order to* maintain acceptable service ratios, response times, or other performance objectives for any of the following public services" (emphasis and parentheses added).

Consistent with current City practice, the potential need for additional staffing resulting from a proposed development project is not considered a physical impact under CEQA. If the department indicates that a development project may require additional staff resources, the City of Oakland would authorize funding for public service staffing through the discretionary general fund budgeting process, the method suggested in the 1998 EIS/EIR Mitigation Measures.

Senate Bill 50

Since the 1998 EIS/EIR, the Leroy F. Greene School Facilities Act of 1998, or SB 50, which requires the payment of public school fees for all new residential development projects and

determined that the payment of such fees, would be considered full and complete mitigation of any school impacts. No further mitigation measures for any physical school impacts would be required under CEQA.

Impacts and Mitigation Measures

Fire Services Impacts

Impact PSR-1: The proposed Project would result in an increase in demand for fire protection and emergency medical response services that would require new or physically altered fire protection facilities in order to maintain acceptable performance objectives. (Criterion a.1) ***(Less than Significant with SCAs)***

1998 EIS/EIR.

The 1998 EIS/EIR indicated that the Maximum Capacity Alternative would cause a minimal increase on the demand for City of Oakland Fire Department services and emergency medical service (including during construction) and therefore the impact would be "nonsignificant" (i.e., less than significant). No mitigation measures were identified.

Proposed Project.

The new development and population attributed to the proposed Project would be expected to result in an incremental increase in the number of emergency medical calls at the Project site (see Section 4.11, *Population and Housing*). The proposed Project would generate 935 residential units and approximately 2,236 people, or 0.4 percent of the OFD's total 2040 residential service population in Oakland.

This level of development and population would not result in the need for additional fire protection facilities in order to maintain acceptable performance objectives. First, pursuant to **SCA PSR-1 (Compliance with Other Requirements)**, all appropriate building and fire code requirements would be incorporated into Project construction, and the Oakland Fire Department would review the Project for adequate on-site access, emergency access routes to the Project site as well as to the parcels not part of the Project (the Sea West Credit Union and the Seneca School administrative offices), vegetation management, and any necessary special on-site equipment to assist firefighters. As part of SCA PSR-1, the Fire Department also would review the Project plans at the time of building permit issuance to ensure compliance with all applicable state and County fire safety requirements including adequate fire and life safety measures. The Project applicant would be required to incorporate the Fire Department's recommendations into the final Project design.

As discussed in Section 4.7, *Hazards and Hazardous Materials*, the Project will also incorporate **SCA HAZ-4 (Fire Safety Plan)** that requires preparation of a Fire Safety Plan that specifies all of the fire safety features incorporated into each phase of the Project and the schedule for implementation of the features. Also, the analysis of potential wildlands fire risk in Impact HAZ-8 in Section 4.7, *Hazards and Hazardous Materials*, discusses that the Project site is in a fire

threatened community and will incorporate several measures specific to minimizing fire risk associated with vegetation or wildland fires. The Project is required to incorporate drought tolerant and water efficient landscaping as well as routine maintenance to effectively reduce the risk of wildland fire on the site. As discussed in Impact HAZ-8 (as well as in Section 4.3, *Biological Reso*urces, Impact BIO-5), the proposed Project would involve substantial tree removal (and replacement) that would also reduce the potential for catastrophic wildland fire. Specifically, the Project would implement **SCA HAZ-5 (Wildfire Prevention Area – Vegetation Management)** requiring preparation of a Vegetation Management Plan. The Project sponsor has already submitted to the City a proposed Tree Mitigation Plan (Figure 4.3-7, in Section 4.3, *Biological Resources*) which furthers implementation of SCA HAZ-5. Given the vegetated nature of portions of the Project site, actions that reduce the potential for wildland fire to occur onsite are relevant to reducing the potential demand for increased fire services as a result of the Project.

Compared to the Maximum Capacity Alternative analyzed in the 1998 EIS/EIR which identified a less than significant (nonsignificant) impact regarding fire services, the proposed Project includes 351 more residential units and nearly 314,000 fewer square feet of commercial development. The proposed Project includes a total of 78.7 acres of open spaces (including 62 acres of large undisturbed and revegetated areas and 16.7 acres associated with the restored creek corridor); similarly, the Maximum Capacity Alternative involves 86 acres of open spaces (conservation areas as well as a 54-acre golf course). Comparing Figure 3-10 of the proposed Project's parks and open space areas with Figure 4-1 of the Maximum Capacity Alternative's proposed land uses, both proposals would retain large areas of preserved grassland and Oak woodlands. Taken together, the overall level of development, on-site population, and natural vegetated areas that contribute to fire risk and the demand for fire protection and emergency medical services are comparable between the Maximum Capacity Alternative analyzed in the 1998 EIS/EIR and the proposed Project.

Summary

In summary, proposed Project elements (vegetation fuel reduction) and adherence to local requirements and standard reviews mandated by SCAs PSR-1, SCA HAZ-4, and HAZ-5, will reduce the potential incidence of fire and demand for additional services warranting additional physical facilities. The Project site would continue to be served by the existing OFD Stations 26 and 23 located about 1.7 and 2.5 miles, respectively, from the Project site. The proposed Project would not require the construction of new or physically altered fire facilities to ensure the provision of adequate fire or emergency services. The impact would be less than significant.

Impact Conclusion: Less than Significant with SCAs.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact; No New Mitigation Measures Identified.

Police Services Impacts

Impact PSR-2: The proposed Project would not result in an increase in demand for police services that would require new or physically altered police facilities in order to maintain acceptable performance objectives. (Criterion a.2) *(Less than Significant)*

1998 EIS/EIR.

The 1998 EIS/EIR indicated that the Maximum Capacity Alternative would increase demand for the Oakland Police Department services to a level that warrants additional police staffing. Based on the significance criterion applied in the 1998 EIS/EIR analysis, this would result in a significant impact that would be mitigated to less than significant with implementation of Mitigation 1 shown below. The mitigation is presented below, however, it is shown in deleted format because it would no longer apply to reduce significant impacts under CEQA (as discussed in the *Proposed Project* discussion below):

> ~~**Mitigation 1:** The impact of increased demand for one additional police officer could be mitigated by the City of Oakland utilizing general fund money to pay for the new officer. In the event that the general fund is insufficient to pay for the increased demand, an alternative method would be for the site developer, in consultation with the City of Oakland, to explore methods of providing for an additional officer.~~

Proposed Project.

The proposed Project would result in increased demand for police officer staff, however, the demand would not result in the need for additional police facilities, because the existing police department facilities have sufficient space to accommodate additional administrative staff and patrol units over time. The proposed Project would generate approximately 2,236 people – an increase that would not change the current officer to resident ratio of 1.8 per 1,000 residents citywide discussed in the Setting.[2] The added population represents 0.4 percent of the OPD's total 2040 residential service population. The added population would represent a larger percentage of the residential population within Beat 35Y where the Project site is located, however, OPD applies citywide performance goals. Even with a higher local residential population and an eventual increase in local police staffing levels, this project would not trigger a need to build new or expanded police station facilities.

As previously described, the overall level of development and on-site population, however, would be comparable to that analyzed for the Maximum Capacity alternative, even considering the proposed Project has more residential use and less commercial use that the Maximum Capacity Alternative. Because the applicable significance criterion for this topic focuses on the need for new or physically altered governmental *facilities*, the Impact and Mitigation 1 identified in the 1998 EIS/EIR would no longer be applicable. While OPD continues to identify severe staffing needs to address response goals, it does not identify the need for new physical facilities.

[2] Based on 777 officers budgeted for July 2016, divided by 417 (Citywide population of 414,700 + 2,236, divided by 1,000).

Although there is a less than significant CEQA impact on police services, given particular Project characteristics such physical and visual access, dense vegetation cover and grasslands, steep topographic changes, as well as its creation of a new residential mixed use neighborhood with publicly-accessible parks and open spaces, the City recommends that the Project sponsor seek focused OPD review to reduce potential police service demand from the Project, as described in new Recommendation PSR-1 below:

> **Recommendation PSR-1:** As part of the City's standard development review process, the Project sponsor should submit the Project plans for Crime Prevention through Environmental Design (CPTED) review by the Oakland Police Department and Bureau of Planning staff. The Project should consider design features included on the City's CPTED Checklists for residential, commercial, and civic uses. The Project sponsor should incorporate the Police Department's recommendations into the final Project design and implement the design measures. CPTED review and recommendations may address points of access to the Project site or adjacent parcels, adequate public lighting, landscaping and buffering that provides visual access, particularly in parks, open spaces, and pedestrian and bicycle facilities, etc.

Summary

In summary, pursuant to the current City of Oakland significance criterion and CEQA, the proposed Project would not require the construction of new or physically altered police facilities, specifically to achieve acceptable service ratios. Therefore the impact is less than significant. Mitigation 1 identified in the 1998 EIS/EIR is no longer applicable and no new mitigation is required.

> **Impact Conclusion:** Less than Significant.
>
> **Comparison to 1998 EIS/EIR Findings:** No New Significant Impact; Previous Mitigation Measure Not Applicable; No New Mitigation Measures Identified.

Public Schools Impacts

Impact PSR-3: The proposed Project would not result in new students for local schools at a level that would require new or physically altered school facilities to maintain acceptable performance objectives. (Criterion a.3) (Less than Significant)

1998 EIS/EIR.

The 1998 EIS/EIR estimated that the Maximum Capacity Alternative (584 dwelling units) would generate approximately 213 new students that would attend OUSD schools (based on a 1998 OUSD student generation rate of 0.364 students per household, as indicated in the EIR analysis). The analysis concluded that since OUSD had not at that time considered an increase of 213 students in its facilities planning, and since most schools in the OUSD were determined to be at or near capacity at that time, the increase would result in overcrowding and require new school construction. The 1998 EIS/EIR identified this as a significant impact and identified Mitigation 1 below to reduce the impact to less than significant. The mitigation is provided here for

information only, however, it is shown in deleted format because it would no longer apply to reduce significant impacts under CEQA or be consistent with state law (as discussed below).

> ~~**Mitigation 1:** Mitigation measures to reduce overcrowding to less than significant levels would include the following: (1) reassigning students among district schools to account for changing population and new development; (2) continuation and expansion of year-round schools; (3) more efficient use of underutilized and/or abandoned school facilities; (4) the addition of portable classrooms; and (5) the busing of students to less crowded schools. If these measures do not reduce overcrowding, OUSD may have to expand existing schools or construct new schools. All of these measures would require varying amounts of funding. If current sources of funding, including the City of Oakland school mitigation fees, increases in property tax and sales tax revenues and increases in state funding are insufficient to pay for the cost of mitigating overcrowding, the OUSD would formulate and implement specific measures to raise additional funds. Funding Sources which may be considered by the OUSD include: (1) adjustments of school mitigation fees on commercial and residential development; (2) the creation of special assessment or Mello Roos districts or annexation to a Community Facilities District; (3) sale of surplus OUSD property; and (4) any other funding mechanism available to the OUSD by state law or local ordinances, including those measure identified in the OUSD's Developer Fee Justification Study.~~

Proposed Project.

The Oakland Unified School District (OUSD) has experienced an overall decrease in student enrollment since the adoption of the 1998 EIS/EIR. Public schools near the Project site include Howard Elementary School and King Estate Middle School, which have decreased in student enrollment, and Skyline High School, which has increased in student enrollment. Changes in enrollment are attributed to the shift in age groups served by these schools, and the overall decrease in student enrollment (Lapkoff & Globalet, 2006).

Student Generation. The school facility fee study prepared for OUSD documents an overall student generation rate by school level (OUSD, 2012a). For the type of residential development proposed by the Project, the applicable student generation rates are 0.141 elementary, 0.060 middle school, and 0.073 high-school students per residential unit (OUSD, 2012a). The Project proposes 935 housing units, and as shown in **Table 4.12-1** would result in approximately 132 elementary students, 56 middle school students, and 68 high school students, for a total of 256 students.

TABLE 4.12-1
SCHOOL-AGE CHILDREN ESTIMATED FOR THE PROJECT SITE

	Students per Residential Housing Unit	Proposed Project (Estimated) [a]
Elementary School-Age Children (5 to 10)	0.141	132
Middle School-Age Children (11 to 13)	0.060	56
High School-Age Children (14 to 18)	0.073	68
TOTAL		**256**

NA = Not Available or Not Applicable
b = Based on 935 housing units directly created by the Project.

SOURCE: OUSD, 2012a

Table 4.12-1 presents an estimate of the number of school-age children that are anticipated to live in housing that would be created by the proposed Project. (OUSD, 2012a)

This analysis conservatively assumes that these students would all be new to OUSD. These new students would be added to district-wide enrollment incrementally over time as development of the proposed Project occurs. New students would distribute themselves among schools throughout the district (and private schools), under OUSD's School Options Enrollment Program, thereby reducing substantial enrollment to any one school or at one time. Enrollment at the OUSD has been steady for several years, and is projected to remain steady through school year 2018-2019 (OUSD, 2012).

While not under the control of the Project sponsor, the City's adherence to General Plan Policy N.12.2, described above, would reduce the potential for effects to school facilities associated with increased enrollment. Further, the Project would comply with Senate Bill (SB) 50, which fully mitigates the potential effect of new student population that may be generated by the Project on public school facilities. No new school facilities would be necessary to serve the Project. The 1998 EIS/EIR Mitigation 1 to reduce the impact to public schools to less than significant is no longer required because the potential impact is fully mitigated by payment of mandatory state fees. The impact is less than significant and no mitigation is required.

Impact Conclusion: Less than Significant.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact; Previous Mitigation Measure No Longer Applicable; No New Mitigation Measures Identified.

Parks and Recreation Impacts (Accelerated Physical Deterioration of Facilities)

Impact PSR-4: The proposed Project would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated. (Criterion b) (*Less than Significant*)

1998 EIS/EIR.

The 1998 EIS/EIR did not analyze the effect of the Maximum Capacity Alternative on the physical deterioration of facilities, thus no impact was identified. The 1998 EIS/EIR did indicate that the recreational area proposed by the Maximum Capacity Alternative would result in a beneficial impact since it would provide increased public access to recreational facilities; however, this consideration is not a significance criterion under CEQA Guidelines.

Proposed Project.

The proposed Project will include a series of parks, plazas, open spaces, as well as a community-wide system of parks, trails and walkways. In Chapter 3 (Project Description), Figure 3-10 illustrates the overall open space and parks concept for the Project, which includes large

undisturbed and revegetated areas and the restored Rifle Range Creek corridor. Much of the open space provides passive recreation space with opportunities for walking, bicycling, and picnicking, but the Project also proposes active use park areas. A total of 84.3 acres of parks and open space is proposed: approximately 62 acres of undisturbed or revegetated open spaces, hillsides and grasslands; 16.7 acres of the restored creek corridor and riparian areas; and 5.6 acres of parks (several small neighborhoods parks, a larger memorial park, and a large centralized community park).

The Project would also include a new 4,000 square-foot community center / clubhouse within the new larger central park located adjacent to the creek (see Figure 3-10 and Figure 3-14 in Chapter 3). The historic resource, Club Knoll, is proposed to be relocated and rehabilitated for the community center / clubhouse use.

A 3.5-mile system of parks, trails, and walkways is proposed to weave through the Project site (including some of the preserved and/or restored woodlands, grasslands, and hillside areas). This would create a network that would link the various neighborhoods within the Project site, as well as connect to the adjacent existing neighborhoods and the East Bay Regional Park District (EBRPD) trail system and open spaces, as depicted in Figure 3-11 in Chapter 3 (Project Description). Proposed trails would include facilities for multi-uses (shared use) and paths specific for hiking. **Figure 4.12-1**on the following page details the various types and users designated for each trail facilities proposed. Proposed bicycle routes onsite include a Class 1 route as part of the multi-use trail, and a Class 3 route (shared with drivers). A Class 3 bicycle route is also proposed along Mountain Boulevard along the Project site. (See *Bicycle Network* in Section 4.13, *Transportation and Circulation,* for more detailed description of bicycle facility classifications.)

As previously discussed in the Setting of this section, the South Hills Planning Area where the Project site is located has 1.49 acres of local-serving parks per 1,000 residents, which exceeds the current citywide provision of 1.33 acres of local-serving park acreage per 1,000 residents, although it is below the City's goal (but not requirement) of having 4 acres of local-serving park acreage per 1,000 residents (City of Oakland, 1996). The proposed community park and several smaller in-tract parks (see Figure 3-10) total approximately 5.6 acres and would be local-serving or "neighborhood" parks, as defined in the OSCAR Element as ranging from 2 to 10 acres in size, with a service area of one-half mile in the hill areas of the City. Adding the Project's new population and new local-serving parks acreage to the South Hills (as defined in the OSCAR) would result in 1.52 acres/per 1,000 residents, which increases the existing South Hills area ratio (1.49 acres per 1,000 residents).[3] The City's desired eventual ratio of local-serving parks acreage to resident is not intended to be a project-specific performance measure, and is not a requirement. The Project would provide approximately 2.0 acres of local-serving park acres per 1,000 residents, which exceeds the current ratio for the South Hills Area (1.49 acres) and citywide (1.33 acres), improving existing conditions.[4]

[3] South Hills has approximately 22 acres of local-service parks and 15,100 residents. With the proposed Project, South Hills would have 26.4 acres of local-serving parks and 17,336 residents.

[4] 4.4 acres for 2,236 residents equals 2.0 acres per 1,000 residents.

TRAIL TYPE MATRIX													
	Design Considerations				User Type								
TRAIL TYPE	Surface	Width	Longitudinal Slope	Cross Slope	Hiker	Walker	Runner	Dog Walker	Wheelchair or Electric Mobility Device	Biker	Maintenance Vehicle	Comments
Oak Knoll Stair Path:	Sidewalk, transitions to steps & trail at hillside	5'-0"			•	•	•	▫				Sign graphic used along trail to mark route.
Hiking Trail Trail:	Compacted soil / Soil cement / Fine gravel on soil cement / Recycled Pressure-treated Douglas Fir Timber tread stairs	24" - 30" is single use, 4' - 5' by situation	0 - 15% (short segments steeper than 15%)	2% min., 4% max.	•	•	▫	▫				Provide landings for passing every 1000 feet. Minimum landing size 5'-0" x 5'-0". Hiking trails if used as running trails should meet the following criteria: Running slope (trail grade) meets one or more of the following:- • 5% or less for any distance • Up to 8.33% max for 200 feet max. Resting intervals no more than 200' apart. • Up to 10' for 30' max. Resting intervals 30'. • No more than 30% of the total trail length may exceed a running slope of 8.33%.
Walking Trail	Compacted soil / Soil cement / Fine gravel on soil cement	5'-0"	0 - 5%	1 - 2%	•	•	•	•		▫		Provide surface that is ADA accessible where feasible (not required).
Shared Use Path (Biking / Walking / Running)		10' paved width	0 - 5%	2%		•	•	▫	•	•	▫	Markers on pavement / pavers to be used to separate bikers from walkers / hikers.
Neighborhood Path	Concrete sidewalk	5'-0" width	0-8%	0.5%	•	•	•	•				

• Intensive Use ▫ Minimal Use

SOURCE: OKVA, Hart Howerton, 2015

Figure 4.12-1
Trails Type Matrix

It is reasonable to assume that some of these 2,236 Project residents would be existing users of the South Hills Area neighborhood parks and recreation facilities, but conservatively assuming that they are all new to the area, the proposed parks and facilities would absorb a substantial part of demand of new residents and employees, as well as that of nearby residents and users.

In addition to the neighborhood park and recreational facilities, as well as the proposed trails network that would traverse some of the existing, large open space areas on the Project site (Oak woodlands, grasslands and hillsides), new residents would likely use existing neighborhood and regional parks and recreational facilities in the area (including Leona Regional Open Space, Knowland Park, Anthony Chabot Regional Park, King Estate Park, Burkhalter Recreational Facility, and Lake Chabot and Montclair golf courses). It is not expected that the Population would result in the substantial or accelerated physical deterioration of these facilities. Therefore, the impact of the proposed Project would be less than significant.

Impact Conclusion: Less than Significant.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact; No Mitigation Measures Identified.

Parks and Recreation Impacts (Effects of New or Expanded Facilities)

Impact PSR-5: The proposed Project would include new recreational facilities; however, the construction and long-term use of these facilities would not have an adverse physical effect on the environment. (Criterion c) (*Less than Significant with SCAs*)

1998 EIS/EIR.

The 1998 EIS/EIR indicated that the proposed recreational area for the Maximum Capacity Alternative would increase public access to recreational facilities, including reuse of Club Knoll for active recreational use. That analysis identified this increase with the Maximum Capacity Alternative a beneficial impact although this consideration is not a significance criterion under CEQA). However, the analysis did not consider whether adverse physical effects could result from the construction of the proposed recreational facilities. No impact was identified.

Proposed Project.

As described in Impact PSR-4 and illustrated in Figures 3-10 and 3-11 in Chapter 3 (Project Description), development of the proposed Project would develop a series of parks, plazas, open spaces, as well as a system of parks, trails and walkways onsite and that would connect to existing adjacent open spaces and trail facilities. Also, the Project is relocating Club Knoll to a central portion of the Project site for reuse as an Oak Knoll community center / clubhouse. To the extent that the construction of new recreational facilities would potentially result in significant adverse environmental effects, these effects are less than significant with incorporation of SCAs regarding potential adverse construction effects to air quality; biological resources; cultural resources, geology and soils; hydrology and water quality; noise, and transportation identified

throughout this document. These include SCA AIR-1 (Construction-Related Air Pollution Controls, Dust and Equipment Emissions), SCA BIO-1 (Tree Removal During Bird Breeding Season), SCA BIO-3 (Creek Protection Plan), SCA BIO-4 (Creek Dewatering/Diversion), SCA CUL-2 (Archaeological and Paleontological Resources – Discovery During Construction), SCA CUL-3 (Archaeologically Sensitive Areas – Pre-Construction Measures; Provision B: Construction ALERT Sheet), SCA GEO-3 (Construction-Related Permit(s), SCA HYD-1 (Erosion and Sedimentation Control Plan for Construction), SCA HYD-2 (State Construction General Permit), SCA NOI-1 (Construction Days/Hours), SCA NOI-2 (Construction Noise), SCA NOI-4 (Project-Specific Construction Noise Reduction Measures), SCA NOI-5 (Construction Noise Complaint Procedures), and SCA TRA-1 (Construction Activity in the Public Right-of-Way). No adverse permanent impacts associated with long-term use and maintenance of the on-site parks and recreation resources have been identified anywhere within this Draft SEIR. Taken together, the impact regarding the effects of constructing the proposed recreational facilities would be less than significant.

Impact Conclusion: Less than Significant with SCAs.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact; No Mitigation Measures Identified.

Cumulative Impacts

Impact PSR-6: The proposed Project, in combination with other past, present, existing, approved, pending, and reasonably foreseeable future projects within and around the Project area, would not result in an adverse cumulative increase in demand for public services or recreational facilities. ***(Less than Significant)***

Geographic Context

The geographic scope of potential cumulative impacts on public services and recreation encompasses the Project site and to all areas of the City, as public services and recreation facilities are provided citywide. While a private facility, the Seneca School for Children and Families (Seneca) is also considered in this cumulative assessment.

This analysis considers whether or not there would be a significant, adverse cumulative impact associated with Project in combination with past, present, existing, approved, pending and reasonably foreseeable future projects in the geographical area, and if so, whether or not the Project's incremental contribution to the cumulative impact would be considerable. Both conditions must apply in order for a project’s cumulative effects to rise to the level of significance.

Impact Discussion *Police and Fire Protection and Emergency Services*. As addressed in Impacts PSR-1 and PSR-2, the proposed Project would result in increased demand for police and fire protection and emergency services. Like all other cumulative development, the Project, would provide additional tax revenue and other development fees that would go toward paying for

increased public services. Moreover, the police and fire departments review all proposed plans for new development and access their respective ability to provide adequate service with existing infrastructure, as well as considers overall citywide demand against its facilities on an annual basis, including anticipated projections for new growth and development. All projects also would incorporate SCA PSR-1 (Compliance with Other Requirements), SCA HAZ-4 (Fire Safety Phasing Plan), and SCA HAZ-5 (Wildfire Prevention Assessment District – Vegetation Management) to address potential effects to police and fire protection and emergency services. The Oakland Police and Fire Departments have not identified any needs for additional facilities to maintain adequate levels of service for the Project area or elsewhere, due to anticipated growth.

Parks and Recreation Facilities

As discussed in Impact PSR-4 the City's overall target of 4 acres of local-serving park acreage per 1,000 residents is not current met (City of Oakland, 1996), so a cumulative deficit of local-serving parkland per resident citywide could exist. Cumulative projects may provide new park and open space facilities adequate to serve the population associated with its new population, but the City's ratio is not a standard for individual projects. The proposed Project includes approximately 5.6 acres of new local-serving parks that would increase and exceed the current local-service parks acreage per 1,000 residents in the South Hills Area (1.49 acres) and citywide (1.33 acres) (see footnotes 4 and 5). Therefore the Project would not reduce current local or citywide parks ratios. The proposed Project would also add approximately 62 acres of undisturbed or revegetated open spaces, hillsides and grasslands that would be accessed by parts of the proposed trail network through the site and connecting to adjacent existing neighborhoods and regional trail system and open spaces. Given the ample new parks and open space facilities provided by the Project, it would not result in increased use or deterioration of existing facilities.

Schools

Regarding schools, as stated above under Impact PSR-3, OUSD has experienced substantially decreased enrollment over the past decade, and current enrollment is projected to maintain steady through school year 2018-2019 (OUSD, 2012). Like all cumulative development, pursuant to Senate Bill 50 (SB 50), individual project applicants would be required to pay school impact fees established to offset potential impacts from new development on school facilities. Under OUSD's Options Enrollment Program, students may attend schools anywhere in the City (including private schools), and the contribution of approximately 256 students from Oak Knoll into all school levels, and over a gradual period of time, would not be a considerable contribution to OUSD facilities.

Summary

Considering the capacity of existing educational facilities citywide and in the vicinity of the Project site, and steady enrollment trends and forecasts, as well as the requirements of SB 50, the Project, in combination with past, present and reasonably foreseeable future projects, would not result in the need for new or physically altered school facilities.

The Project, combined with cumulative development (past, present, existing, approved, pending, and reasonably foreseeable future projects, as described in Section 4.0 *Environmental Analysis*), would result in a less-than-significant cumulative impact on police and fire services; the proposed Project would not have a considerable contribution to a significant impact. The impact would be less than significant.

Impact Conclusion: Less than Significant with SCAs.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact; Previous Project Mitigation Measures (Police and Schools) No Longer Applicable; No New Mitigation Measures Identified.

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4.13 Transportation and Circulation

4.13.1 Introduction

This section describes the transportation, circulation, and parking conditions, including transit services and pedestrian and bicycle facilities in the vicinity of the proposed Oak Knoll development project in Oakland, CA. This section also describes the regulatory setting relevant to transportation and circulation issues. Potential impacts of the proposed project are discussed and evaluated, and appropriate mitigation measures or Standard Conditions of Approval (SCA) are identified, as necessary, followed by identification of the residual impact significance after mitigation measures are implemented.

The previously-certified 1998 *Environmental Impact Statement / Environmental Impact Report for the Disposal and Reuse of the Oak Knoll Naval Medical Center Oakland* (referred to throughout this document as "1998 EIS/EIR") evaluated several reuse alternatives for the project site. This section presents a qualitative comparison of the proposed project's effects to those identified for the Maximum Capacity Alternative in the previously-certified 1998 EIS/EIR.

The analysis evaluates the traffic-related impacts of the project during the weekday morning and evening peak hours. The analysis was conducted in compliance with City of Oakland and Alameda County Transportation Commission (ACTC) guidelines. Traffic conditions are assessed for the following scenarios:

- **Existing** – Represents existing conditions with volumes obtained from recent traffic counts and the existing roadway system.
- **Existing Plus Project** – Existing conditions plus traffic generated after completion of the proposed project.
- **2040 No Project** – Future conditions with planned population and employment growth, and planned transportation system improvements, for the year 2040. This scenario assumes no traffic growth at the project site. Traffic projections were developed using the ACTC Model.
- **2040 Plus Project** – 2040 No Project conditions plus traffic generated after completion of the proposed project.

This chapter also analyzes whether the project would substantially increase hazards due to a design feature or incompatible uses, result in inadequate emergency access, or conflict with adopted policies, plans, and programs regarding public transit, bicycle, and pedestrian facilities or decrease the performance or safety of such facilities. Although not expressly required by CEQA, this section also includes discussion of other transportation-related topics, including bicycle and automobile parking, transit ridership, queues, signal warrant analysis, and collision history.

4.13.2 Setting

Existing Street and Highway System[1]

Regional vehicular access to the project site is provided by Interstate 580 (I-580) and State Route 13 (SR 13), while direct local access is provided via Mountain Boulevard and Keller Avenue. These and other roadways in the study area are described below.

Regional Access

Interstate 580 (I-580) is an eight-lane freeway between I-80 (near the Bay Bridge) and the Tri-Valley area and beyond to the east. I-580 is located just west of the project site and has an average annual daily traffic (AADT) volume of approximately 168,000 vehicles (Caltrans, 2014) in the study area. The Keller Avenue / Mountain Boulevard interchanges provide the nearest access to the project site from I-580. Access is also provided from the 98th Avenue/Golf Links Road interchange to the south.

State Route 13 (SR 13) is a four-lane freeway between I-580 and SR 24, located north of the project site. SR 13 has an AADT of about 52,000 vehicles per day (Caltrans, 2014) in the study area.

Local Access

Campus Drive is a two-lane north-south residential street that extends between Keller Avenue and Redwood Road.

Mountain Boulevard is a two-lane north-south arterial that extends from SR 13 to Golf Links Road that provides direct access to the project. Sidewalks are provided on some portions of this roadway, but not adjacent to the project site. Mountain Boulevard is also a Class 3 bike route through the study area.

MacArthur Boulevard is a two- to four-lane northwest-southeast arterial that extends from Emeryville in the north to San Leandro in the south and generally parallels I-580.

Bancroft Avenue is a two- to four-lane arterial that is generally oriented north/south and extends between International Boulevard in Oakland and East 14th Street in San Leandro (where it continues as Hesperian Boulevard). It provides Class 2 bike lanes.

International Boulevard (CA-185) is a four-lane divided arterial that extends from 1st Avenue in the north to Durant Avenue in the south at the border with San Leandro, where it changes to East 14th Street.

San Leandro Street is a four-lane arterial running parallel to the BART tracks between Fruitvale Avenue in the north and East 14th Street (CA-185) in the south.

[1] For the purposes of the EIR analysis, Interstate 580 and parallel roadways are considered north-south, and Keller Avenue and streets parallel to it are considered east-west. In order to be consistent with the California Department of Transportation's (Caltrans') directional designation of I-580 as an east-west freeway, however, on- and off-ramps are described as eastbound and westbound, rather than southbound and northbound, respectively.

Keller Avenue is a four-lane east-west arterial that extends from Greenly Drive in the west to Skyline Boulevard in the east providing access to residential development and direct access to the project site. Sidewalks are provided adjacent to the project site.

Sequoyah Road is a two-lane east-west residential street that extends from Mountain Boulevard to Keller Avenue. Sidewalks are not provided on this roadway.

Golf Links Road is a two- to four-lane northwest-southeast arterial that extends between MacArthur Boulevard and the Lake Chabot Golf Course.

73rd Avenue is a four-lane divided arterial that extends between International Boulevard and Hillmont Drive, where it turns into Sunkist Drive.

82nd Avenue is a two-lane arterial that extends from east of MacArthur Boulevard to west of International Boulevard.

98th Avenue is a four-lane east-west arterial that extends between I-580 in the east and I-880 in the west; it intersects with Golf Links Road at I-580.

Study Intersections

Intersection operations at 44 intersections in the vicinity of the project site were evaluated during the weekday morning (AM) and evening (PM) under Existing and 2040 conditions; only 12 intersections were studied in the 1998 EIS/EIR. These time periods were selected because traffic generated by the project, in combination with background traffic, is expected to represent typical worst traffic conditions. The study intersections are listed below and shown on **Figure 4.13-1**. The 44 intersections were developed in coordination with City of Oakland staff and generally represent locations where the project is estimated to add 50 or more peak hour trips to a signalized intersection, or ten or more peak hour trips to a stop-controlled movement at an unsignalized intersection.

1. I-580 Eastbound Off-ramp/Seminary Avenue/Overdale Avenue
2. I-580 Eastbound On-ramp/Seminary Avenue/Kuhnle Avenue
3. I-580 Westbound Off-ramp/Mountain Boulevard/Kuhnle Avenue
4. MacArthur Boulevard/Foothill Boulevard/ 73rd Avenue
5. Ney Avenue/73rd Avenue
6. Greenly Drive/Edwards Avenue
7. I-580 Eastbound Off-ramp/Edwards Avenue
8. I-580 Westbound On-ramp/Mountain Boulevard/Edwards Avenue
9. Mountain Boulevard/Rifle Lane
10. I-580 Westbound On-ramp/Mountain Boulevard/Maynard Avenue
11. Greenly Drive/Keller Avenue
12. I-580 Eastbound Off-ramp/Fontaine Street/Keller Avenue
13. Mountain Boulevard/Keller Avenue
14. Williams Street/Keller Avenue (Project Site Access)
15. Campus Drive/Keller Avenue
16. I-580 Westbound Off-ramp/Mountain Boulevard/Shone Avenue
17. Bancroft Avenue/82nd Avenue

18. MacArthur Boulevard/82nd Avenue
19. Golf Links Road/82nd Avenue
20. Golf Links Road/Fontaine Street
21. Crest Avenue/Fontaine Street
22. Fontaine Street/I-580 Overcrossing
23. Mountain Boulevard/I-580 Overcrossing
24. Mountain Boulevard/Main Street (Project Site Access)
25. Mountain Boulevard/Sequoyah Road
26. Mountain Boulevard/Calafia Avenue
27. International Boulevard/98th Avenue
28. Holly Street/98th Avenue
29. Plymouth Street/98th Avenue
30. Birch Street/98th Avenue
31. Bancroft Avenue/98th Avenue
32. MacArthur Boulevard/98th Avenue
33. Thermal Street/98th Avenue
34. Lawlor Street/98th Avenue
35. Stearns Avenue/98th Avenue
36. Stanley Avenue/98th Avenue
37. I-580 Eastbound On-ramp/98th Avenue
38. Golf Links Road/I-580 Eastbound Off-ramp/98th Avenue
39. I-580 Westbound Ramps/Golf Links Road
40. Mountain Boulevard/Golf Links Road
41. San Leandro Street/98th Avenue
42. Mountain Boulevard/Creekside Parkway (Project Site Access)
43. Mountain Boulevard/Creekside Loop (Project Site Access)
44. Keller Avenue/Uplands Primary (Project Site Access)

Study Freeway Segments

In addition to intersection analysis, analyses of freeway mainline segments and ramp junctions (where vehicles merge/diverge to/from the mainline) were conducted at the following locations:

Freeway segments:

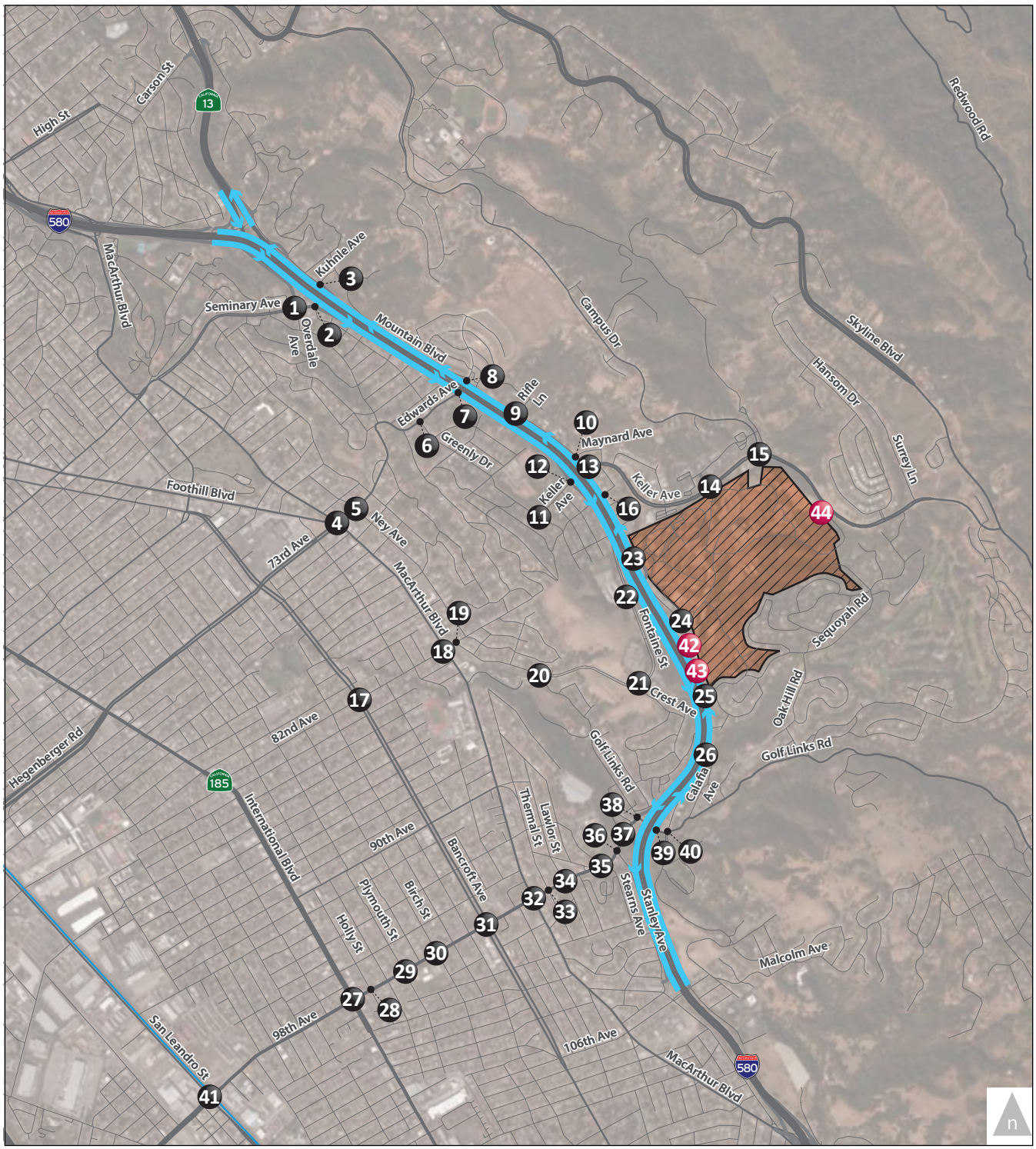
1. State Route 13, North of I-580
2. I-580, North of Seminary Avenue
3. I-580, between Seminary and Edwards Avenues
4. I-580, between Edwards and Keller Avenues
5. I-580, between Keller Avenue and Golf Links Road
6. I-580 between Golf Links Road and Mountain Boulevard
7. I-580, South of Golf Links Road

Ramp Junctions:

1. I-580 Eastbound, Keller Avenue Off-Ramp
2. I-580 Eastbound, Keller Avenue On-Ramp
3. I-580 Westbound, Mountain Boulevard On-Ramp
4. I-580 Westbound, Mountain Boulevard Off-Ramp
5. I-580 Eastbound, Golf Links Road Off-Ramp
6. I-580 Eastbound, 98th Avenue On-Ramp
7. I-580 Westbound, Golf Links Road On-Ramp
8. I-580 Westbound, Golf Links Road Off-Ramp

Transit Service

Transit service providers in the project vicinity include AC Transit, which provides local and Transbay bus service with connections to the Transbay Terminal in San Francisco and Bay Area Rapid Transit (BART) and Amtrak, which provide regional rail service. The existing transit services provided near the project site are described below.



LEGEND

Project Site | # Study Intersection | # Future Intersection | Study Freeway Segment

SOURCE: Fehr & Peers

Oak Knoll Project . 120645

Figure 4.13-1
Study Area

AC Transit

AC Transit is the primary bus service provider in 13 cities and adjacent unincorporated areas in Alameda and Contra Costa Counties, with Transbay service to destinations in San Francisco, San Mateo and Santa Clara Counties. **Table 4.13-1** summarizes the characteristics of the AC Transit routes operating in the project area. Two local routes, four school routes and one Transbay route operate in the vicinity of the project. Oak Knoll is directly served by Route 46, which operates adjacent to the project site on Keller Avenue.

TABLE 4.13-1
AC TRANSIT ROUTES IN THE PROJECT VICINITY

Route	Route	Nearest Stops	Weekday			Weekend	
			Hours	Headway[a]	Daily Ridership[b]	Hours	Headway[a]
Local Routes							
46 (Mountain Boulevard)	Coliseum BART to Oakland Zoo	Mountain Boulevard at Project Access	5:50 a.m. to 7:10 p.m.	60 minutes	750	9:00 a.m. to 4:25 p.m.	60 minutes
46L (Mountain Boulevard)	Coliseum BART to Grass Valley	Mountain Boulevard at Sequoyah Road	6:20 a.m. to 7:45 p.m.	60 minutes	400	No Service	No Service
School Routes[c]							
646 (Keller Avenue)	Coliseum BART to Skyline High School	Keller Avenue at Mountain Boulevard	7:00-9:30 a.m. 2:50-5:55 p.m.	N/A[c]	430	No Service	No Service
649 (Sequoyah Road)	Sequoyah Road to Skyline High School	Golf Links Road at Elysian Fields Drive	7:15-8:40 a.m. 2:50-3:55 p.m.	N/A[c]	190	No Service	No Service
650 (Keller Ave)	Keller Ave to Skyline High School	Keller Avenue at & Mountain Boulevard	6:55-8:30 a.m. 2:55-4:00 p.m.	N/A[c]	300	No Service	No Service
652 (Sequoyah Road)	Sequoyah Road to Skyline High School	Mountain Boulevard at Golf Links Road	7:15-7:40 a.m. 2:55-3:35 p.m.	N/A[c]	200	No Service	No Service
Transbay Routes							
NX4 (Foothill/ MacArthur Boulevard)	Castro Valley Park & Ride to San Francisco Transbay Terminal	Mountain Boulevard at Keller Avenue	5:30-9:00 a.m. 3:45- 9:30 p.m.	15-75 minutes	700	No Service	No Service

NOTES:

[a] The frequency, or interval of time between buses traveling in any given direction along a designated route.
[b] Weekday ridership in Spring 2015 as reported by AC Transit.
[c] Routes 646, 649, 650, and 652 provide service to Skyline High School and other area schools. In general, these routes provide unidirectional service from 7:00 to 9:00 a.m. and about 3:00 to 4:00 p.m.

Source: AC Transit website, September 2015.

Table 4.13-2 describes the nearest bus stops adjacent to the project site along Keller Avenue and Mountain Boulevard. The AC Transit routes and bus stop locations near the project site are also shown on **Figure 4.13-2**.

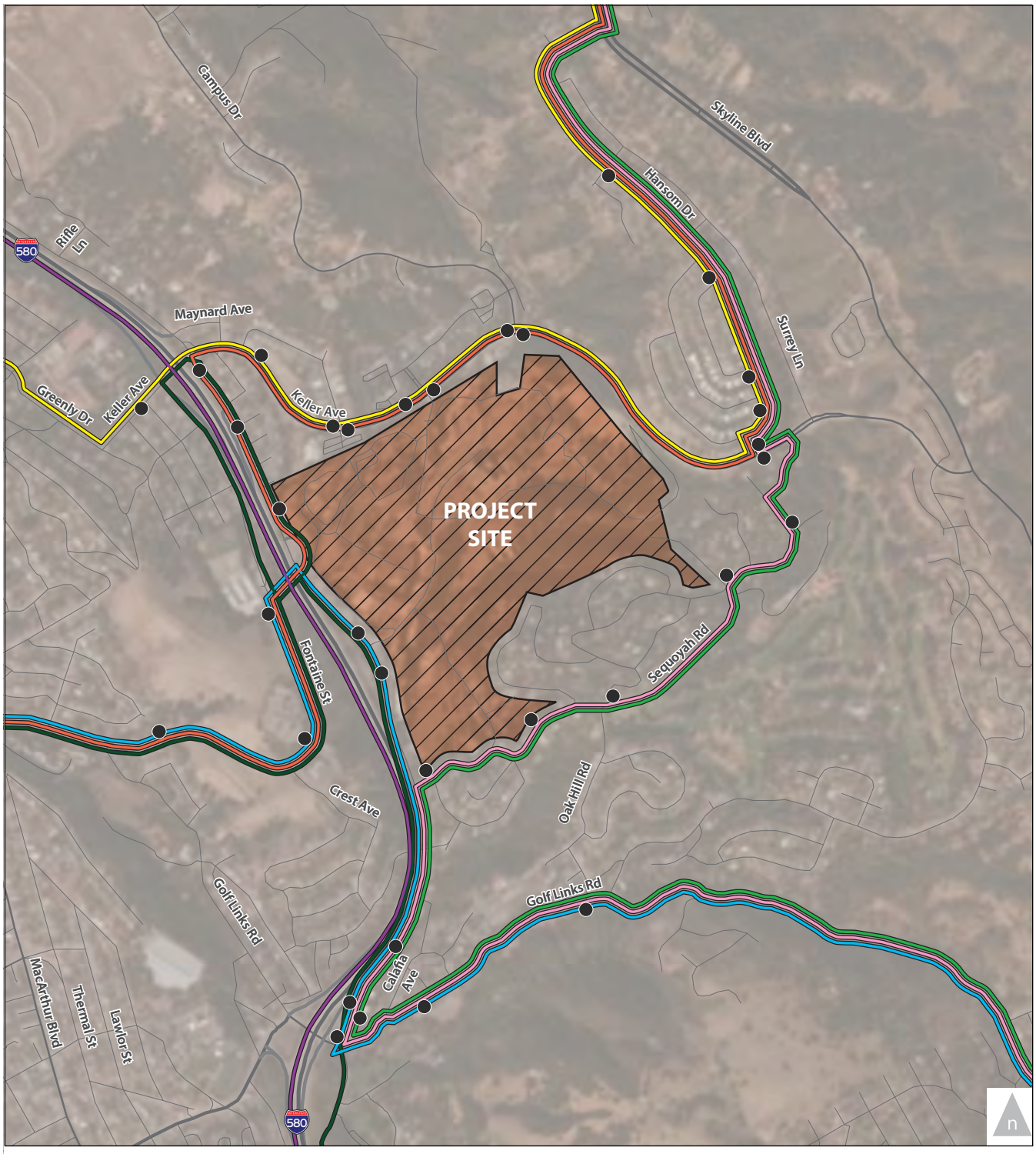
TABLE 4.13-2
BUS STOPS IN THE PROJECT VICINITY

Street	Direction	Location	Bus Routes	Bus Stop Amenities	Nearest Pedestrian Crossing
Mountain Boulevard	NB	After Project Access	46	Bus stop sign, bench	High visibility crosswalk across Mountain Boulevard under the I-580 overcrossing
	SB	After Project Access	46	Bus stop sign, bench	High visibility crosswalk across Mountain Boulevard under the I-580 overcrossing
	NB	After I-580 Overcrossing	46	Bus stop sign	High visibility crosswalk across Mountain Boulevard under the I-580 overcrossing
	SB	After I-580 Overcrossing	46	Bus stop sign	High visibility crosswalk across Mountain Boulevard under the I-580 overcrossing
Keller Avenue	EB	After Williams Street	646, 650	Bus stop sign	Crosswalks across Keller Avenue and Mountain Boulevard at unsignalized Mountain Boulevard/ Keller Avenue intersection
	WB	After Williams Street	646, 650	Bus stop sign	Crosswalks across Keller Avenue and Mountain Boulevard at unsignalized Mountain Boulevard/ Keller Avenue intersection

SOURCE: Fehr & Peers, 2016.

The Eastmont Transit Center is located about two miles from the project site, adjacent to the Eastmont Mall at the MacArthur Boulevard/Foothill Boulevard/ 73rd Avenue intersection. Although direct transit service to and from the project site is not provided, the Eastmont Transit Center provides a Park and Ride lot and is served by several AC Transit routes, including Transbay buses.

Route 46 has the highest weekday ridership, with about 750 passengers per day, compared to 400 passengers for Route 46L and 700 passengers for Route NX4. School routes that operate in the vicinity of the project site serve about 200 to 430 passengers per day per route. AC Transit provided weekday ridership data, including load factors, collected during spring 2015 for local and Transbay routes that operate in the vicinity of the project site; the data is summarized in **Table 4.13-3**. Load factor is defined as the ratio of occupied seats to the number of seats on the bus. A load factor of 100 percent or more indicates that the bus operates at or above its seated capacity. The average load factors for all busses operating in the project vicinity are below bus capacities. In general, Route NX4 is the most heavily utilized bus route in the project site vicinity.



SOURCE: Fehr & Peers

Oak Knoll Project . 120645

Figure 4.13-2

Existing Transit Routes and Bus Stops Near Project Site

TABLE 4.13-3
AC TRANSIT BOARDINGS AND ALIGHTINGS (WEEKDAY)

Bus Route and Stop Location	Direction	Average Capacity (Seats)	Average Load[a] (Passengers)	Average Load Factor[b]	Maximum Load[c] (Passengers)	Maximum Load Factor[d]	Boardings (Ons)[e]	Alightings (Offs)[f]
46 – Mountain Boulevard at Project Access	EB	36	2	6%	4	11%	0	1
	WB		3	8%	6	17%	2	0
46L – Mountain Boulevard at Sequoyah Road	EB	16	2	13%	3	19%	0	3
	WB		3	19%	4	25%	1	0
NX4 – Leona Drive at Monte Vista Driveway (EB Direction) and Mountain Boulevard at Golf Links Road (WB Direction)	EB	36	26	72%	32	89%	0	46
	WB		23	64%	27	75%	3	0

NOTES:
[a] Number of passengers on the bus averaged on a typical weekday.
[b] Average load divided by average seated capacity.
[c] Maximum number of passengers on the bus observed on a typical weekday.
[d] Maximum load divided by average seated capacity.
[e] Average number of passengers boarding the bus at this location on a typical weekday.
[f] Average number of passengers alighting the bus at this location on a typical weekday.

SOURCE: Spring 2015 data provided by AC Transit in September 2015.

Bay Area Rapid Transit (BART)

Bay Area Rapid Transit (BART) provides regional rail service throughout the East Bay and across the Bay to San Francisco and the Peninsula. The nearest station is Oakland Coliseum, which connects BART passengers to the Oakland International Airport. The station, located about four miles west of the project site, also provides access to the Oracle Arena and O.co Coliseum with a pedestrian bridge connection. The Daly City – Dublin/Pleasanton, Daly City – Fremont, and Richmond – Fremont lines provide service at the Coliseum Station. The daily weekday ridership at the Coliseum Station was approximately 23,250 riders in April 2015.

Depending on their final destination and preference for BART station amenities, residents of Southeast Oakland use the Bay Fair (12 minutes from project site), San Leandro (13 minutes from project site), Coliseum/Oakland Airport (11 minutes from project site), Fruitvale (12 minutes from project site), or Rockridge (11 minutes from project site) stations.[2]

[2] Travel times from the project site at Mountain Boulevard were determined using an online mapping web site.

Amtrak

Amtrak provides inter-city rail service throughout California and the country. The at-grade Oakland Coliseum station is located at 700 73rd Avenue. The Station is located across San Leandro Street from the Coliseum BART Station. The station provides a 35-space surface parking lot. The Oakland Coliseum Station is served by the Capitol Corridor line, which operates 19 daily trains on weekdays and 15 daily trains on weekends between San Jose and Sacramento that stop at the Oakland Coliseum Station. In fiscal year 2014, about 1.4 million passengers used the Capital Corridor rail service.[3]

Bicycle Network

City of Oakland's 2007 Bicycle Master Plan Update (BMP) identifies the following bicycle facility types:

- **Class 1 Paths**. These facilities are located off-street and can serve both bicyclists and pedestrians. Recreational trails can be considered Class 1 facilities. Class 1 paths are typically 8 to 10 feet wide excluding shoulders and are generally paved. There are no Class 1 paths in the vicinity of the project.
- **Class 2 Bicycle Lanes**. These facilities provide a dedicated area for bicyclists within the paved street width through the use of striping and appropriate signage. These facilities are typically 5 to 6 feet wide. There are no Class 2 bike lanes in the vicinity of the project.
- **Class 3 Bicycle Routes**. These facilities are found along streets that do not provide sufficient width for dedicated bicycle lanes. The street is then designated as a bicycle route through the use of signage informing drivers to expect bicyclists.
- **Class 3A Arterial Bicycle Routes**. These facilities are found along some arterial streets where bicycle lanes are not feasible and parallel streets do not provide adequate connectivity. Speed limits as low as 25 miles per hour (mph), and shared-lane bicycle stencils, wide curb lanes, and signage are used to encourage shared use.
- **Class 3B Bicycle Boulevards**. These facilities are found along residential streets with low traffic volumes. Assignment of right-of-way to the route, traffic calming measures and bicycle traffic signal actuation are used to prioritize through-trips for bicycles.

Currently, the following bicycles facilities are provided in the vicinity of the project:

- Mountain Boulevard – Class 3 bike route between Golf Links Road and Edwards Avenue, and between Kuhnle Avenue and Redwood Road.
- Bancroft Avenue – Class 2 bike lanes between Blossom Way in San Leandro and 42nd Avenue in Oakland.

[3] Source: Amtrak, *Capitol Corridor Performance Report 2014* (most recent available).

The *2007 Bicycle Master Plan* proposes the following bicycle facilities within the study area:

- **Mountain Boulevard** – Class 2 bike lanes between Golf Links Road and Keller Avenue, Class 3A Arterial Bike Route between Keller and Kuhnle Avenues, and Class 1 Bike Path between Kuhnle Avenue and Calaveras Avenue at I-580.
- **Keller Avenue** – Class 3 bike route between Mountain and Skyline Boulevards.
- **Golf Links Road** – Class 2 bike lanes between 98th Avenue and Skyline Boulevard and Class 3A Arterial Bike Route between 98th and Bancroft Avenues.
- **MacArthur Boulevard** – Class 3A arterial bike route between Foothill Boulevard and Seminary Avenue.
- **Edwards Avenue** – Class 3A arterial bike route between Mountain Boulevard and Sunnymere Avenue.
- **Seminary Avenue** – Class 2 bike lanes between Kuhnle Avenue and Camden Street.

Figure 4.13-3 shows the existing and planned bicycle facilities in the vicinity of the project site.

Pedestrian Network

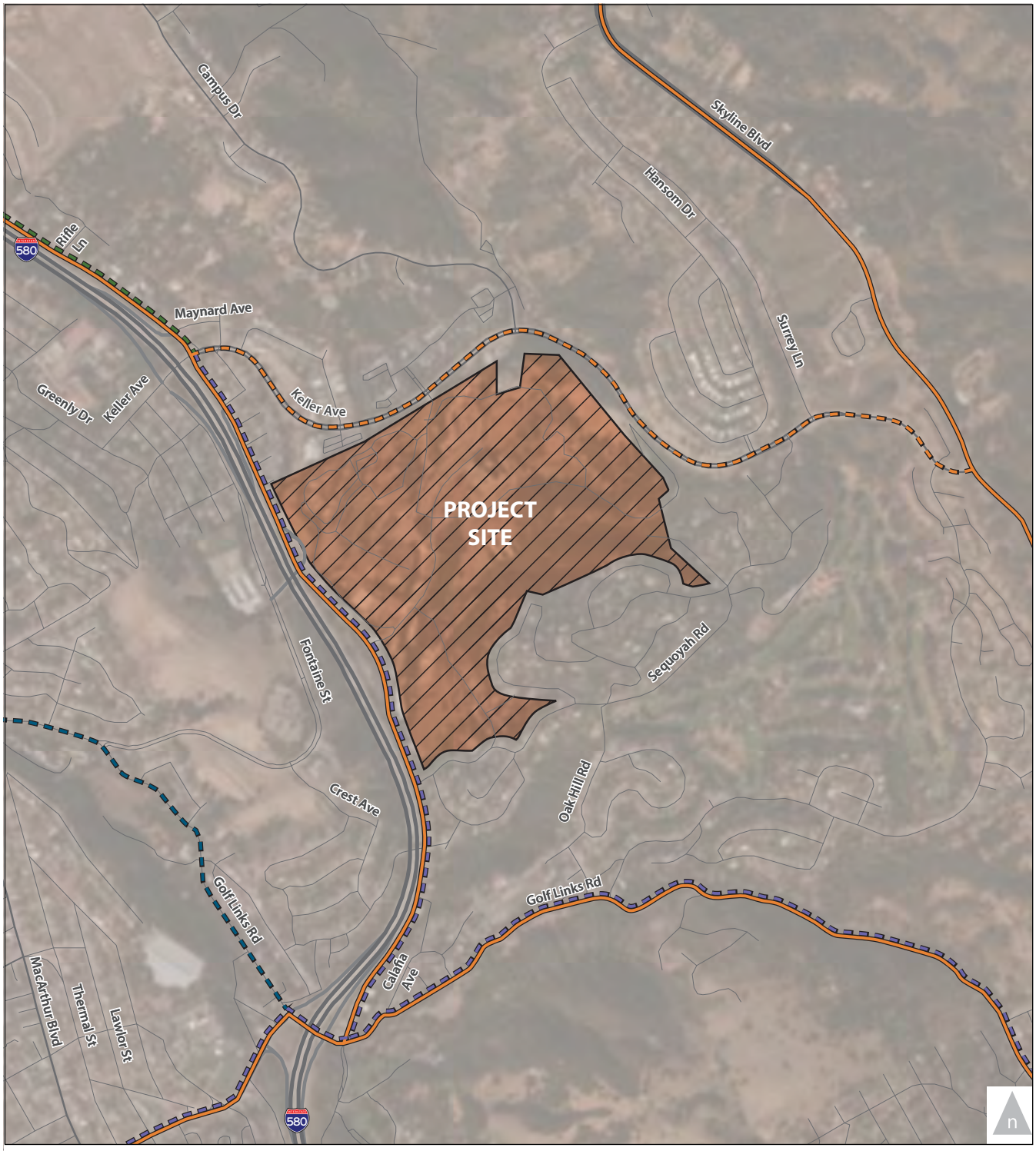
The City of Oakland's Pedestrian Master Plan (PMP, November 2002) designates Mountain Boulevard, Golf Links Road, and Keller Avenue as District Routes within the study area. The PMP (section 4.a.(2)) states the following about this type of route:

- "District Routes have a more local function as the location of schools, community centers, and smaller scale shopping. They are often located within a single district and help to define the character of that district."

For each type of route, PMP presents minimum design guidelines, which consists of the through passage zone, utility zone, and total sidewalk width. The through passage zone is the paved part of the sidewalk usable by pedestrians. The utility zone includes features such as street furnishings, vegetation, and signage. District Routes require a six-foot through passage zone, and a four-foot utility zone, for a 10-foot total sidewalk width.

Pedestrian facilities include sidewalks, crosswalks, and pedestrian signals. Pedestrian facilities on the streets adjacent to the project site include:

- **Keller Avenue** – six to nine-foot sidewalks currently exist along both directions of Keller Avenue between Mountain Boulevard and Surrey Lane, with a minimum six-foot through pedestrian passage zone and a three-foot utility zone along select segments. The sidewalks do not meet the PMP guidelines for 10-foot sidewalks along Keller Avenue. Striped crosswalks across Keller Avenue are provided at the unsignalized intersections with Mountain Boulevard and Hansom Drive. All intersections along Keller Avenue are unsignalized.
- **Mountain Boulevard** – six-foot sidewalks with a four-foot through pedestrian passage zone and two-foot utility zone are provided along segments of Mountain Boulevard in the project vicinity. Northbound sidewalk exists between Keller Avenue and the I-580



LEGEND

Existing	*Proposed*	
		Class 1 Bike Path
		Class 2 Bike Lane
		Class 3 Bike Route
		Class 3A Arterial Bike Route
		Class 3B Bike Boulevard

SOURCE: Fehr & Peers

Figure 4.13-3
Existing and Planned Bicycle Facilities

overcrossing, and southbound sidewalk exists between the I-580 overcrossing and 900 feet north of the Sequoyah Road intersection. The sidewalks do not meet the PMP guidelines for 10-foot sidewalks along Mountain Boulevard. Striped crosswalks across Mountain Boulevard are currently provided at the unsignalized intersections with Keller Avenue, the I-580 overcrossing and Golf Links Road. All intersections along Mountain Boulevard in the project vicinity are unsignalized.

The City of Oakland is currently in the early stages of the process to update the Pedestrian Master Plan. It is not expected that the City will produce a public draft in time for it to be considered in the analysis below.

Existing Traffic Operating Conditions

Traffic Volumes

Intersection automobile and bicycle turning movement counts, as well as pedestrian counts, were collected at the study intersections on Tuesday, April 14, 2015. SR 13 freeway counts were also collected at the pedestrian overcrossing just south of the Carson Street interchange on the same day as the intersection counts. I-580 counts were obtained from the Caltrans Performance Measurement System (PeMS) database; eastbound and westbound I-580 counts were collected along the segment just north of the Keller Avenue interchange in April 2015. The count data was collected on a clear days while area schools were in normal session.

The traffic data collection was conducted during the morning (7:00 to 9:00 a.m.) and evening (4:00 to 6:00 p.m.). **Appendix V-A** presents the traffic counts at the study intersections. These time periods were selected because trips generated by the proposed project, in combination with background traffic, are expected to represent typical worst traffic conditions at these times. Within the peak periods, the peak hours (i.e., the hour with the highest traffic volumes observed in the study area) are from 7:45 to 8:45 a.m. (AM peak hour) and from 5:00 to 6:00 p.m. (PM peak hour).

Field reconnaissance was also performed in which intersection lane configurations and signal operations data were collected. Intersection operations were also observed at the study intersections. In addition, the City of Oakland provided signal timing data for the signalized study intersections. The signal timing data was then compared against the actual conditions at each study intersection to verify accuracy.

Appendix V-B presents the existing AM and PM peak hour traffic volumes, pedestrian and bicycle volumes, intersection lane configurations and traffic control devices at all study intersections, in addition to the existing AM and PM peak hour freeway and ramp volumes along I-580 and SR 13.

Level of Service Analysis Methodologies

The intersection and freeway analysis results include a descriptive term known as level of service (LOS). LOS is a qualitative description of traffic operating conditions from the vehicle driver perspective and consists of the delay experienced by the driver at the intersection. It ranges from

LOS A, with no congestion and little delay, to LOS F, with excessive congestion and delays. Different methods are used to assess signalized and unsignalized (stop-controlled) intersections.

Signalized Intersections

At the signalized study intersections, traffic conditions were evaluated using the 2010 *Highway Capacity Manual* (HCM) operations methodology and the Synchro 8 traffic analysis software program. This methodology uses various intersection characteristics, such as traffic volumes, lane geometries, and signal timing parameters, to estimate average control delays and assign an LOS. Control delay is defined as the delay associated with deceleration, stopping, moving up in the queue, and acceleration experienced by drivers at an intersection. **Table 4.13-4** summarizes the relationship between control delay and LOS.

Unsignalized Intersections

At unsignalized intersections, LOS is also analyzed using the 2010 HCM and Synchro 8 software. Delay is calculated for movements that are controlled by a stop sign or that must yield the right-of-way. With this methodology, the LOS is related to the total delay per vehicle for the intersection as a whole (for all-way stop-controlled intersections), and for each stop-controlled movement or approach only (for side-street stop-controlled intersections). For the latter type, the movement or approach with the highest delay is reported. Total delay is defined as the total elapsed time from when a vehicle stops at the end of the queue until the vehicle departs from the stop line. **Table 4.13-4** summarizes the relationship between delay and LOS.

The analysis of unsignalized intersections in the study area is intended to examine the general correlation between the planned level of future development and the need to install new traffic signals. It estimates future development-generated traffic compared against the standard peak hour traffic signal warrant recommended in California *Manual on Uniform Traffic Control Devices* (MUTCD).[4]

Micro-Simulation Analysis

The following three intersections were evaluated using the SimTraffic 8 micro-simulation software:

- Golf Links Road/I-580 Eastbound Off-ramp/98th Avenue (intersection #38)
- I-580 Westbound Ramps/Golf Links Road (intersection #39)
- Mountain Boulevard/Golf Links Road (intersection #40)

[4] The I-580 Westbound Off-ramp/Mountain Boulevard/Kuhnle Avenue intersection (#3) is stop-controlled on three of the four approaches with the northbound Kuhnle Avenue approach operating as a free movement. Due to limitations with the Synchro 8 software, the existing three-way stop-controlled configuration at this intersection cannot be analyzed. Thus, the intersection was analyzed as side-street stop-controlled assuming the northbound and southbound approaches operate as free movements. This assumption allows the intersection to be evaluated by the Synchro 8 software. Since fewer than 15 AM and PM peak hour vehicles use the southbound approach, assuming the approach as a free movement provides an adequate assessment of average delay and LOS at the intersection.

TABLE 4.13-4
DEFINITIONS FOR INTERSECTION LEVEL OF SERVICE

Unsignalized Intersections		Level of Service Grade	Signalized Intersections	
Description	Average Total Vehicle Delay (Seconds)		Average Control Vehicle Delay (Seconds)	Description
No delay for stop-controlled approaches.	≤10.0	A	≤10.0	Free Flow or Insignificant Delays: Operations with very low delay, when signal progression is extremely favorable and most vehicles arrive during the green light phase. Most vehicles do not stop at all.
Operations with minor delay.	>10.0 and ≤15.0	B	>10.0 and ≤20.0	Stable Operation or Minimal Delays: Generally occurs with good signal progression and/or short cycle lengths. More vehicles stop than with LOS A, causing higher levels of average delay. An occasional approach phase is fully utilized.
Operations with moderate delays.	>15.0 and ≤25.0	C	>20.0 and ≤35.0	Stable Operation or Acceptable Delays: Higher delays resulting from fair signal progression and/or longer cycle lengths. Drivers begin having to wait through more than one red light. Most drivers feel somewhat restricted.
Operations with increasingly unacceptable delays.	>25.0 and ≤35.0	D	>35.0 and ≤55.0	Approaching Unstable or Tolerable Delays: Influence of congestion becomes more noticeable. Longer delays result from unfavorable signal progression, long cycle lengths, or high volume to capacity ratios. Many vehicles stop. Drivers may have to wait through more than one red light. Queues may develop, but dissipate rapidly, without excessive delays.
Operations with high delays, and long queues.	>35.0 and ≤50.0	E	>55.0 and ≤80.0	Unstable Operation or Significant Delays: Considered to be the limit of acceptable delay. High delays indicate poor signal progression, long cycle lengths and high volume to capacity ratios. Individual cycle failures are frequent occurrences. Vehicles may wait through several signal cycles. Long queues form upstream from intersection.
Operations with extreme congestion, and with very high delays and long queues unacceptable to most drivers.	>50.0	F	>80.0	Forced Flow or Excessive Delays: Occurs with oversaturation when flows exceed the intersection capacity. Represents jammed conditions. Many cycle failures. Queues may block upstream intersections.

SOURCE: Transportation Research Board, *Highway Capacity Manual*, 2010.

These three intersections were analyzed using SimTraffic due to their close proximity to each other and the potential for queue spill-backs affecting adjacent intersection operations, which cannot be analyzed accurately using the 2010 HCM methodologies.

SimTraffic is used for modeling and simulating traffic operations based on the behavior of individual drivers on a roadway network. The software accounts for the physical features of the transportation system, traffic flow conditions, and driver behavior characteristics to estimate

travel delays and other performance measures that describe traffic operations. SimTraffic was used to calculate intersection delay and LOS (based on 2010 HCM definitions).

Microsimulation programs, such as SimTraffic, incorporate randomness inherent in traffic flow. As a result, a microsimulation model should be run a number of times and the average of the runs should be reported to obtain a statistically significant result. For this study, the program was run ten times for each scenario. SimTraffic was not used to analyze the impacts at the other studied intersections because those intersections generally operate at under capacity conditions or are not affected by operations at adjacent closely spaced intersections, and therefore can be accurately modeled using the 2010 HCM methodology in Synchro 8.

Freeway Mainline and Ramp Junction Segments

Similar to intersection operations, freeway ramp junction LOS ranges from LOS A (free-flow conditions) to LOS F (over capacity conditions). LOS E represents "at-capacity" operations. When the volume exceeds capacity, stop-and-go conditions result, and operations are designated as LOS F. The HCM method calculates density for freeway ramp junctions using input data such as the traffic volume, the number of lanes, the percentage of trucks and the free-flow speed. Based on the calculated density, each segment of the freeway can be assigned a LOS. The LOS for a freeway sections and ramp junctions is based on the vehicle density (passenger cars/mile/lane). **Table 4.13-5** presents a summary of the relationship between density and level of service for freeway sections and ramp junctions.

TABLE 4.13-5
FREEWAY SECTION AND RAMP JUNCTION LEVEL OF SERVICE (LOS) CRITERIA

LOS	Basic Mainline Segment Density Criteria (PCPMPL)[a]	Ramp Junction Segment Density Criteria (PCPMPL)[a]
A	≤11.0	≤10.0
B	>11.0 and ≤18.0	>10.0 and ≤20.0
C	>18.0 and ≤26.0	>20.0 and ≤28.0
D	>26.0 and ≤35.0	>28.0 and ≤35.0
E	>35.0	>35.0
F	Demand exceeds capacity	Demand exceeds capacity

NOTES:
[a] PCPMPL = Passenger Cars Per Mile Per Lane

SOURCE: Transportation Research Board, Highway Capacity Manual, 2010.

Existing Intersection Operations

Existing operations were evaluated for the weekday AM and PM peak hours using the existing vehicle, bicycle, and pedestrian volumes and the existing lane configurations and signal timing parameters as inputs into the LOS calculations. The existing AM and PM peak-hour intersection LOS and delays are summarized in **Table 4.13-6**. The peak hour volume traffic signal warrant (Warrant 3) for urban conditions, found in the California MUTCD was also evaluated for the

TABLE 4.13-6
EXISTING CONDITIONS INTERSECTION LOS SUMMARY

No.	Intersection	Traffic Control[a]	Existing AM		Existing PM	
			Delay (sec/veh)[b]	LOS	Delay (sec/veh)[b]	LOS
1	I-580 EB Off-Ramp/Seminary Avenue/Overdale Avenue	SSSC	4.7 (22.9)	A (C)	17.0 **(76.9)**	C **(F)**
2	I-580 EB On-Ramp/Seminary Avenue/Kuhnle Avenue	AWSC	**36.7**	**E**	**43.0**	**E**
3	I-580 WB Off-Ramp/Mountain Boulevard/Kuhnle Avenue	SSSC	**120.0 (>120.0)**	**F (F)**	**>120.0 (>120.0)**	**F (F)**
4	MacArthur Boulevard/Foothill Boulevard/73rd Avenue	Signal	42.1	D	47.7	D
5	Ney Avenue/73rd Avenue	Signal	3.5	A	3.4	A
6	Greenly Drive/Edwards Avenue	Signal	5.2	A	5.4	A
7	I-580 EB Off-Ramp/Edwards Avenue	Signal	12.3	B	13.8	B
8	I-580 WB On-Ramp/Mountain Boulevard/Edwards Avenue	Signal	17.8	B	11.5	B
9	Mountain Boulevard/Rifle Lane	SSSC	0.3 (12.9)	A (B)	0.3 (9.4)	A (A)
10	I-580 WB On-Ramp/Mountain Boulevard/Maynard Avenue	SSSC	4.2 **(40.3)**	A **(E)**	3.6 (9.3)	A (A)
11	Greenly Drive/Keller Avenue	AWSC	7.6	A	7.7	A
12	I-580 EB Off-Ramp/Fontaine Street/Keller Avenue	AWSC	14.7	B	14.7	B
13	Mountain Boulevard/Keller Avenue	AWSC	**47.9**	**E**	21.6	C
14	Williams Street/Keller Avenue	SSSC	1.2 (10.0)	A (A)	0.9 (9.8)	A (A)
15	Campus Drive/Keller Avenue	SSSC	2.8 (12.0)	A (B)	4.1 (13)	A (B)
16	I-580 WB Off-Ramp/Mountain Boulevard/Shone Avenue	SSSC	5.6 **(40.2)**	A **(E)**	11.3 (21.6)	B (C)
17	Bancroft Avenue/82nd Avenue	Signal	23.0	C	20.8	C
18	MacArthur Boulevard/82nd Avenue	Signal	9.1	A	8.3	A
19	Golf Links Road/82nd Avenue	SSSC	10.3 (12.9)	B (B)	8.5 (11.8)	A (B)
20	Golf Links Road/Fontaine Street	AWSC	11.1	B	9.2	A
21	Crest Avenue/Fontaine Street	SSSC	1.4 (9.7)	A (A)	1.4 (9.0)	A (A)
22	Fontaine Street/I-580 Overcrossing	SSSC	3.2 (13.8)	A (B)	2.3 (10.5)	A (B)
23	Mountain Boulevard/I-580 Overcrossing	SSSC	3.7 (19.0)	A (C)	3.2 (10.2)	A (A)
24	Mountain Boulevard/Existing Project Site Access	SSSC	0.1 (10.7)	A (B)	0.8 (7.3)	A (A)
25	Mountain Boulevard/Sequoyah Road	SSSC	2.4 (16.9)	A (C)	3.7 (9.5)	A (A)
26	Mountain Boulevard/Calafia Avenue	SSSC	1.5 (14.4)	A (B)	1.3 (8.8)	A (A)
27	International Boulevard/98th Avenue	Signal	25.6	C	32.0	C
28	Holly Street/98th Avenue	Signal	4.7	A	3.8	A
29	Plymouth Street/98th Avenue	Signal	8.6	A	5.2	A
30	Birch Street/98th Avenue	Signal	6.3	A	3.5	A
31	Bancroft Avenue/98th Avenue	Signal	35.9	D	44.1	D
32	MacArthur Boulevard/98th Avenue	Signal	32.1	C	31.3	C
33	Thermal Street/98th Avenue	SSSC	0.6 (17.2)	A (C)	0.3 (17.3)	A (C)
34	Lawlor Street/98th Avenue	Signal	17.8	B	3.8	A
35	Stearns Avenue/98th Avenue	Signal	8.9	A	5.7	A
36	Stanley Avenue/98th Avenue	SSSC	23.6 **(>120.0)**	C **(F)**	0.9 (16.7)	A (C)

TABLE 4.13-6 (Continued)
EXISTING CONDITIONS INTERSECTION LOS SUMMARY

No.	Intersection	Traffic Control[a]	Existing AM		Existing PM	
			Delay (sec/veh)[b]	LOS	Delay (sec/veh)[b]	LOS
37	I-580 EB On-Ramp/98th Avenue	SSSC	1.5 (13.5)	A (B)	1.9 (10.2)	A (B)
38	Golf Links Road/I-580 EB Off-Ramp/98th Avenue[c]	Signal	22.6	C	25.0	C
39	I-580 WB Ramps/Golf Links Road[c]	Signal	30.3	C	25.2	C
40	Mountain Boulevard/Golf Links Road[c]	SSSC	**44.5 (>120.0)**	**E (F)**	14.2 **(35.4)**	B **(E)**
41	San Leandro Street/98th Avenue	Signal	44.1	D	46.8	D

Notes: **bold** text indicates LOS E or LOS F operations.
[a] AWSC = All-Way Stop Control SSSC = Side-Street Stop Control.
[b] The LOS/Delay for Side-Street Stop-Control intersections are presented as follows: intersection average (worst movement); for Signalized and All-Way Stop-Control, the LOS/Delay presented for overall intersection. Delays greater than 120 seconds are reported as ">120" due to methodology limitations of delay estimates for over-capacity conditions.
[c] Intersection analyzed using SimTraffic micro-simulation software.

SOURCE: Fehr & Peers, 2016.

unsignalized study intersections. **Appendix V-C** presents the detailed intersection LOS calculation and signal warrant worksheets. Most intersections in the project area operate at LOS D or better during the AM and PM peak hours. The following intersections operate at LOS E or F during the peak traffic hours:

- I-580 Eastbound Off-Ramp/Seminary Avenue/Overdale Avenue (intersection #1, side-street-stop-controlled) – the southbound shared through/left-turn movement (stop-controlled) operates at LOS F during PM peak hour; all movements operate at LOS C or better during the AM peak hour. The intersection currently meets the California MUTCD peak hour volume signal warrant.

- I-580 Eastbound On-Ramp/Seminary Avenue/Kuhnle Avenue (intersection #2, all-way-stop-controlled) – operates at LOS E during both the AM and PM peak hours. The intersection currently meets the California MUTCD peak hour volume signal warrant.

- I-580 Westbound Off-Ramp/Mountain Boulevard/Kuhnle Avenue (intersection #3, side-street-stop-controlled) – the westbound left-turn movement (stop- controlled) operates at LOS F during the AM and PM peak hour. The intersection currently meets the California MUTCD peak hour volume signal warrant.

- I-580 Westbound On-Ramp/Mountain Boulevard/Maynard Avenue (intersection #10, side-street-stop-controlled) – the westbound approach (stop-controlled, single lane approach) operates at LOS E during the AM peak hour; all approaches operate at LOS A during the PM peak hour. The intersection does not currently meet the California MUTCD peak hour volume signal warrant.

- Mountain Boulevard/Keller Avenue (intersection #13, all-way-stop-controlled) – operates at LOS E during the AM peak hour and at LOS C during the PM peak hour. The intersection does not currently meet the California MUTCD peak hour volume signal warrant.

- I-580 Westbound Off-Ramp/Mountain Boulevard/Shone Avenue (intersection #16, side-street-stop-controlled) – the eastbound left-turn movement (stop-controlled) operates at

LOS E during the AM peak hour; all movements operate at LOS C or better during the PM peak hour. The intersection does not currently meet the California MUTCD peak hour volume signal warrant.

- Stanley Avenue/98th Avenue (intersection #36, side-street-stop-controlled) – the westbound approach (stop-controlled, single lane approach) operates at LOS F during the AM peak hour; all approaches operate at LOS C or better during the PM peak hour. The intersection currently meets the California MUTCD peak hour volume signal warrant.

- Mountain Boulevard/Golf Links Road (intersection #40, side-street-stop-controlled) – the westbound approach (stop-controlled, single lane approach) operates at LOS F during the AM peak hour and at LOS E during the PM peak hour. The intersection does not currently meet the California MUTCD peak hour volume signal warrant.

Existing Freeway Operations

- Existing freeway section and ramp junction operations were evaluated for weekday AM and PM peak hours; results are summarized in **Table 4.13-7**. Based on the HCM 2010 analysis, all study freeway sections and ramp junctions operate at LOS D or better during both AM and PM peak hours. The HCM 2010 methodology analyzes freeway segments in isolation; therefore the methodology does not adequately evaluate queuing impacts from downstream bottlenecks, which can potentially underestimate density and LOS for segments that operate under congested conditions. The following study freeway segments were observed to operate under congested conditions within the study area and are therefore identified to operate at LOS F:I-580 Eastbound between Seminary Avenue and SR 13 (segment #1) during the PM peak hour.

- I-580 Eastbound/SR 13 Southbound On-Ramp Junction (segment #2) during the PM peak hour.

- I-580 Eastbound/Seminary Avenue On-Ramp Junction (segment #3) during the PM peak hour.

- I-580 Eastbound/Edwards Avenue Off-Ramp Junction (segment #4) during the PM peak hour.

- I-580 Eastbound between Edwards Avenue and Keller Avenue (segment #5) during the PM peak hour.

- I-580 Eastbound/Keller Avenue Off-Ramp Junction (segment #6) during the PM peak hour.

- SR 13 Southbound between Calaveras Avenue Off-Ramp and I-580 (segment #13) during the PM peak hour.

- I-580 Westbound/SR 13 Northbound off-Ramp Junction (segment #24) during the AM peak hour.

- I-580 Westbound between SR 13 Northbound and Frontage Road (segment #25) during the AM peak hour.

Therefore all freeway section and ramp junctions within the congested segments listed above operate at LOS F conditions based on existing field observations, which overrides the LOS D or better results shown in **Table 4.13-7**. **Appendix V-C** provides the detailed existing LOS calculation worksheets.

TABLE 4.13-7
EXISTING CONDITIONS FREEWAY LEVEL OF SERVICE SUMMARY

No.	Mainline Location	Segment Type	Peak Hour	V/C[a]	Density[b]	LOS
1	I-580 EB: Seminary Avenue to SR 13 SB	Basic	AM	0.37	12.8	B
			PM	**>1.00**	-	**F**[c]
2	I-580 EB: SR 13 SB On-Ramp	Merge	AM	0.75	27.9	C
			PM	**>1.00**	-	**F**[c]
3	I-580 EB: Seminary Avenue On-Ramp	Merge	AM	0.59	23.0	C
			PM	**>1.00**	-	**F**[c]
4	I-580 EB: Edwards Avenue Off-Ramp	Diverge	AM	0.67	28.0	C
			PM	**>1.00**	-	**F**[c]
5	I-580 EB: Edwards Avenue To Keller Avenue	Basic	AM	0.58	19.9	C
			PM	**>1.00**	-	**F**[c]
6	I-580 EB: Keller Avenue Off-Ramp	Diverge	AM	0.60	24.9	C
			PM	**>1.00**	-	**F**[c]
7	I-580 EB: Keller Avenue Off-Ramp to On-Ramp	Basic	AM	0.54	18.5	C
			PM	0.67	23.6	C
8	I-580 EB: Keller Avenue On-Ramp	Merge	AM	0.51	21.4	C
			PM	0.64	25.8	C
9	I-580 EB: Keller Avenue to Golf Links Road	Basic	AM	0.57	19.6	C
			PM	0.71	25.3	C
10	I-580 EB: Golf Links Road Off-Ramp	Diverge	AM	0.65	27.6	C
			PM	0.76	31.4	D
11	I-580 EB: Golf Links Road Off-Ramp to On-Ramp	Basic	AM	0.48	16.4	B
			PM	0.64	22.3	C
12	I-580 EB: Golf Links Road On-Ramp	Basic	AM	0.44	15.1	B
			PM	0.57	19.5	C
13	SR 13 SB: Calaveras Avenue to Seminary Avenue	Basic	AM	0.47	16.1	B
			PM	**>1.00**	-	**F**[c]
14	I-580 WB: Golf Links Road Off-Ramp	Diverge	AM	0.79	32.3	D
			PM	0.76	31.2	D
15	I-580 WB: Golf Links Road Off-Ramp to On-Ramp	Basic	AM	0.66	23.3	C
			PM	0.65	22.6	C
16	I-580 WB: Golf Links Road On-Ramp	Merge	AM	0.70	27.6	C
			PM	0.67	26.8	C
17	I-580 WB: Golf Links Road to Keller Avenue	Basic	AM	0.73	26.4	D
			PM	0.71	25.4	C
18	I-580 WB: Keller Avenue Off-Ramp	Diverge	AM	0.72	29.5	D
			PM	0.73	29.9	D
19	I-580 WB: Keller Avenue Off-Ramp to On-Ramp	Basic	AM	0.72	25.7	C
			PM	0.67	23.5	C
20	I-580 WB: Keller Avenue On-Ramp	Merge	AM	0.73	28.7	D
			PM	0.63	25.4	C
21	I-580 WB: Keller Avenue to Edwards Avenue	Basic	AM	0.78	28.7	D
			PM	0.70	25.1	C
22	I-580 WB: Edwards Avenue On-Ramp	Merge	AM	0.88	34.2	D
			PM	0.73	28.9	D
23	I-580 WB: Seminary Avenue Off-Ramp	Diverge	AM	0.87	35.3	E
			PM	0.78	31.9	D
24	I-580 WB: SR 13 NB Off-Ramp	Diverge	AM	**>1.00**	-	**F**[c]
			PM	0.74	30.9	D
25	I-580 WB: SR 13 NB to Frontage Road	Basic	AM	**>1.00**	-	**F**[c]
			PM	0.53	18.3	C
26	SR 13 NB: I-580 WB to Calaveras Avenue	Basic	AM	0.41	14.1	B
			PM	0.41	13.9	B

NOTES: **bold** text indicates LOS F operations.

[a] V/C ratios greater than 1.00 reported as ">1.00" for segments that operate under congested conditions based on existing field observations.
[b] Density measures in passenger cars per mile per lane. Density not reported for segments that operate under congested conditions based on existing field observations.
[c] Freeway segment operates under congested conditions based on existing field observations.

SOURCE: Fehr & Peers, 2016.

Alameda County Transportation Commission (ACTC) Analysis of Existing Conditions

The Alameda County Congestion Management Program (CMP) and Metropolitan Transportation System (MTS) roadways in the project site vicinity include:

1. I-580
2. SR 13
3. MacArthur Boulevard
4. Skyline Boulevard
5. Golf Links Road
6. 98th Avenue
7. Redwood Road

ACTC conducts periodic monitoring of the major roadways on the CMP and MTS roadways in Alameda County. The most recent Level of Service Monitoring Report on the CMP roadway network was released in November 2014. The ACTC monitoring report assesses existing freeway operations through a combination of commercial speed data (aggregated traffic data from GPS-enabled vehicles and mobile devices and various road sensors) and "floating car" travel time surveys, which are conducted on all freeway segments during the evening peak hours (4:00 to 6:00 PM), and on selected freeway segments during the morning peak hours (7:00 to 9:00 AM). Based on the results of these surveys, ACTC assigns a LOS grade to each segment according to the method described in the 1985 HCM. Any freeway segment with an average speed less than 30 miles per hour is assigned LOS F. Freeway interchanges with speeds below 50 percent of free flow speed are assigned LOS F. The travel time surveys concluded that the following freeway and arterial segments in the project vicinity operate at LOS F during peak hours:

- Westbound I-580 between SR 13 and Fruitvale Avenue during the AM peak hour
- Northbound I-880 between Hegenberger Road to 23rd Avenue during the AM peak hour
- Southbound SR 13 between Redwood Road and I-580 during the PM peak hour
- Northbound I-880 between I-238 and I-80 during the PM peak hour
- Southbound I-880 between I-980 and 23rd Avenue during the PM peak hour
- Eastbound SR 24 between I-580 and Fish Ranch Road during the PM peak hour
- Southbound International Boulevard (SR 185) between 42nd Street and 46th Street during the PM peak hour
- Eastbound High Street between Fernside Boulevard and Northbound I-880 Off-Ramp during the PM peak hour

The LOS Monitoring Report does not report peak hour LOS for the other MTS segments listed above.

4.13.3 Planned Transportation Network Changes

Several changes are planned for the various transportation modes in the project vicinity, as described below. Planned changes include improvement projects planned by the City of Oakland. These are changes that are not related to the proposed project and would be implemented regardless of the project. Changes that have full approval and funding are assumed in the analysis of future year 2040 conditions. However, not all of the planned changes have finalized design plans, full approvals, and/or funding. Changes lacking final design, full approval, and/or full funding are not considered reasonably foreseeable, and therefore would not be assumed in the analysis of future conditions. Planned changes by travel mode are summarized below.

Planned Transit Changes

AC Transit, City of Oakland and City of San Leandro are planning to implement a Bus Rapid Transit (BRT) route connecting the 20th Street Uptown Station in Oakland to the San Leandro BART Station primarily via the International Boulevard/East 14th Street corridor. Construction of the proposed BRT is scheduled to be completed in 2017. BRT is a high capacity transit system that provides faster speeds, shorter travel times and improved user amenities. BRT will provide dedicated bus-only lanes and median boarding on International Boulevard between 14th Avenue and San Leandro city limits. The only study intersection affected by the BRT project is International Boulevard/98th Avenue (intersection # 27), which will be modified by removing the existing dedicated northbound and southbound right-turn lanes to re-allocate the right-of-way to the BRT improvements.

Planned Bicycle Changes

Continuous Class 2 bicycle lanes along the four roadway segments listed below are approved, funded and will be implemented in the near future. The overlapping study intersections are itemized under each roadway segment. The four segments are part of a continuous existing signed Class 3 bike route in the Mountain Boulevard corridor. The City seeks to upgrade these segments with bike lanes as part of an effort to improve the Mountain Boulevard corridor and to connect it to the MacArthur Boulevard bikeway at Mills College and the Bancroft Avenue bikeway at 106th Avenue.

- Mountain Boulevard between the I-580 Westbound On-Ramp/Maynard Avenue and Golf Links Road,
- Golf Links Road/98th Avenue between Mountain Boulevard and Stanley Avenue
- Edwards Avenue between Mountain Boulevard and I-580 eastbound Off-Ramp
- Seminary Avenue/Kuhnle Avenue between Mountain Boulevard and Overdale Avenue

Although the improvements listed above are approved and funded, the City of Oakland has not yet finalized the design for the implementation of these bikeways. Assuming implementation of five foot bike lanes and restriping of the existing intersections to provide minimum seven foot parking lanes, 10 foot turn lanes and 11 foot through travel lanes, the proposed bikeway can be

implemented along most of the corridor without affecting the configuration of most study intersections. The following study intersections would have right-of-way constraints. The reconfigurations to accommodate the bikeways, per direction from City of Oakland staff, are described below:

- I-580 Eastbound Off-Ramp/Seminary Avenue/Overdale Avenue (intersection #1) – On-street parking along westbound and eastbound Seminary Avenue may potentially be removed with implementation of bike lanes; however, the bike lanes are not expected to change intersection lane configurations.
- I-580 Eastbound On-Ramp/Seminary Avenue/Kuhnle Avenue (intersection #2) – The southbound right-turn lane would be removed to accommodate the five foot bike lane; as a result, the southbound through lane would be converted into a shared through/right-turn lane.
- I-580 Westbound Off-Ramp/Mountain Boulevard/Kuhnle Avenue (intersection #3) – The second northbound through lane would be removed to accommodate the five foot bike lane.
- I-580 Westbound Off-Ramp/Mountain Boulevard/Shone Avenue (intersection #16) – On-street parking along northbound Mountain Boulevard may potentially be removed with implementation of bike lanes; however, bike lanes are not expected to change intersection lane configurations.
- Mountain Boulevard/Sequoyah Road (intersection #25) – On-street parking along northbound Mountain Boulevard may potentially be removed with implementation of bike lanes; however, bike lanes are not expected to change intersection lane configurations.
- Mountain Boulevard/Calafia Avenue (intersection #26) – On-street parking along northbound Mountain Boulevard may potentially be removed with implementation of bike lanes; however, bike lanes are not expected to change intersection lane configurations.
- I-580 Westbound Ramps/Golf Links Road (intersection #39) – The westbound right-turn lane would be removed to accommodate the five foot bike lane; as a result, the westbound through lane would be converted into a shared through/right-turn lane.

The 2040 No Project and Plus Project intersection analysis assumes implementation of the planned bicycle improvements within the study area.

Planned Pedestrian Changes

The City of Oakland is currently in the process of updating the Pedestrian Master Plan, the revised plan is expected to be completed by April 2016. The 2002 Pedestrian Master Plan does not list any planned or funded pedestrian infrastructure improvements within the study area. Therefore, all study intersections are expected to maintain the existing pedestrian facilities through year 2040.

Planned Intersection Changes

The following changes to intersection lane configurations and controls are assumed under the 2040 No Project and Plus Project Conditions as a result of the planned bicycle and transit improvements described above:

- I-580 Eastbound On-Ramp/Seminary Avenue/Kuhnle Avenue (intersection #2) – The southbound right-turn lane would be removed and the through lane converted into a shared through/right-turn lane.
- I-580 Westbound Off-Ramp/Mountain Boulevard/Kuhnle Avenue (intersection #3) – The second northbound through lane would be removed.
- International Boulevard/98th Avenue (intersection #27) – The dedicated northbound right-turn lane would be removed along the International Boulevard approach to accommodate the planned East Bay BRT improvements.
- I-580 Westbound Ramps/Golf Links Road (intersection #39) – The westbound right-turn lane would be removed and the westbound through lane converted into a shared through/ right-turn lane.

The Existing Conditions lane configurations and traffic controls at all other study intersections are assumed to remain for the 2040 No Project and Plus Project Conditions.

4.13.4 2040 No Project Conditions

This section evaluates traffic operations at the study intersections under 2040 No Project Conditions without the proposed project. This section describes the development of traffic volume forecasts, the street network, and the intersection operations under 2040 No Project Conditions.

2040 No Project Traffic Forecasts

The 2040 No Project traffic volume forecasts were developed using the ACTC Travel Demand Model and existing traffic volumes. The main inputs to the 2040 forecasting process are the model outputs from the ACTC Model and the existing traffic counts, which reflect past, present, and future developments expected by year 2040.

The ACTC Model version released in June 2015, which uses land use data consistent with Association of Bay Area Government (ABAG) Projections 2013, was used for this analysis. The land use database was modified to reflect more accurate land use projections in the City of Oakland including changes in land use proposed by the Oakland Zoo Expansion Project, and the Coliseum Area Specific Plan. This analysis assumes no growth at the project site under 2040 No Project conditions. The analysis accounts for the growth estimated for the planned Seneca School expansion, adjacent to the Oak Knoll project site. According to the proposed Seneca School expansion project, the school would expand on-site operations to have a total enrollment of about 30 pre-school children and 110 kindergarten through 12th grade students with about 60 faculty members at buildout.

The AM and PM peak hour roadway segment volumes forecasted by the ACTC Model for year 2040 were used to develop 2040 turning movement forecasts at the study intersections and the freeway forecasts using the “Furness” process, which “adjusts” existing volumes to reflect

changes in roadway segment volumes forecasted by the ACTC Model.[5] Fehr & Peers estimated trip generation for the Seneca School expansion project and added the additional trips to the peak hour forecasts derived from the Furness process described above. In addition, this analysis assumes that pedestrian and bicycle volumes at the study intersections would increase proportional to the projected growth in land uses in the study area, while assuming no changes at the project site.

Figures 3 and 4 in **Appendix V-B** presents the peak hour intersection and freeway traffic volume forecasts under 2040 No Project conditions.

2040 No Project Roadway Network

As discussed in the Planned Transportation Network Changes section, the following study intersections have planned and fully funded improvements, which are assumed for the 2040 No Project analysis:

- I-580 Eastbound On-Ramp/Seminary Avenue/Kuhnle Avenue (intersection #2) – The southbound right-turn lane would be removed and the through lane would be converted into a shared through/right-turn lane.
- I-580 Westbound Off-Ramp/Mountain Boulevard/Kuhnle Avenue (intersection #3) – The second northbound through lane would be removed.
- International Boulevard/98th Avenue (intersection #27) – The dedicated northbound right-turn lane would be removed along the International Boulevard approach.
- I-580 Westbound Ramps/Golf Links Road (intersection #39) – The westbound right-turn lane would be removed and the westbound through lane would be converted into a shared through/right-turn lane.

The 2040 No Project Conditions assumes the same intersection configuration as Existing Conditions at all other study intersections.

This analysis assumes that signal timing parameters that do not require upgrades to the signal equipment, such as amount of green time assigned to each intersection approach, would be optimized at the signalized study intersections under 2040 No Project conditions. This assumption reflects current City of Oakland practice that incorporates basic signal timing changes into routine maintenance of the traffic signal system. It is expected that retiming of signals in areas with the greatest need (e.g., major streets, areas with rapidly shifting traffic patterns) would be prioritized as part of the regular ongoing maintenance of signal equipment.

[5] Outlined in NCHRP-255, the industry-standard Furness technique estimates projected (future) intersection turning movement volumes based on comparing existing traffic counts and the Model results. It uses mathematical formulae to balance roadway segment volumes approaching and departing from the intersection and thus balances turning volumes that make sense compared to the existing counts and Model results. This process improves the level of confidence in the forecasted future turning movement volumes.

2040 No Project Intersection Operations

Intersection LOS calculations for 2040 No Project conditions were completed with the traffic volumes and roadway network described above. **Table 4.13-8** summarizes the intersection results. **Appendix V-D** presents the detailed intersection LOS calculation worksheets and California MUTCD peak hour volume traffic signal warrant sheets for 2040 No Project conditions.

TABLE 4.13-8
2040 NO PROJECT CONDITIONS INTERSECTION LOS SUMMARY

No.	Intersection	Traffic Control[a]	Peak Hour	Existing		2040 No Project	
				Delay (sec/veh)[b]	LOS	Delay (sec/veh)[b]	LOS
1	I-580 EB Off-Ramp/Seminary Avenue/Overdale Avenue	SSSC	AM PM	4.7 (22.9) 17.0 **(76.9)**	A (C) C **(F)**	29.9 **(>120.0)** **77.0 (>120.0)**	D **(F)** **F (F)**
2	I-580 EB On-Ramp/Seminary Avenue/Kuhnle Avenue	AWSC	AM PM	**36.7** **43.0**	**E** **E**	**38.4** **60.9**	**E** **F**
3	I-580 WB Off-Ramp/Mountain Boulevard/Kuhnle Avenue	SSSC	AM PM	**120.0 (>120.0)** **>120.0 (>120.0)**	**F (F)** **F (F)**	**>120.0 (>120.0)** **>120.0 (>120.0)**	**F (F)** **F (F)**
4	MacArthur Boulevard/Foothill Boulevard/73rd Avenue	Signal	AM PM	42.1 47.7	D D	**107.0** **>120.0**	**F** **F**
5	Ney Avenue/73rd Avenue	Signal	AM PM	3.5 3.4	A A	4.3 4.1	A A
6	Greenly Drive/Edwards Avenue	Signal	AM PM	5.2 5.4	A A	5.6 5.4	A A
7	I-580 EB Off-Ramp/Edwards Avenue	Signal	AM PM	12.3 13.8	B B	14.8 14.8	B B
8	I-580 WB On-Ramp/Mountain Boulevard/Edwards Avenue	Signal	AM PM	17.8 11.5	B B	18.2 12.7	B B
9	Mountain Boulevard/Rifle Lane	SSSC	AM PM	0.3 (12.9) 0.3 (9.4)	A (B) A (A)	0.6 (14.6) 0.8 (11.2)	A (B) A (B)
10	I-580 WB On-Ramp/Mountain Boulevard/Maynard Avenue	SSSC	AM PM	4.2 **(40.3)** 3.6 (9.3)	A **(E)** A (A)	6.7 **(>120.0)** 4.2 (25.2)	A **(F)** A (D)
11	Greenly Drive/Keller Avenue	AWSC	AM PM	7.6 7.7	A A	7.8 8.2	A A
12	I-580 EB Off-Ramp/Fontaine Street/Keller Avenue	AWSC	AM PM	14.7 14.7	B B	18.3 24.4	C C
13	Mountain Boulevard/Keller Avenue	AWSC	AM PM	**47.9** 21.6	**E** C	**56.0** **52.3**	**F** **F**
14	Williams Street/Keller Avenue	SSSC	AM PM	1.2 (10.0) 0.9 (9.8)	A (A) A (A)	1.5 (10.8) 1.0 (11.4)	A (B) A (B)
15	Campus Drive/Keller Avenue	SSSC	AM PM	2.8 (12.0) 4.1 (13.0)	A (B) A (B)	3.6 (12.1) 5.6 (17.1)	A (B) A (C)
16	I-580 WB Off-Ramp/Mountain Boulevard/Shone Avenue	SSSC	AM PM	5.6 **(40.5)** 11.3 (21.6)	A **(E)** B (C)	9.1 **(62.8)** 20.2 **(41.9)**	A **(F)** C **(E)**
17	Bancroft Avenue/82nd Avenue	Signal	AM PM	23.0 20.8	C C	30.3 27.5	C C
18	MacArthur Boulevard/82nd Avenue	Signal	AM PM	9.1 8.3	A A	11.8 11.4	B B
19	Golf Links Road/82nd Avenue	SSSC	AM PM	10.3 (12.9) 8.5 (11.8)	B (B) A (B)	13.7 (16.9) 9.6 (14)	B (C) A (B)
20	Golf Links Road/Fontaine Street	AWSC	AM PM	11.1 9.2	B A	14.6 12.1	B B
21	Crest Avenue/Fontaine Street	SSSC	AM PM	1.4 (9.7) 1.4 (9.0)	A (A) A (A)	1.5 (10.6) 1.7 (10.0)	A (B) A (A)
22	Fontaine Street/I-580 Overcrossing	SSSC	AM PM	3.2 (13.8) 2.3 (10.5)	A (B) A (B)	4.7 (17.2) 2.9 (11.2)	A (C) A (B)
23	Mountain Boulevard/I-580 Overcrossing	SSSC	AM PM	3.7 (19.0) 3.2 (10.2)	A (C) A (A)	4.5 (21.0) 3.5 (11.0)	A (C) A (A)

TABLE 4.13-8 (Continued)
2040 NO PROJECT CONDITIONS INTERSECTION LOS SUMMARY

No.	Intersection	Traffic Control[a]	Peak Hour	Existing		2040 No Project	
				Delay (sec/veh)[b]	LOS	Delay (sec/veh)[b]	LOS
24	Mountain Boulevard/Existing Project Site Access	SSSC	AM PM	0.1 (10.7) 0.8 (7.3)	A (B) A (A)	0.8 (11.8) 1.1 (7.5)	A (B) A (A)
25	Mountain Boulevard/Sequoyah Road	SSSC	AM PM	2.4 (16.9) 3.7 (9.5)	A (C) A (A)	2.7 (19.3) 3.9 (10.1)	A (C) A (B)
26	Mountain Boulevard/Calafia Avenue	SSSC	AM PM	1.5 (14.4) 1.3 (8.8)	A (B) A (A)	2.1 (17.0) 1.8 (9.5)	A (C) A (A)
27	International Boulevard/98th Avenue	Signal	AM PM	25.6 32.0	C C	49.3 **73.7**	D **E**
28	Holly Street/98th Avenue	Signal	AM PM	4.7 3.8	A A	5.9 4.4	A A
29	Plymouth Street/98th Avenue	Signal	AM PM	8.6 5.2	A A	11.7 5.6	B A
30	Birch Street/98th Avenue	Signal	AM PM	6.3 3.5	A A	6.8 4.7	A A
31	Bancroft Avenue/98th Avenue	Signal	AM PM	35.9 44.1	D D	43.0 49.0	D D
32	MacArthur Boulevard/98th Avenue	Signal	AM PM	32.1 31.3	C C	39.6 40.9	D D
33	Thermal Street/98th Avenue	SSSC	AM PM	0.6 (17.2) 0.3 (17.3)	A (C) A (C)	1.5 (24.1) 0.8 **(41.2)**	A (C) A **(E)**
34	Lawlor Street/98th Avenue	Signal	AM PM	17.8 3.8	B A	19.5 5.1	B A
35	Stearns Avenue/98th Avenue	Signal	AM PM	8.9 5.7	A A	18.0 7.0	B A
36	Stanley Avenue/98th Avenue	SSSC	AM PM	23.6 **(>120.0)** 0.9 (16.7)	C **(F)** A (C)	**48.2 (>120.0)** 2.0 **(49.3)**	**E (F)** A **(E)**
37	I-580 EB On-Ramp/98th Avenue	SSSC	AM PM	1.5 (13.5) 1.9 (10.2)	A (B) A (B)	2.6 (17.7) 2.0 (13.9)	A (C) A (B)
38	Golf Links Road/I-580 EB Off-Ramp/98th Avenue[c]	Signal	AM PM	22.6 25.0	C C	29.6 32.5	C C
39	I-580 WB Ramps/Golf Links Road[c]	Signal	AM PM	30.3 25.2	C C	39.4 39.4	D D
40	Mountain Boulevard/Golf Links Road[c]	SSSC	AM PM	**44.5 (>120.0)** 14.2 **(35.4)**	**E (F)** B **(E)**	**56.4 (>120.0)** **76.6 (>120.0)**	**F (F)** **F (F)**
41	San Leandro Street/98th Avenue	Signal	AM PM	44.1 46.8	D D	49.2 **60.3**	D **E**

NOTES: **bold** text indicates LOS E or LOS F operations.

[a] AWSC = All-Way Stop Control SSSC = Side-Street Stop Control.
[b] The LOS/Delay for Side-Street Stop-Control intersections are presented as follows: intersection average (worst movement); for Signalized and All-Way Stop-Control, the LOS/Delay presented for overall intersection. Delays greater than 120 seconds are reported as ">120" due to methodology limitations of delay estimates for over-capacity conditions.
[c] Intersection analyzed using SimTraffic micro-simulation software.
SOURCE: Fehr & Peers, 2016.

In general, the study intersections operate with more delay under 2040 No Project conditions than under Existing Conditions. Most intersections in the project area are expected to operate at LOS D or better during both AM and PM peak hours. The following intersections, however, are expected to operate at LOS E or F during the peak traffic hours:

- I-580 Eastbound Off-Ramp/Seminary Avenue/Overdale Avenue (intersection #1, side-street-stop-controlled) – the southbound shared through/left-turn movement (stop-controlled) would operate at LOS F during the AM and PM peak hours. The intersection would meet the California MUTCD peak hour volume signal warrant.

- I-580 Eastbound On-Ramp/Seminary Avenue/Kuhnle Avenue (intersection #2, all-way-stop-controlled) – would operate at LOS E during the AM peak hour and LOS F during the PM peak hour. The intersection would meet the California MUTCD peak hour volume signal warrant.
- I-580 Westbound Off-Ramp/Mountain Boulevard/Kuhnle Avenue (intersection #3, side-street-stop-controlled) – the westbound left-turn movement (stop-controlled) would operate at LOS F during the AM and PM peak hours. The intersection would meet the California MUTCD peak hour volume signal warrant.
- MacArthur Boulevard/Foothill Boulevard/73rd Avenue (intersection #4, signalized) – would operate at LOS F during the AM and PM peak hours.
- I-580 Westbound On-Ramp/Mountain Boulevard/Maynard Avenue (intersection #10, side-street-stop-controlled) – the westbound approach (stop-controlled, single lane approach) would operate at LOS F during the AM peak hour; all approaches would operate at LOS D or better during the PM peak hour. The intersection would not meet the California MUTCD peak hour volume signal warrant under year 2040 No Project peak hour conditions.
- Mountain Boulevard/Keller Avenue (intersection #13, all-way-stop-controlled) – would operate at LOS F during the AM and PM peak hours. The intersection would continue to meet the California MUTCD peak hour volume signal warrant.
- I-580 Westbound Off-Ramp/Mountain Boulevard/Shone Avenue (intersection #16, side-street-stop-controlled) – the eastbound left-turn movement (stop-controlled) would operate at LOS F during the AM peak hour and at LOS E during the PM peak hour. The intersection would not meet the California MUTCD peak hour volume signal warrant under year 2040 No Project peak hour conditions.
- International Boulevard/98th Avenue (intersection #27, signalized) – would operate at LOS D during the AM peak hour and at LOS E during the PM peak hour.
- Thermal Street/98th Avenue (intersection #33, side-street-stop-controlled) – the southbound approach (stop-controlled, single lane approach) would operate at LOS C during the AM peak hour and at LOS E during the PM peak hour. The intersection would not meet the California MUTCD peak hour volume signal warrant under year 2040 No Project peak hour conditions.
- Stanley Avenue/98th Avenue (intersection #36, side-street-stop-controlled) – the westbound approach (stop-controlled, single lane approach) would operate at LOS F during the AM peak hour and at LOS E during the PM peak hour. The intersection would meet the California MUTCD peak hour volume signal warrant.
- Mountain Boulevard / Golf Links Road (intersection #40, side-street-stop-controlled) – the westbound approach (stop-controlled, single lane approach) would operate at LOS F during the AM and PM peak hours. The intersection would meet the California MUTCD peak hour volume signal warrant.

San Leandro Street/98th Avenue (intersection #41, signalized) – would operate at LOS D during the AM peak hour and at LOS E during the PM peak hour.

2040 No Project Freeway Operations

Future 2040 No Project freeway section and ramp junction operations were evaluated for weekday AM and PM peak hours; **Table 4.13-9** summarizes the results. The HCM 2010 methodology analyzes freeway segments in isolation; therefore the methodology does not adequately evaluate queuing impacts from downstream bottlenecks, which can potentially underestimate density and LOS for segments that operate under congested conditions. The following study freeway segments are currently observed to operate under congested conditions and are expected to continue to operate at LOS F under 2040 No Project conditions:

- I-580 Eastbound between Seminary Avenue and SR 13 (segment #1) during the PM peak hour.
- I-580 Eastbound/SR 13 Southbound On-Ramp Junction (segment #2) during the PM peak hour.
- I-580 Eastbound/Seminary Avenue On-Ramp Junction (segment #3) during the PM peak hour.
- I-580 Eastbound/Edwards Avenue Off-Ramp Junction (segment #4) during the PM peak hour.
- I-580 Eastbound between Edwards Avenue and Keller Avenue (segment #5) during the PM peak hour.
- I-580 Eastbound/Keller Avenue Off-Ramp Junction (segment #6) during the PM peak hour.
- SR 13 Southbound between Calaveras Avenue Off-Ramp and I-580 (segment #13) during the PM peak hour.
- I-580 Westbound/SR 13 Northbound off-Ramp Junction (segment #24) during the AM peak hour.
- I-580 Westbound between SR 13 Northbound and Frontage Road (segment #25) during the AM peak hour.

The following freeway study segments are expected to degrade to LOS F operations under 2040 No Project conditions:

- I-580 Westbound/Edwards Avenue On-Ramp Junction (segment #22) during the AM peak hour.
- I-580 Westbound/Seminary Avenue Off-Ramp Junction (segment #23) during the AM peak hour.

Appendix V-D provides the detailed 2040 LOS calculation worksheets.

TABLE 4.13-9
2040 NO PROJECT CONDITIONS FREEWAY LOS SUMMARY

No.	Mainline Location	Segment Type	Peak Hour	Existing			2040 No Project		
				V/C[a]	Density[b]	LOS	V/C[a]	Density[b]	LOS
1	I-580 EB: Seminary Avenue to SR 13 SB	Basic	AM	0.37	12.8	B	0.40	13.8	B
			PM	**>1.00**	**-**	**F[c]**	**>1.00**	**-**	**F[d]**
2	I-580 EB: SR 13 SB On-Ramp	Merge	AM	0.75	27.9	C	**0.98**	-	**F**
			PM	**>1.00**	**-**	**F[c]**	**0.97**	-	**F**
3	I-580 EB: Seminary Avenue On-Ramp	Merge	AM	0.59	23.0	C	0.71	27.3	C
			PM	**>1.00**	**-**	**F[c]**	**>1.00**	**-**	**F[d]**
4	I-580 EB: Edwards Avenue Off-Ramp	Diverge	AM	0.67	28.0	C	0.82	33.6	D
			PM	**>1.00**	**-**	**F[c]**	**>1.00**	**-**	**F[d]**
5	I-580 EB: Edwards Avenue To Keller Avenue	Basic	AM	0.58	19.9	C	0.69	24.6	C
			PM	**>1.00**	**-**	**F[c]**	**>1.00**	**-**	**F[d]**
6	I-580 EB: Keller Avenue Off-Ramp	Diverge	AM	0.60	24.9	C	0.71	29.3	D
			PM	**>1.00**	**-**	**F[c]**	**>1.00**	**-**	**F[d]**
7	I-580 EB: Keller Avenue Off-Ramp to On-Ramp	Basic	AM	0.54	18.5	C	0.65	22.6	C
			PM	0.67	23.6	C	0.79	29.3	D
8	I-580 EB: Keller Avenue On-Ramp	Merge	AM	0.51	21.4	C	0.62	25.0	C
			PM	0.64	25.8	C	0.78	30.8	D
9	I-580 EB: Keller Avenue to Golf Links Road	Basic	AM	0.57	19.6	C	0.68	24.2	C
			PM	0.71	25.3	C	0.85	32.7	D
10	I-580 EB: Golf Links Road Off-Ramp	Diverge	AM	0.65	27.6	C	0.78	32.3	D
			PM	0.76	31.4	D	0.93	37.8	E
11	I-580 EB: Golf Links Road Off-Ramp to On-Ramp	Basic	AM	0.48	16.4	B	0.58	19.9	C
			PM	0.64	22.3	C	0.75	27.2	D
12	I-580 EB: Golf Links Road On-Ramp	Basic	AM	0.44	15.1	B	0.54	18.5	C
			PM	0.57	19.5	C	0.66	23.1	C
13	SR 13 SB: Calaveras Avenue to Seminary Avenue	Basic	AM	0.47	16.1	B	0.68	24.2	C
			PM	**>1.00**	**-**	**F[c]**	**>1.00**	**-**	**F[d]**
14	I-580 WB: Golf Links Road Off-Ramp	Diverge	AM	0.79	32.3	D	0.93	37.9	E
			PM	0.76	31.2	D	0.88	36.1	E
15	I-580 WB: Golf Links Road Off-Ramp to On-Ramp	Basic	AM	0.66	23.3	C	0.78	28.6	D
			PM	0.65	22.6	C	0.73	26.4	D
16	I-580 WB: Golf Links Road On-Ramp	Merge	AM	0.70	27.6	C	0.81	31.8	D
			PM	0.67	26.8	C	0.81	31.7	D
17	I-580 WB: Golf Links Road to Keller Avenue	Basic	AM	0.73	26.4	D	0.85	33.3	D
			PM	0.71	25.4	C	0.83	31.6	D
18	I-580 WB: Keller Avenue Off-Ramp	Diverge	AM	0.72	29.5	D	0.83	34.0	D
			PM	0.73	29.9	D	0.85	34.5	D
19	I-580 WB: Keller Avenue Off-Ramp to On-Ramp	Basic	AM	0.72	25.7	C	0.84	32.2	D
			PM	0.67	23.5	C	0.78	28.9	D
20	I-580 WB: Keller Avenue On-Ramp	Merge	AM	0.73	28.7	D	0.84	32.9	D
			PM	0.63	25.4	C	0.73	29.1	D

TABLE 4.13-9 (Continued)
2040 NO PROJECT CONDITIONS FREEWAY LOS SUMMARY

No.	Mainline Location	Segment Type	Peak Hour	Existing			2040 No Project		
				V/C[a]	Density[b]	LOS	V/C[a]	Density[b]	LOS
21	I-580 WB: Keller Avenue to Edwards Avenue	Basic	AM	0.78	28.7	D	0.91	36.8	E
			PM	0.70	25.1	C	0.82	31.1	D
22	I-580 WB: Edwards Avenue On-Ramp	Merge	AM	0.88	34.2	D	**1.00**	**-**	**F**
			PM	0.73	28.9	D	0.84	32.6	D
23	I-580 WB: Seminary Avenue Off-Ramp	Diverge	AM	0.87	35.3	E	**1.00**	**-**	**F**
			PM	0.78	31.9	D	0.90	36.6	E
24	I-580 WB: SR 13 NB Off-Ramp	Diverge	AM	**>1.00**	**-**	**F[c]**	**>1.00**	**-**	**F[d]**
			PM	0.74	30.9	D	0.89	35.6	E
25	I-580 WB: SR 13 NB to Frontage Road	Basic	AM	**>1.00**	**-**	**F[c]**	**>1.00**	**-**	**F[d]**
			PM	0.53	18.3	C	0.59	20.6	C
26	SR 13 NB: I-580 WB to Calaveras Avenue	Basic	AM	0.41	14.1	B	0.49	16.9	B
			PM	0.41	13.9	B	0.50	17.3	B

NOTES: **bold** text indicates LOS F operations.

a V/C ratios greater than 1.00 reported as ">1.00" for segments that operate under congested conditions based on existing field observations.
b Density measures in passenger cars per mile per lane. Density not reported for segments that operate under congested conditions based on existing field observations.
c Freeway segment operates under congested conditions based on existing field observations.
d Freeway segment is expected to continue to operate under congested peak hour conditions based on existing field observations.

SOURCE: Fehr & Peers, 2016.

4.13.5 Regulatory Framework

The Oakland General Plan is comprised of numerous elements, and those containing policies relevant to transportation resources primarily are contained in the Land Use and Transportation Element (LUTE). The goals and policies contained in the various General Plan Elements are often competing. In reviewing a project for conformity with the General Plan, the City is required to 'balance' the competing goals and policies. This project is reviewed for compliance with the following local plans and policies:

- General Plan LUTE
- City of Oakland Pedestrian Master Plan (incorporated into the City's General Plan)
- City of Oakland Bicycle Master Plan (incorporated into the City's General Plan)
- City of Oakland Public Transit and Alternative Modes Policy
- City of Oakland Complete Streets Policy
- City of Oakland Standard Conditions of Approval and Uniformly Applied Development Standards
- Southeast Oakland Traffic Improvement Fee Program

City of Oakland General Plan

The City of Oakland General Plan (General Plan) is a comprehensive plan for the growth and development of the City. The General Plan includes policies related to: land use and circulation; housing; recreation; conservation and open space; noise; environmental hazards; and historic resources. These topics are addressed within individual elements of the General Plan: Land Use and Transportation; Pedestrian Master Plan; Bicycle Master Plan; Housing; Historic Preservation; Open Space; Conservation; Recreation; Noise; and Safety. Each is addressed separately below.

Regarding a project's consistency with the General Plan in the context of CEQA, the Oakland General Plan states the following:

> The General Plan contains many policies which may in some cases address different goals, policies and objectives and thus some policies may compete with each other. The Planning Commission and City Council, in deciding whether to approve a proposed project, must decide whether, on balance, the project is consistent (i.e., in general harmony) with the General Plan. The fact that a specific project does not meet all General Plan goals, policies and objectives does not inherently result in a significant effect on the environment within the context of the California Environmental Quality Act (CEQA). (City Council Resolution No. 79312 C.M.S.; adopted June 2005)

Land Use and Transportation Element (LUTE)

The City of Oakland, through various policy documents, states a strong preference for encouraging use of pedestrian, bicycle, and transit travel modes. The following policies are included in the LUTE:

LUTE Policy Framework, Encouraging Alternative Means of Transportation: "A key challenge for Oakland is to encourage commuters to carpool or use alternative modes of transportation, including bicycling or walking. The Policy Framework proposes that congestion be lessened by promoting alternative means of transportation, such as transit, biking, and walking, providing facilities that support alternative modes, and implementing street improvements. The City will continue to work closely with local and regional transit providers to increase accessibility to transit and improve intermodal transportation connections and facilities. Additionally, policies support the introduction of light rail and trolley buses along appropriate arterials in heavily traveled corridors, and expanded use of ferries in the bay and estuary."

- ***Policy T3.5, Including Bikeways and Pedestrian Walks:*** The City should include bikeways and pedestrian walks in the planning of new, reconstructed, or realized streets, wherever possible.
- ***Policy T3.6, Encouraging Transit:*** The City should encourage and promote use of public transit in Oakland by expediting the movement of and access to transit vehicles on designated "transit streets" as shown on the Transportation Plan. (Policies T3.6 and T3.7 are based on the City Council's passage of "Transit First" policy in October 1996.)
- ***Policy T3.7, Resolving Transportation Conflicts:*** The City, in constructing and maintaining its transportation infrastructure, should resolve any conflicts between public transit and single occupant vehicles in favor of the transportation mode that has the potential to provide the greatest mobility and access for people, rather than vehicles, giving due consideration to the environmental, public safety, economic development, health and social equity impacts.
- ***Policy T4.1, Incorporating Design Features for Alternative Travel:*** The City will require new development, rebuilding, or retrofit to incorporate design features in their projects that encourage use of alternative modes of transportation such as transit, bicycling, and walking.

City of Oakland Pedestrian Master Plan

In November 2002, the *Pedestrian Master Plan* was adopted by the City Council and incorporated into the adopted *General Plan*. The PMP identifies policies and implementation measures that promote a walkable City. The PMP designates a Pedestrian Route Network throughout Oakland and identifies a "District Route" on Mountain Boulevard along the project frontage.

The PMP includes the following relevant policies and actions:

- ***Policy 1.1, Crossing Safety:*** Improve pedestrian crossings in areas of high pedestrian activity where safety is an issue.
  - *Action 1.1.1*: Consider the full range of design elements – including bulbouts and refuge islands – to improve pedestrian safety.
- ***Policy 1.2, Traffic Signals:*** Use traffic signals and their associated features to improve pedestrian safety at dangerous intersections.

- *Action 1.2.7:* Consider using crossing enhancement technologies like countdown pedestrian signals at the highest pedestrian volume locations.

- ***Policy 1.3, Sidewalk Safety:*** Strive to maintain a complete sidewalk network free of broken or missing sidewalks or curb ramps.
  - *Action 1.3.7:* Conduct a survey of all street intersections to identify corners with missing, damaged, or non-compliant curb ramps and create a plan for completing their installation.

- ***Policy 2.1, Route Network:*** Create and maintain a pedestrian route network that provides direct connections between activity centers.
  - *Action 2.1.8:* To the maximum extent possible, make walkway accessible to people with physical disabilities.

- ***Policy 2.3, Safe Routes to Transit:*** Implement pedestrian improvements along major AC Transit lines and at BART stations to strengthen connections to transit.
  - *Action 2.3.1*: Develop and implement street designs (like bus bulbouts) that improve pedestrian/ bus connections.
  - *Action 2.3.3*: Prioritize the implementation of street furniture (including bus shelters) at the most heavily used transit stops.
  - *Action 2.3.4*: Improve pedestrian wayfinding by providing local area maps and directional signage at major AC Transit stops and BART stations.

- ***Policy 3.2, Land Use:*** Promote land uses and site designs that make walking convenient and enjoyable.
  - *Action 3.2.1*: Use building and zoning codes to encourage a mix of uses, connect entrances and exits to sidewalks, and eliminate "blank walls" to promote street level activity.
  - *Action 3.2.2*: Promote parking and development policies that encourage multiple destinations within an area to be connected by pedestrian trips.
  - *Action 3.2.4*: Require contractors to provide safe, convenient, and accessible pedestrian rights-of-way along construction sites that require sidewalk closure.
  - *Action 3.2.8*: Discourage motor vehicle parking facilities that create blank walls, unscreened edges along sidewalks, and/or gaps between sidewalks and building entrances.

City of Oakland Bicycle Master Plan

The Oakland City Council adopted the Oakland Bicycle Master Plan Update in December 2007 and incorporated into the adopted General Plan. The adopted plan includes the following policy-supporting actions that are applicable to the proposed project:

- ***Policy 1A, Bikeway Network:*** Develop and improve Oakland's bikeway network.
  - *Action 1A.1, Bicycle Lanes (Class 2):* Install bicycle lanes where feasible as the preferred bikeway type for all streets on the proposed bikeway network (except for

the bicycle boulevards proposed for local streets with low traffic volumes and speeds).

- *Action 1A.3, Bicycle Boulevards (Class 3B):* Enhance bicycle routes on local streets by developing bicycle boulevards with signage, striping, and intersection modifications to prioritize bicycle travel.
- *Action 1A.6, Dedicated Right Turn Lanes and "Slip Turns":* Where feasible, avoid the use of dedicated right turn lanes on streets included in the bikeway network. Where infeasible, consider a bicycle through lane to the left of the turn lane or a combined bicycle lane/right turn lane.

- ***Policy 1B, Routine Accommodation:*** Address bicycle safety and access in the design and maintenance of all streets.
  - *Action 1B.2, Traffic Signals:* Include bicycle-sensitive detectors, bicycle detector pavement markings, and adequate yellow time for cyclists with all new traffic signals and in the modernization of all existing signals.
- ***Policy 1C, Safe Routes to Transit:*** Improve bicycle access to transit, bicycle parking at transit facilities, and bicycle access on transit vehicles.
  - *Action 1C.1, Bikeways to Transit Stations:* Prioritize bicycle access to major transit facilities from four directions, integrating bicycle access into the station design and connecting the station to the surrounding neighborhoods.
- ***Policy 1D, Parking and Support Facilities:*** Promote secure and conveniently located bicycle parking at destinations throughout Oakland.
  - *Action 1D.6, Bicycle Parking Ordinance:* Adopt an ordinance as part of the City's Planning Code that would require new development to include short and long-term bicycle parking.
  - *Action 1D.7, Development Incentives:* Consider reduced automobile parking requirements in exchange for bicycle facilities as part of transportation demand management strategies in new development.

City of Oakland Public Transit and Alternative Modes Policy

The City of Oakland adopted the Public Transit and Alternative Modes Policy, also known as the "Transit-First Policy," in October 2006 (City Council Resolution 73036 C.M.S.). This resolution supports public transit and other alternatives to single occupant vehicles, and directs the LUTE to incorporate "various methods of expediting transit services on designated streets, and encouraging greater transit use." The resolution also directs the City, in constructing and maintaining its transportation infrastructure, to resolve any conflicts between public transit and single occupant vehicles on City streets in favor of the transportation mode that provides the greatest mobility for people rather than vehicles giving due consideration to the environment, public safety, economic development, health, and social equity impacts.

City of Oakland Public Complete Streets Policy

The City of Oakland adopted the Complete Street Policy to Further Ensure that Oakland Streets Provide Safe and Convenient Travel Options for all Users in January 2013 (City Council Resolution 84204 C.M.S.). This resolution, consistent with the California Complete Streets Act of 2008, directs the City of Oakland to plan, design, construct, operate, and maintain the street network in the City to accommodate safe, convenient, comfortable travel for all modes, including pedestrians, bicyclists, transit users, motorists, trucks, and emergency vehicles.

City of Oakland Conditions of Approval and Uniformly Applied Development Standards

The City's Standard Conditions of Approval (SCA) that directly pertain to transportation and circulation and that apply to the proposed project are listed below. If the project is approved by the City, all applicable SCAs will be adopted as conditions of approval and required, as applicable, to help address construction period dust (or emissions). Because the conditions of approval are incorporated as part of the project, they are not listed as mitigation measures.

- **SCA TRA-1: Construction Activity in the Public Right-of-Way**

  a. ***Obstruction Permit Required.*** *Prior to approval of construction-related permit.* The project applicant shall obtain an obstruction permit from the City prior to placing any temporary construction-related obstruction in the public right-of-way, including City streets and sidewalks.

  When Required: Prior to approval of construction-related permit

  Initial Approval: Bureau of Building

  Monitoring/Inspection: Bureau of Building

  b. ***Traffic Control Plan Required.*** *Prior to approval of construction-related permit.* In the event of obstructions to vehicle or bicycle travel lanes, the project applicant shall submit a Traffic Control Plan to the City for review and approval prior to obtaining an obstruction permit. The project applicant shall submit evidence of City approval of the Traffic Control Plan with the application for an obstruction permit. The Traffic Control Plan shall contain a set of comprehensive traffic control measures for auto, transit, bicycle, and pedestrian detours, including detour signs if required, lane closure procedures, signs, cones for drivers, and designated construction access routes. The project applicant shall implement the approved Plan during construction.

  When Required: Prior to approval of construction-related permit

  Initial Approval: Public Works Department, Transportation Services Division

  Monitoring/Inspection: Bureau of Building

  c. ***Repair of City Streets.*** *Prior to building permit final.* The project applicant shall repair any damage to the public right-of way, including streets and sidewalks caused by project construction at his/her expense within one week of the occurrence of the damage (or excessive wear), unless further damage/excessive wear may continue; in such case, repair shall occur prior to approval of the final inspection of the

construction-related permit. All damage that is a threat to public health or safety shall be repaired immediately.

When Required: Prior to building permit final

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

- **SCA TRA-2: Bicycle Parking.** *Prior to approval of construction-related permit.* The project applicant shall comply with the City of Oakland Bicycle Parking Requirements (chapter 17.118 of the Oakland Planning Code). The project drawings submitted for construction-related permits shall demonstrate compliance with the requirements.

  When Required: Prior to approval of construction-related permit

  Initial Approval: Bureau of Planning

  Monitoring/Inspection: Bureau of Building

- **SCA TRA-3: Transportation Improvements.** *Prior to building permit final or as otherwise specified.* The project applicant shall implement the recommended on- and off-site transportation-related improvements contained within the Transportation Impact Study for the project (e.g., signal timing adjustments, restriping, signalization, traffic control devices, roadway reconfigurations, and pedestrian and bicyclist amenities). The project applicant is responsible for funding and installing the improvements, and shall obtain all necessary permits and approvals from the City and/or other applicable regulatory agencies such as, but not limited to, Caltrans (for improvements related to Caltrans facilities) and the California Public Utilities Commission (for improvements related to railroad crossings), prior to installing the improvements. To implement this measure for intersection modifications, the project applicant shall submit Plans, Specifications, and Estimates (PS&E) to the City for review and approval. All elements shall be designed to applicable City standards in effect at the time of construction and all new or upgraded signals shall include these enhancements as required by the City. All other facilities supporting vehicle travel and alternative modes through the intersection shall be brought up to both City standards and ADA standards (according to Federal and State Access Board guidelines) at the time of construction. Current City Standards call for, among other items, the elements listed below:

  a. 2070L Type Controller with cabinet accessory

  b. GPS communication (clock)

  c. Accessible pedestrian crosswalks according to Federal and State Access Board guidelines with signals (audible and tactile)

  d. Countdown pedestrian head module switch out

  e. City Standard ADA wheelchair ramps

  f. Video detection on existing (or new, if required)

  g. Mast arm poles, full activation (where applicable)

  h. Polara Push buttons (full activation)

  i. Bicycle detection (full activation)

j. Pull boxes

k. Signal interconnect and communication with trenching (where applicable), or through existing conduit (where applicable), 600 feet maximum

l. Conduit replacement contingency

m. Fiber switch

n. PTZ camera (where applicable)

o. Transit Signal Priority (TSP) equipment consistent with other signals along corridor

p. Signal timing plans for the signals in the coordination group

When Required: Prior to building permit final or as otherwise specified

Initial Approval: Bureau of Building; Public Works Department, Transportation Services Division

Monitoring/Inspection: Bureau of Building

- **SCA TRA-4: Transportation and Parking Demand Management**

a. ***Transportation and Parking Demand Management (TDM) Plan Required.*** *Prior to approval of construction-related permit.* The project applicant shall submit a Transportation and Parking Demand Management (TDM) Plan for review and approval by the City.

i. The goals of the TDM Plan shall be the following:

- Reduce vehicle traffic and parking demand generated by the project to the maximum extent practicable, consistent with the potential traffic and parking impacts of the project.
- Achieve the following project vehicle trip reductions (VTR):
  - Projects generating 50-99 net new a.m. or p.m. peak hour vehicle trips: 10 percent VTR
  - Projects generating 100 or more net new a.m. or p.m. peak hour vehicle trips: 20 percent VTR
- Increase pedestrian, bicycle, transit, and carpool/vanpool modes of travel. All four modes of travel shall be considered, as appropriate.
- Enhance the City's transportation system, consistent with City policies and programs.

ii. TDM strategies to consider include, but are not limited to, the following:

- Inclusion of additional long-term and short-term bicycle parking that meets the design standards set forth in chapter five of the Bicycle Master Plan and the Bicycle Parking Ordinance (chapter 17.117 of the Oakland Planning Code), and shower and locker facilities in commercial developments that exceed the requirement.
- Construction of and/or access to bikeways per the Bicycle Master Plan; construction of priority bikeways, on-site signage and bike lane striping.

- Installation of safety elements per the Pedestrian Master Plan (such as crosswalk striping, curb ramps, count down signals, bulb outs, etc.) to encourage convenient and safe crossing at arterials, in addition to safety elements required to address safety impacts of the project.
- Installation of amenities such as lighting, street trees, and trash receptacles per the Pedestrian Master Plan and any applicable streetscape plan.
- Construction and development of transit stops/shelters, pedestrian access, way finding signage, and lighting around transit stops per transit agency plans or negotiated improvements.
- Direct on-site sales of transit passes purchased and sold at a bulk group rate (through programs such as AC Transit Easy Pass or a similar program through another transit agency).
- Provision of a transit subsidy to employees or residents, determined by the project applicant and subject to review by the City, if employees or residents use transit or commute by other alternative modes.
- Provision of an ongoing contribution to transit service to the area between the project and nearest mass transit station prioritized as follows: 1) Contribution to AC Transit bus service; 2) Contribution to an existing area shuttle service; and 3) Establishment of new shuttle service. The amount of contribution (for any of the above scenarios) would be based upon the cost of establishing new shuttle service (Scenario 3).
- Guaranteed ride home program for employees, either through 511.org or through separate program.
- Pre-tax commuter benefits (commuter checks) for employees.
- Free designated parking spaces for on-site car-sharing program (such as City Car Share, Zip Car, etc.) and/or car-share membership for employees or tenants.
- On-site carpooling and/or vanpool program that includes preferential (discounted or free) parking for carpools and vanpools.
- Distribution of information concerning alternative transportation options.
- Parking spaces sold/leased separately for residential units. Charge employees for parking, or provide a cash incentive or transit pass alternative to a free parking space in commercial properties.
- Parking management strategies including attendant/valet parking and shared parking spaces.
- Requiring tenants to provide opportunities and the ability to work off-site.
- Allow employees or residents to adjust their work schedule in order to complete the basic work requirement of five eight-hour workdays by adjusting their schedule to reduce vehicle trips to the worksite (e.g., working four, ten-hour days; allowing employees to work from home two days per week).

- Provide or require tenants to provide employees with staggered work hours involving a shift in the set work hours of all employees at the workplace or flexible work hours involving individually determined work hours.

The TDM Plan shall indicate the estimated VTR for each strategy, based on published research or guidelines where feasible. For TDM Plans containing ongoing operational VTR strategies, the Plan shall include an ongoing monitoring and enforcement program to ensure the Plan is implemented on an ongoing basis during project operation. If an annual compliance report is required, as explained below, the TDM Plan shall also specify the topics to be addressed in the annual report.

When Required: Prior to approval of construction-related permit

Initial Approval: Bureau of Planning

Monitoring/Inspection: N/A

b. ***TDM Implementation – Physical Improvements.*** *Prior to building permit final.* For VTR strategies involving physical improvements, the project applicant shall obtain the necessary permits/approvals from the City and install the improvements prior to the completion of the project.

When Required: Prior to building permit final

Initial Approval: Bureau of Building

Monitoring/Inspection: Bureau of Building

c. ***TDM Implementation – Operational Strategies.*** *Ongoing.* For projects that generate 100 or more net new a.m. or p.m. peak hour vehicle trips and contain ongoing operational VTR strategies, the project applicant shall submit an annual compliance report for the first five years following completion of the project (or completion of each phase for phased projects) for review and approval by the City. The annual report shall document the status and effectiveness of the TDM program, including the actual VTR achieved by the project during operation. If deemed necessary, the City may elect to have a peer review consultant, paid for by the project applicant, review the annual report. If timely reports are not submitted and/or the annual reports indicate that the project applicant has failed to implement the TDM Plan, the project will be considered in violation of the Conditions of Approval and the City may initiate enforcement action as provided for in these Conditions of Approval. The project shall not be considered in violation of this Condition if the TDM Plan is implemented but the VTR goal is not achieved.

When Required: Ongoing

Initial Approval: Bureau of Planning

Monitoring/Inspection: Bureau of Planning

Southeast Oakland Area Traffic Impact Fee Program

The City of Oakland implemented a traffic impact mitigation fee program in 2007 for Southeast Oakland (Chapter 70 of Title 10 of the Oakland Municipal Code), in order to establish a funding mechanism for traffic improvements required to mitigate cumulative traffic impacts in the area.[6] Adopted traffic impact fees by land use category (in 2006 dollars) are as follows:

- Single Family Residential $3,160 per unit
- Other Residential $2,440 per unit
- Retail $5.89 per square-foot
- Service $3.12 per square-foot
- Manufacturing $1.44 per square-foot

Per Municipal Code Chapter 10.70.240, the City reserves the right to update and adjust the above-cited fees, in accordance with the Mitigation Fee Act. The fee in effect at the time any applicant has obtained a vested development right shall be subject to adjustment by the City as incorporated in updated implementing resolutions in effect at the time that full payment of the fee is made, based upon any or all of the following criteria:

A. Adjustments in the amount of the estimated construction costs of providing the specified public facilities based upon adjustments in accordance with the inflation index.

B. Adjustments to replace estimated costs with actual costs (including carrying costs) of providing the specified traffic and/or transportation facilities.

C. Adjustments to reflect more accurate cost estimates of providing the specific traffic and/or transportation facilities based upon more detailed analysis or design of the previously identified specified public facilities (Ord. 12786 § 1 (part), 2007)

The adopted program includes about $4.9 million of transportation infrastructure improvements at the following locations:

- I-580 Eastbound Off-Ramp/Seminary Avenue/Overdale Avenue (intersection #1)
- I-580 Westbound Off-Ramp/Mountain Boulevard/Kuhnle Avenue (intersection #3)
- MacArthur Boulevard/Foothill Boulevard/73rd Avenue (intersection #4)
- Greenly Drive/Edwards Avenue (intersection #6, improvements completed)
- I-580 Eastbound Off-Ramp/Edwards Avenue (intersection #7, improvements completed)
- I-580 Westbound On-Ramp/Mountain Boulevards/Edwards Avenue (intersection #8, improvements completed)
- I-580 Eastbound Off-Ramp/Fontaine Street/Keller Avenue (intersection #12)
- Mountain Boulevard / Keller Avenue (intersection #13)
- I-580 Westbound Off-Ramp/Mountain Boulevard/Shone Avenue (intersection #16)

[6] The area covered by the Southeast Oakland Area Traffic Impact Fee program generally extends along both sides of the I-580 freeway corridor between the Seminary Avenue and 98th Avenue interchanges.

4.13.6 Project Transportation Characteristics

This section discusses characteristics of the proposed project that affect transportation and circulation.

Project Description

The proposed project consists of the following residential and retail land uses:

- 363 single-family homes
- 572 townhomes
- 82,000 square feet of retail or commercial space
- 4,000 square feet of community center

In addition, the project would implement Class 2 bicycle lanes along the Mountain Boulevard site frontage. The project site is currently mostly vacant, except for Club Knoll, which would be moved to a different location on the project site. The Seneca School and Credit Union buildings are nearby, but are not part of the project or on the project site.

Project Access and Circulation

Access to the project site would be provided via the following five project access points:

- Williams Street/Keller Avenue /Creekside Parkway
- Mountain Boulevard/Main Street
- Mountain Boulevard/Creekside Parkway
- Mountain Boulevard/Creekside Loop
- Keller Avenue/Uplands Primary

The transportation infrastructure proposed for the project site is designed to efficiently and safely facilitate movement within the site and to connect the proposed Oak Knoll development to the surrounding transportation systems. **Figure 4.13-4** shows the proposed project site plan. This section is based on the Complete Streets Guide (included in **Appendix F** to this Draft SEIR) and the project's site plan, summarizing the project components analyzed as part of this EIR below.

Automobile Access and Circulation

- Creekside Parkway would be the primary north-south collector street connecting to Mountain Boulevard via a signalized intersection and to Keller Avenue via an all-way stop controlled intersection. Creekside Parkway would provide a seven-foot on-street parking lane and 11-foot travel lane in each direction with a 25 mph posted speed limit. Creekside Parkway would provide a connection to Access Road along the northern edge of the site, connecting to the existing Seneca and Credit Union buildings. Landscaped curb extensions are also proposed along Creekside Parkway at intersection crossings.

LEGEND	
- - -	Property Line
NIP	Not in Project

SOURCE: OKVA, Hart Howerton, 2016

Oak Knoll Project . 120645

Figure 4.13-4
Proposed Project Site Plan

- Creekside Loop would be a collector providing an eight-foot on-street parking lane and 10-foot travel lane in each direction with a 25 mph posted speed limit. Creekside Loop connects to Mountain Boulevard just south of the Creekside Parkway intersection; access to Mountain Boulevard would be limited to right-in/right-out only. Creekside Loop would also provide direct access to the townhomes and community center within the site, in addition to direct access to the existing Seneca and Credit Union buildings. Landscaped curb extensions are also proposed along Creekside Loop.

- Main Street would be a local street that would connect to Mountain Boulevard just north of the Creekside Parkway intersection; access at this intersection would be limited to right-in/right-out only. Main Street would provide access to the Village Commercial development and is designed with a seven-foot on-street parking lane and 11-foot travel lane in each direction with a 25 mph posted speed limit. Intermittent tree planters would be provided on Main Street in the parking lane.

- Uplands Primary would be a local street that would connect to Keller Avenue at the eastern side of the project site; access at this intersection would be limited to right-in/right-out only. Uplands Primary would provide a seven-foot on-street parking lane and 10-foot travel lane in each direction with a 25 mph posted speed limit. Landscaped curb extensions are also proposed along Uplands Primary. Uplands Primary would provide access to proposed single-family homes. Similar to Uplands Primary, Uplands Secondary would provide one 10-foot travel lanes per direction with on-street parking proposed only on one side of the street.

- Creekside Village Primary and Secondary streets would provide local access to the Creekside Village townhomes. Both streets are designed with 10-foot travel lanes and 25 mph posted speed limit, only Creekside Village Primary would provide on-street parking, which is proposed only along one side of the street.

- The Gardencourt and Creekside Townhome alleyways would provide access to off-street parking spaces for proposed townhomes. The alleyways would provide one 11-foot lane per direction with no on-street parking.

- Access Way would provide local access to the Creekside Village and Creekside Townhomes along the north edge of the site, west of Creekside Parkway. Access Way is designed with 10-foot travel lanes with on-street parking on one side of the street and 25 mph posted speed limit. Access Way would also provide secondary access to the Seneca School.

Pedestrian Access and Circulation

- Minimum six foot sidewalks are proposed along the majority of the streets within the project site, only the Gardencourt and Creekside Village alleyways would not provide sidewalks. Excluding the alleyways, the project would provide a connected sidewalk network throughout the site.

- The project would provide minimum six foot sidewalk along the project site frontage on Mountain Boulevard, in addition to retaining the existing sidewalks along the site frontage on Keller Avenue.

- Landscaped buffers ranging between five and six feet wide are proposed between the sidewalk and the street along all streets within the site, except alleys and courts. Landscaped buffers can improve pedestrian comfort and enhance streetscape aesthetics.

- Curb extensions (also known as bulb-outs) are proposed at intersection crossings along all streets that provide on-street parking. Curb extensions encourage lower automobile speeds and provide shorter crossing distances at pedestrian crossings.
- A 14-foot Class 1 multi-use trail is proposed between the Rifle Range Creek and the Creekside Parkway. The trail would connect Mountain Boulevard and Keller Avenue.
- In addition, off-street pedestrian paths that connect residential neighborhoods to commercial and recreational destinations within the site are also proposed. Pedestrian paths are proposed along the southern and eastern residential neighborhoods, with direct connections between the Village Commercial and Creekside Village developments. Hiking trails in the vicinity of the creek and along the northern and eastern edges of the site are also proposed. The project would provide a pedestrian/bicycle only bridge across Rifle Range Creek, connecting the Class I multi-use trail with the proposed hiking trail along Rifle Range Creek near the Village Commercial.
- Narrow travel lane widths (10-11 feet, one lane per direction), which encourage lower automobile speeds, are proposed on all streets within the project site.

Bicycle Access and Circulation

- A 14-foot Class 1 multi-use trail is proposed between the Rifle Range Creek and Creekside Parkway. The Class 1 facility would connect to the planned Class 2 bicycle lanes along Mountain Boulevard.
- Class 2 bicycle lanes along the Mountain Boulevard frontage are proposed, which is consistent with the City of Oakland's plan to implement Class 2 bicycle lanes along the Mountain Boulevard corridor as part of an effort to connect it to the MacArthur Boulevard bikeway at Mills College and the Bancroft Avenue bikeway at 106th Avenue.
- Class 3 bicycle routes are proposed along Creekside Loop and Main Street. Both of these streets would provide on-street parking and one travel lane per direction with a 25 mph posted speed limit.
- A minimum of eight long-term and 43 short-term bicycle parking spaces are proposed throughout the site; however, the specific locations of bicycle parking spaces have not yet been identified.

Transit Access and Circulation

- The project would also improve the pedestrian connections between the project site and existing bus stops adjacent to the site on Mountain Boulevard at Creekside Parkway and on Keller Avenue at Creekside Parkway. A connected sidewalk network with minimum six foot widths is proposed throughout the site with sidewalk connections to bus stops adjacent to the site. The project proposes to signalize the Mountain Boulevard/ Creekside Parkway intersection and implement all-way-stop controls at the Keller Avenue/ Creekside Parkway intersection, which would improve pedestrian access to bus stops across Mountain Boulevard and Keller Avenue at Creekside Parkway.
- Creekside Parkway between Mountain Boulevard and Keller Avenue would accommodate buses. The project applicant would coordinate with City of Oakland and AC Transit to investigate the potential for re-routing existing AC Transit service through the project site along Creekside Parkway, as well as the potential for providing peak period weekday shuttle service between the project site and the Coliseum BART station.

As required by SCA TRA-4, the proposed project would also implement a Transportation Demand Management (TDM) program to reduce the automobile trips generated by the project.

Trip Generation

Trip generation refers to the process of estimating the amount of vehicular traffic a project would add to the local roadway network. Trip generation for the project components during the AM peak hour, PM peak hour and daily were estimated using the trip generation data presented in Institute of Transportation Engineers' (ITE) *Trip Generation Manual, 9th Edition*. Trip generation for the residential component of the project was determined using the ITE *Trip Generation Manual* land use categories for "Single-Family Detached Housing" (land use code 210) and "Residential Condominium/Townhouse" (land use code 230). The project would consist of a total of 935 residential units.

Although specific tenants have not yet been identified for the retail component of the Project, the site is expected to be occupied by a variety of retailers serving the local neighborhood. The land use category "Shopping Center" (land use code 820) was used for the proposed 72,000 square feet retail space within the Village Commercial area of the project site.

In addition, the Project proposes redevelopment of the existing Club Knoll building (to be relocated and rehabilitated) into approximately 4,000 square feet of community center and approximately 10,000 square feet of limited commercial activities, such as a health club or event center adjacent to the community center. Since the ITE defines the "Shopping Center" category to include non-merchandizing facilities, such as health clubs and recreational facilities, using the ITE "Shopping Center" data would cover the potential uses at the existing Club Knoll building. However, using ITE "Shopping Center" data for the Club Knoll uses is a conservative assessment; the ITE trip rates (per ksf) for each of the types of limited commercial uses that may likely occur in Club Knoll are, on average, approximately one-half that generated under the ITE "Shopping Center" category. Applying the average ITE trip rates for uses, such as a fitness or athletic center, recreational center, day care, a small office, or specialty retail, the vehicle trips generated from Club Knoll would constitute approximately 3 percent of the Project's total trips.[7] Since the community center portion of Club Knoll would primarily serve Oak Knoll residents and accommodate special events mostly on weekends, it is not expected to generate noticeable automobile trips during typical weekday peak hour conditions.

[7] Per the ITE *Trip Generation Manual, 9th Edition,* the following weekday daily trip rates (per ksf) would generate from the following limited commercial land uses that may likely occur in the 10,000 square feet of the relocated and rehabilitated Club Knoll: fitness center (land use code 492) - 32 trips; athletic center (land use code 493) - 43 trips; recreational center (land use code 495) – 33 trips; day care (land use code 565) – 27 trips; small office (land use code 720) – 36 trips; specialty retail (land use code 826) – 44 trips. The average totals **36 weekday daily trips per ksf**, or approximately **360 total trips** for 10,000 square feet. Based on Table 4.13-10, the proposed 82 ksf of shopping center (land use code 820) would generate 5,790 total daily trips, which totals **70 weekday daily trips per ksf**. Therefore, the realistic possible uses in Club Knoll would generate approximately one half (36 compared to 70 weekday daily trips per ksf) the daily trips per ksf estimated for the Project in this chapter's analysis, and approximately **3 percent of the total Project trips**, per Table 4.13-10 (360 of 11,250 total trips).

Mode Split Adjustments

The data in the ITE *Trip Generation Manual* is generally based on data mostly collected at single-use suburban sites that provide few alternatives to driving. Research has shown that ITE rates often over-estimate automobile trips when applied to dense, urban environments. For this reason, City of Oakland's *Transportation Impact Study Guidelines* recommends that mode split be accounted for as part of the trip generation process. The guidelines provide default mode split adjustment factors for ITE trip generation rates based on the Bay Area Travel Survey (BATS) 2000 data. A 2011 research study shows reducing ITE based trip generation using BATS data results is a more accurate estimation of trip generation for mixed use developments than just using ITE based trip generation.[8]

The project proposes 935 dwelling units and 82,000 square feet of commercial uses within 188 acres. Per section 4.11, *Population and Housing*, of this document, the population for the project is estimated to be about 2,416 people, which corresponds to a population density of about 8,331 people per square mile for the site, and is consistent with the dense suburban category (6,000 to 10,000 people per square mile) for sites more than a mile from the nearest BART/Amtrak station (the Oakland Coliseum Station), as described in the City of Oakland guidelines. According to the guidelines, the following mode split adjustment factors are applicable to the proposed project[9]:

- 96.9% automobile trips
- 6.0% transit trips
- 1.3% bicycle trips
- 12.6% walking trips

Internal Trips

Estimated trips generated by the residential and retail components of the project were adjusted to account for internal trips during AM and PM peak hours to more accurately reflect the number of new automobile trips expected to be added to the external roadway network. Internal trips are those that occur on-site between proposed residential and retail land uses. These trips are not considered as new trips on the external roadway network because they are made within the project site. According to the *ITE Trip Generation Handbook, 3rd Edition*, the average internalization percentage for total trips generated by the project is three percent during the AM peak hour and 16 percent during the PM peak hour; the methodology does not estimate internalization adjustments for daily trip generation, therefore a nine percent internalization factor was assumed. The internalization reduction is applied after the mode split adjustments described above. **Appendix V-E** provides the internalization calculations.

8 *Evaluation of the Operation and Accuracy of Five Available Smart Growth Trip Generation Methodologies.* Institute of Transportation Studies, UC Davis, 2011.

9 The mode split factor adjustments represent the ratio of each mode to the unadjusted ITE trip rate for automobile trips. The adjustment factors do not represent a portion of the total unadjusted ITE trip generation for automobiles; therefore, the factors do not sum to 100 percent.

Net Project Auto Trip Generation

Table 4.13-10 summarizes the total project trip generation. The proposed project would generate a net 624 AM peak hour trips, 965 PM peak hour trips and 11,250 daily trips. These numbers, and the analysis below, do not account for any reduction in trips that would result from implementation of the Transportation Demand Management (TDM) program required by City of Oaklands Standard Conditions of Approval (SCA) TRA-4.

TABLE 4.13-10
OAK KNOLL AUTOMOBILE TRIP GENERATION ESTIMATES

Land Use	ITE Code	Units[a]	AM Peak Hour			PM Peak Hour			Daily Total
			In	Out	Total	In	Out	Total	
Single-Family Homes	210[b]	363 DU	68	204	272	229	134	363	3,460
Townhomes	230[c]	572 DU	43	209	252	199	98	297	3,320
Subtotal Automobile Trips Before Mode Split Adjustment – Residential Uses			*111*	*413*	*524*	*428*	*232*	*660*	*6,780*
Mode Split Adjustment – Residential Uses[d]			*-3*	*-13*	*-16*	*-13*	*-7*	*-20*	-210
Subtotal Automobile Trips After Mode Split Adjustment – Residential Uses			*108*	*400*	*508*	*415*	*225*	*640*	6,570
Shopping Center	820[e]	82 KSF	86	52	138	252	273	525	5,970
Subtotal Automobile Trips Before Mode Split Adjustment – Retail Uses			*86*	*52*	*138*	*252*	*273*	*525*	*5,970*
Mode Split Adjustment – Retail Uses[d]			*-3*	*-1*	*-4*	*-8*	*-8*	*-16*	*-180*
Subtotal Automobile Trips After Mode Split Adjustment – Retail Uses			*83*	*51*	*134*	*244*	*265*	*509*	*5,790*
Subtotal Automobile Trips – Residential and Retail			191	451	642	659	490	1,149	12,360
ITE Internalization Trip Capture[f]			*-9*	*-9*	*-18*	*-92*	*-92*	*-184*	*-1,110*
Total Automobile Trips			**182**	**442**	**624**	**567**	**398**	**965**	**11,250**

NOTES:

[a] DU = dwelling unit. KSF = 1,000 square feet

[b] ITE Trip Generation (9th Edition) land use category 210 - Single-Family Detached Housing:
AM: (T) = 0.75 (X); Enter = 25%, Exit = 75%
PM: (T) = 1.00 (X); Enter = 63%, Exit = 37%
Daily: (T) = 9.52 (X)
Where X = dwelling unit, T = number of automobile trips

[c] ITE Trip Generation (9th Edition) land use category 230 - Residential Condominium/Townhouse:
AM: (T) = 0.44 (X); Enter = 17%, Exit = 83%
PM: (T) = 0.52 (X); Enter = 67%, Exit = 33%
Daily: (T) = 5.81 (X)
Where X = dwelling unit, T = number of automobile trips

[d] Reduction of 3.1% assumed. Based on *City of Oakland Transportation Impact Study Guidelines* for a project site in a dense suburban environment more than a mile from a BART/Amtrak station.

[e] ITE Trip Generation (9th Edition) land use category 820 - Shopping Center:
AM: Ln(T) = 0.61 Ln(X) + 2.24; Enter = 62%, Exit = 38%
PM: Ln(T) = 0.67 Ln(X) + 3.31; Enter = 48%, Exit = 52%
Daily: Ln(T) = 0.65 Ln(X) + 5.83
Where X = 1,000 feet of gross leasable area, T = number of automobile trips

[f] Trip internalization factors based on ITE *Trip Generation Handbook* Internal Trip capture methodology: 3% factor applied during the AM peak hour, 16% factor applied during the PM peak hour. Methodology does not assess internalization for daily trips, thus 9% applied for daily trips, which is between 3% and 16%.

SOURCE: *ITE Trip Generation, 9th Edition;* Fehr & Peers, 2016.

Using the City of Oakland's recommended mode split adjustments and ITE peak hour internalization adjustments would reduce the trip generation by about six percent for AM peak hour, 19 percent for PM peak hour, and 12 percent for daily. These reductions are generally consistent with the application of the mixed-use developments (MXD) trip generation methodology to the project.

The MXD methodology is a validated method of estimating vehicle trip generation at mixed-use developments developed by the US Environmental Protection Agency (EPA) through a national study of the trip generation characteristics of multi-use sites throughout the country. The methodology adjusts trip generation to account for internal trips within a mixed-use development and external non-auto trips. Based on the application of MXD, the proposed project would generate 13 percent fewer AM peak hour, 18 percent fewer PM peak hour, and 11 percent fewer daily trips than mode split and internalization factors estimated by the ITE methodology. Therefore, the application of the MXD methodology to the project confirms that using both the City of Oakland's mode split and ITE-based internalization reductions are reasonable.

Trip Generation for Non-Auto Modes

Table 4.13-11 summarizes the mode split for the proposed project by applying the City of Oakland adjustment factors to the peak hour trip generation estimates based on ITE rates as presented in **Table 4.13-10**.

TABLE 4.13-11
OAK KNOLL TRIP GENERATION BY TRAVEL MODE

Mode	Mode Split Adjustment Factors[a]	AM Peak Hour[b]	PM Peak Hour[c]	Daily[d]
Automobile	96.9%	642	1,149	12,360
Transit	6.0%	40	71	765
Bike	1.3%	9	15	166
Walk	12.6%	84	149	1,607
	Total Trips	*775*	*1,384*	*14,898*

NOTES:

[a] Based on *City of Oakland Transportation Impact Study Guidelines* for a Project site that is located in a dense suburban environment more than a mile away from nearest BART/Amtrak station. Per the City's Guidelines, the mode share factors represent the ratio of each mode to the unadjusted ITE trip rate for automobile trips. The adjustment factors do not represent a portion of the total unadjusted ITE trip generation for automobiles and the factors do not sum to 100 percent.

[b] Estimated by applying adjustment factors to the 662 AM peak hour trip generation estimate using ITE rates without applying mode split or internalization adjustment factors.

[c] Estimated by applying adjustment factors to the 1,185 PM peak hour trip generation estimate using ITE rates without applying mode split or internalization adjustment factors.

[d] Estimated by applying adjustment factors to the 12,750 daily trip generation estimate using ITE rates without applying mode split or internalization adjustment factors.

SOURCES: City of Oakland Transportation Impact Study Guidelines, 2014; Fehr & Peers, 2016.

Trip Distribution and Assignment

The trip distribution and assignment process estimates how the external vehicle trips generated by the project would distribute across the roadway network. **Figure 4.13-5** shows the trip distribution for the project. The ACTC Travel Demand Model and existing traffic counts were used to develop trip distribution for the proposed project, which accounts for location of complementary land uses and likely paths that will be used to travel to and from the site. The proposed trip distribution is similar to the distribution identified in the 2007 Oak Knoll Mixed Use Community Plan Project Draft Supplemental Environmental Impact Report.

As shown in **Figure 4.13-5**, different trip distribution assumptions are proposed for the residential and retail components of the project as the retail uses are expected to attract more trips from surrounding neighborhoods compared to the residential land uses.

Based on the roadway layout of the project site and depending of the time of day, about 25 to 30 percent of the total project trips are expected to access the project site via the two access points along Keller Avenue, and about 70 to 75 percent of the total project trips are expected to access the site via the three access points along Mountain Boulevard.

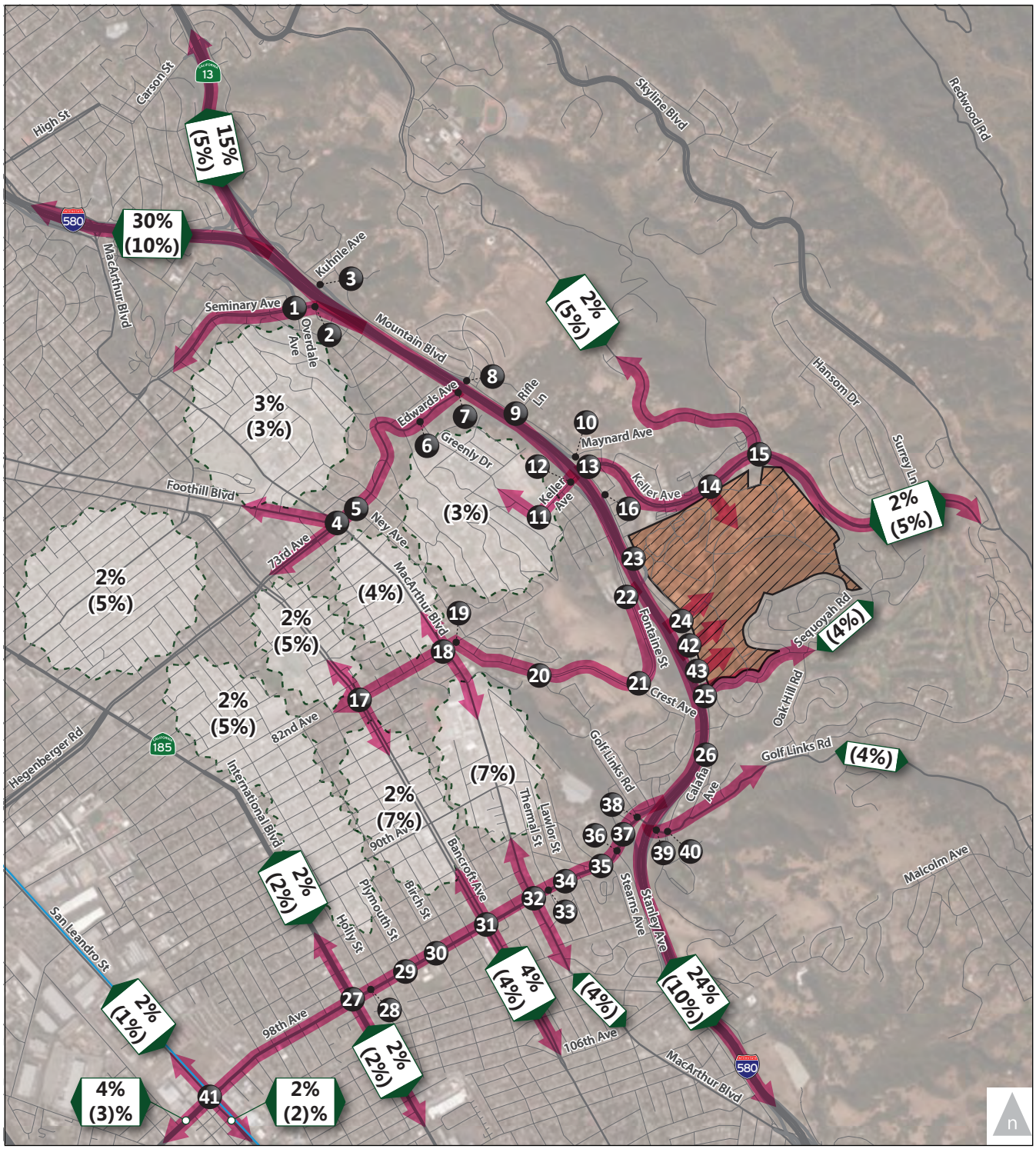
Trips generated by the project were assigned to the roadway network according to the trip distribution shown on **Figure 4.13-5**. Figure 5 in **Appendix V-B** presents the resulting AM and PM peak hour trip assignment by intersection turning movement at the study intersections.

Relevant Project Characteristics Compared to 1998 EIS/EIR Maximum Capacity Alternative

Similar to the Maximum Capacity Alternative as analyzed in the 1998 EIS/EIR, the proposed project would result in new residential and commercial development, but with 351 more residential units and nearly 462,000 fewer square feet of commercial development. The Oak Knoll Project does not include a golf course facility that was a major component (54 acres) of the Maximum Capacity Alternative. Site access for the proposed project would be somewhat different from access for the Maximum Capacity Alternative, in that a three access points on Mountain Boulevard would be provided, in addition to access on Keller Avenue.

1998 EIS/EIR Trip Generation Comparison

The Maximum Capacity Alternative in the 1998 EIS/EIR assumed development of 584 residential units (300 apartments and 284 single-family units/townhouses), and 544,000 square feet of commercial uses. As shown in **Table 4.13-12**, the proposed project would generate about 419 fewer AM peak hour trips and 610 fewer PM peak hour trips than the Maximum Capacity Alternative studied in the 1998 EIS/EIR.



LEGEND

XX% Residential Trip Distribution

XX% Local Trip Distribution

Typical Travel Pattern

Project Site

SOURCE: Fehr & Peers

Oak Knoll Project . 120645

Figure 4.13-5

Project Trip Distribution

TABLE 4.13-12
COMPARISON OF TRIP GENERATION ESTIMATES

Project	Daily	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Maximum Capacity Alternative Trips[a]	13,090	655	388	1,043	671	904	1,575
Proposed Project Trips[b]	11,370	182	442	624	567	398	965

[a] Based on *Naval Medical Center Oakland Disposal and Reuse Final EIS/EIR*, April 1998.
[b] See Table 4.13-10 above.

SOURCE: Fehr & Peers, 2016.

4.13.7 Impacts and Mitigation Measures

This section discusses potential impacts to transportation and circulation that could result from the implementation of the proposed project. The section begins with the significance thresholds, which establish the thresholds used to determine whether an impact is significant. The latter part of this section presents the impacts associated with the proposed project and identifies mitigation measures, as appropriate. With respect to transportation and circulation, the project would have a significant impact on the environment if it meets or exceeds the City of Oakland CEQA transportation thresholds of significance detailed below.

Thresholds of Significance

The project would have a significant impact on the environment if it would conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including, but not limited to, intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit, specifically:

Traffic Load and Capacity Thresholds

A. At a study, signalized intersection which is located outside the Downtown[10] area and that does not provide direct access to Downtown, the project would cause the motor vehicle level of service (LOS) to degrade to worse than LOS D (e.g., LOS E or LOS F) and cause the total intersection average vehicle delay to increase by four (4) or more seconds;

B. At a study, signalized intersection which is located within the Downtown area or that provides direct access to Downtown, the project would cause the motor vehicle LOS to degrade to worse than LOS E (e.g., LOS F) and cause the total intersection average vehicle delay to increase by four (4) or more seconds;

[10] The Downtown area is defined in the Land Use and Transportation Element of the General Plan (page 67) as the area generally bounded by the West Grand Avenue to the north, Lake Merritt and Channel Park to the east, the Oakland Estuary to the south, and I-980/Brush Street to the west. Intersections that provide direct access to downtown are generally defined as principal arterials within two (2) miles of Downtown and minor arterials within one (1) mile of Downtown, provided that the street connects directly to Downtown. All study intersections in this analysis are located outside the Downtown area.

C. At a study, signalized intersection outside the Downtown area and that does not provide direct access to Downtown where the motor vehicle level of service is LOS E, the project would cause the total intersection average vehicle delay to increase by four (4) or more seconds;

D. At a study, signalized intersection outside the Downtown area and that does not provide direct access to Downtown where the motor vehicle level of service is LOS E, the project would cause an increase in the average delay for any of the critical movements of six (6) seconds or more;

E. At a study, signalized intersection for all areas where the motor vehicle level of service is LOS F, the project would cause (a) the overall volume-to-capacity ("V/C") ratio to increase 0.03 or more or (b) the critical movement V/C ratio to increase 0.05 or more;

F. At a study, unsignalized intersection the project would add ten (10) or more vehicles to the critical movement[11] and after project completion satisfy the California Manual on Uniform Traffic Control Devices (MUTCD) peak hour volume traffic signal warrant;

G. For a roadway or freeway segment of the Congestion Management Program (CMP) Network, the project would cause (a) the LOS to degrade from LOS E or better to LOS F or (b) the V/C ratio to increase 0.03 or more for a roadway segment that would operate at LOS F without the project;[12]

H. Cause congestion of regional significance on a roadway segment on the Metropolitan Transportation System (MTS) evaluated per the requirements of the Land Use Analysis Program of the CMP;[13]

I. Result in substantially increased travel times for AC Transit buses.

Traffic Safety Thresholds

J. Directly or indirectly cause or expose roadway users (e.g., motorists, pedestrians, bus riders, bicyclists) to a permanent and substantial transportation hazard due to a new or existing physical design feature or incompatible uses;

K. Directly or indirectly result in a permanent substantial decrease in pedestrian safety;

L. Directly or indirectly result in a permanent substantial decrease in bicyclist safety;

M. Directly or indirectly result in a permanent substantial decrease in bus rider safety

N. Generate substantial multi-modal traffic traveling across at-grade railroad crossings that cause or expose roadway users (e.g., motorists, pedestrians, bus riders, bicyclists) to a permanent and substantial transportation hazard.[14]

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11 The critical movement for side-street stop-controlled intersections is assumed to be any stop-controlled movements that operate at LOS E or F.

12 Refer to the ACTC *Congestion Management Program* for a description of the CMP Network. In Oakland, the CMP Network includes all state highways plus the following streets: portions of Martin Luther King Jr. Way, Webster/ Posey Tubes, 23rd Avenue, 29th Avenue, and Hegenberger Road.

13 Refer to ACTC's *Congestion Management Program* for a description of the MTS and the Land Use Analysis Program. ACTC identified the roadway segments of the MTS that require evaluation in its letter commenting on the Notice of Preparation (NOP) issued by the City for the project. Note that the City is required to send NOPs and notices of proposed general plan amendments to ACTC under the Land Use Analysis Program regardless of how many project-related trips are expected to be generated.

14 Refer to the City's Standard Conditions of Approval for conditions related to at-grade railroad crossings.

Other Thresholds

O. Fundamentally conflict with adopted City policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities adopted for the purpose of avoiding or mitigating an environmental effect and actually result in a physical change in the environment;

P. Result in a substantial, though temporary, adverse effect on the circulation system during construction of the project; or

Q. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.

Cumulative Impacts

R. A project's contribution to cumulative impacts is considered "considerable" (i.e., significant) when the project exceeds at least one of the thresholds listed above in a future year scenario.

Planning-Related Non-CEQA Issues

The following transportation-related topics are not considerations under CEQA, but should be evaluated in order to inform decision-makers and the public about these issues.

Parking-Related Impacts

The Court of Appeal has upheld an agency's decision that parking is not part of the permanent physical environment, that parking conditions change over time as people change their travel patterns, and that unmet parking demand created by a project need not be considered a significant environmental impact under CEQA unless it would cause significant secondary effects.[15]Further, the December 2009 amendments to the State CEQA Guidelines (which became effective March 18, 2010) removed parking from the State's Environmental Checklist (Appendix G of the State CEQA Guidelines) as an environmental factor to be considered under CEQA. Parking supply/demand varies by time of day, day of week, and seasonally. As parking demand increases faster than the supply, parking prices rise to reach equilibrium between supply and demand. Decreased availability and increased costs result in changes to people's mode and pattern of travel. The City of Oakland agrees that a change in parking availability should not be treated as a CEQA impact.

However, the City of Oakland, in its review of the proposed project, wants to ensure that the project's provision of parking spaces along with measures to lessen parking demand (by encouraging the use of non-auto travel modes) would meet City standards and policies related to parking. As such, although not required by CEQA, parking conditions are evaluated in this document as a non-CEQA topic for informational purposes.

As noted above, parking deficits may be associated with secondary physical environmental impacts, such as air quality and noise effects, caused by congestion resulting from drivers circling as they look for a parking space. However, the absence of a ready supply of parking spaces,

[15] San Franciscans Upholding the Downtown Plan v. the City and County of San Francisco (2002) 102 Cal.App.4th 656.

combined with available alternatives to auto travel (e.g., transit service, shuttles, taxis, bicycles or travel by foot), may induce drivers to shift to other modes of travel, or change their overall travel habits. Any such resulting shifts to alternative modes of travel would be in keeping with the City's Public Transit and Alternative Modes Policy (sometimes referred to as the "Transit First" policy).

Additionally, regarding potential secondary effects, cars circling and looking for a parking space in areas of limited parking supply is typically a temporary condition, often offset by a reduction in vehicle trips due to others who are aware of constrained parking conditions in a given area. Hence, any secondary environmental impacts that might result from a shortfall in parking in the vicinity of the proposed project are considered less than significant. There are no secondary effects related to parking for this Project.

This document evaluates if the proposed project's estimated parking demand (both project-generated and project-displaced) would be met by the project's proposed parking supply or by the existing parking supply within a reasonable walking distance of the Project Area.[16] Project-displaced parking results from the removal of standard on-street parking, City or Redevelopment Agency owned/controlled parking, and/or legally required off-street parking (non-open-to-the-public parking which is legally required).

Transit Ridership

Transit load is not part of the permanent physical environment; transit service changes over time as people change their travel patterns. Therefore, the City does not consider the effect of the proposed project on transit ridership as a significant environmental impact under CEQA unless it would cause significant secondary effects, such as causing the construction of new permanent transit facilities which in turn causes physical effects on the environment, or causing physical changes to maintain performance and safety. This project would not cause physical effects on the environment from an increase in transit ridership. Furthermore, the City considers an increase in transit ridership to be an environmental benefit, not an adverse impact. One of the goals of the *Land Use and Transportation Element* of the Oakland General Plan is to promote transit ridership. The City of Oakland, however, in its review of the proposed project, wants to understand the project's potential effect on transit ridership. As such, although not required by CEQA, transit ridership is evaluated in this document as a non-CEQA topic for informational purposes. This document evaluates whether the proposed project would exceed any of the following:

- Increase the average ridership on AC Transit lines by three (3) percent at bus stops where the average load factor with the project in place would exceed 125 percent over a peak 30-minute period;
- Increase the peak-hour average ridership on BART by three (3) percent where the passenger volume would exceed the standing capacity of BART trains; or

[16] The analysis must compare the proposed parking supply with both the estimated demand and the Oakland Planning Code requirements.

- Increase the peak-hour average ridership at a BART station by three (3) percent where average waiting time at fare gates would exceed one minute.

Queuing

This document evaluates whether development under the proposed project would cause an increase in 95th percentile queue length of 25 feet or more at a studied signalized intersection under the Existing Plus Project condition.

Traffic Control Devices

This document evaluates the need for additional traffic control devices using the California Manual for Uniform Traffic Control Devices (MUTCD) and applicable City standards.

Collision History

This document evaluates three years of vehicle, pedestrian, and bicycle collision data for intersections and roadway segments within three blocks of the Project Area to determine if the development under the proposed project would contribute to an existing problem or if any improvements are recommended in order to alleviate potential effects of the project.

Project Traffic Impact Analysis

This section evaluates impacts of the project on traffic operations at the study intersections and freeway segments under Existing and 2040 conditions.

Existing Plus Project Operations Analysis

This section analyzes the transportation system with traffic generated by the project added to the existing traffic volumes. This analysis presents the extent project impacts relative to existing conditions based on application of Significance Thresholds A through H as listed above.

Traffic Volumes

Figures 6 and 7 in **Appendix V-B** provide the peak hour intersection and freeway traffic volumes for the Existing Plus Project Conditions, which consists of existing traffic volumes plus net added traffic volumes generated by the project.

Roadway Network

Figure 4.13-4 shows the preliminary project site plan. The project proposes the following external roadway connections and site access points:

- The existing Keller Avenue project access would be re-configured as the unsignalized Keller Avenue/Williams Street/Creekside Parkway intersection (#14) providing full access with stop-controlled northbound Creekside Parkway and southbound Williams Street approaches.
- The existing Mountain Boulevard project access would be re-configured as the unsignalized Mountain Boulevard/Main Street intersection (#24) providing right-turn-in/right-turn-out access only with a stop-controlled westbound Main Street approach.

- The project would provide a new full-access intersection at Mountain Boulevard/ Creekside Parkway (#42). The intersection would provide single northbound and southbound Mountain Boulevard through lanes, one dedicated southbound left-turn lane and a dedicated westbound left-turn lane and right-turn lane. The intersection is expected to meet the California MUTCD signal warrant under Existing Plus Project conditions, therefore the project proposes the implementation of an actuated-uncoordinated traffic signal as part of the project.
- The project would provide a new partial-access unsignalized intersection at Mountain Boulevard/Creekside Loop (#43) providing right-turn-in/right-turn-out access only with a stop-controlled westbound Creekside Loop approach.
- The project would provide a new partial-access unsignalized intersection at Keller Avenue/Uplands Primary (#44) providing right-turn-in/right-turn-out access only with a stop-controlled northbound Uplands Primary approach.

All other study intersections are expected to maintain the existing lane configurations and traffic controls with implementation of the project.

Intersection Operations

Intersection LOS calculations were completed with the traffic volumes and roadway network described above. **Table 4.13-13** summarizes intersection operations under Existing Plus Project conditions at the 44 study intersections. **Appendix V-F** presents the detailed intersection LOS calculation worksheets and California MUTCD peak hour volume traffic signal warrant sheets for Existing Plus Project conditions.

The majority of study intersections would continue to operate at the same LOS, but would experience slightly more delay, as compared to Existing Conditions with the addition of project trips. All intersections, except the following, would continue to operate at LOS D or better during the AM and PM peak hours.

- I-580 Eastbound Off-Ramp/Seminary Avenue/Overdale Avenue (intersection #1, side-street-stop-controlled) – the southbound left-turn movement (stop-controlled) would at LOS F during PM peak hour; all movements would operate at LOS C or better during the AM peak hour. The intersection meets the California MUTCD peak hour volume signal warrant; the project does not add more than 10 vehicle trips to a critical movement.
- I-580 Eastbound On-Ramp/Seminary Avenue/Kuhnle Avenue (intersection #2, all-way-stop-controlled) – intersection would continue to operate at LOS E during the AM and PM peak hours. The intersection meets the California MUTCD peak hour volume signal warrant during the PM peak hour without the project; the project would add more than 10 vehicle trips to the eastbound through movement during the PM peak hour.
- I-580 Westbound Off-Ramp/Mountain Boulevard/Kuhnle Avenue (intersection #3, side-street-stop-controlled) – the westbound left-turn movement (stop-controlled) would operate at LOS F during the AM and PM peak hour. The intersection meets the California MUTCD peak hour volume signal warrant during the PM peak hour without the project; the project would add more than 10 vehicle trips to the westbound left-turn movement during the PM peak hour.

TABLE 4.13-13
EXISTING PLUS PROJECT CONDITIONS INTERSECTION LOS SUMMARY

No.	Intersection	Traffic Control[a]	Peak Hour	Existing		Existing Plus Project		Significant
				Delay (sec/veh)[b]	LOS	Delay (sec/veh)[b]	LOS	Impact?[c]
1	I-580 EB Off-Ramp/Seminary Avenue/Overdale Avenue	SSSC	AM PM	4.7 (22.9) 17.0 **(76.9)**	A (C) C **(F)**	4.7 (23.7) 18.5 **(87.4)**	A (C) C **(F)**	No[e] No[e]
2	I-580 EB On-Ramp/Seminary Avenue/Kuhnle Avenue	AWSC	AM PM	**36.7** **43.0**	**E** **E**	**36.9** **44.7**	**E** **E**	**Yes (F)** **Yes (F)**
3	I-580 WB Off-Ramp/Mountain Boulevard/Kuhnle Avenue	SSSC	AM PM	**120.0 (>120.0)** **>120.0 (>120.0)**	**F (F)** **F (F)**	**>120.0 (>120.0)** **>120.0 (>120.0)**	**F (F)** **F (F)**	**Yes (F)** **Yes (F)**
4	MacArthur Boulevard/Foothill Boulevard/73rd Avenue	Signal	AM PM	42.1 47.7	D D	42.5 48.1	D D	No No
5	Ney Avenue/73rd Avenue	Signal	AM PM	3.5 3.4	A A	3.5 3.4	A A	No No
6	Greenly Drive/Edwards Avenue	Signal	AM PM	5.2 5.4	A A	5.3 5.4	A A	No No
7	I-580 EB Off-Ramp/Edwards Avenue	Signal	AM PM	12.3 13.8	B B	11.9 14.2	B B	No No
8	I-580 WB On-Ramp/Mountain Boulevard/Edwards Avenue	Signal	AM PM	17.8 11.5	B B	18.0 11.7	B B	No No
9	Mountain Boulevard/Rifle Lane	SSSC	AM PM	0.3 (12.9) 0.3 (9.4)	A (B) A (A)	0.3 (13.3) 0.3 (9.6)	A (B) A (A)	No No
10	I-580 WB On-Ramp/Mountain Boulevard/Maynard Avenue	SSSC	AM PM	4.2 **(40.3)** 3.6 (9.3)	A **(E)** A (A)	5.5 **(90.3)** 4.2 (9.6)	A **(F)** A (A)	No[f] No
11	Greenly Drive/Keller Avenue	AWSC	AM PM	7.6 7.7	A A	7.6 7.8	A A	No No
12	I-580 EB Off-Ramp/Fontaine Street/ Keller Avenue	AWSC	AM PM	14.7 14.7	B B	18.0 29.5	C D	**Yes (F)** **Yes (F)**
13	Mountain Boulevard/Keller Avenue	AWSC	AM PM	**47.9** 21.6	**E** C	**58.5** **56.4**	**F** **F**	**Yes (F)** **Yes (F)**
14	Williams Street/Keller Avenue	SSSC/ AWSC[g]	AM PM	1.2 (10.0) 0.9 (9.8)	A (A) A (A)	10.5 9.5	B A	No No
15	Campus Drive/Keller Avenue	SSSC	AM PM	2.8 (12.0) 4.1 (13.0)	A (B) A (B)	2.9 (12.4) 4.2 (13.8)	A (B) A (B)	No No
16	I-580 WB Off-Ramp/Mountain Boulevard/Shone Avenue	SSSC	AM PM	5.6 **(40.5)** 11.3 (21.6)	A **(E)** B (C)	13.2 **(112.4)** **55.8 (>120.0)**	B **(F)** **F (F)**	**Yes (F)** **Yes (F)**
17	Bancroft Avenue/82nd Avenue	Signal	AM PM	23.0 20.8	C C	23.9 21.8	C C	No No
18	MacArthur Boulevard/82nd Avenue	Signal	AM PM	9.1 8.3	A A	9.3 8.7	A A	No No
19	Golf Links Road/82nd Avenue	SSSC	AM PM	10.3 (12.9) 8.5 (11.8)	B (B) A (B)	10.7 (13.3) 9.0 (12.2)	B (B) A (B)	No No
20	Golf Links Road/Fontaine Street	AWSC	AM PM	11.1 9.2	B A	11.5 9.8	B A	No No
21	Crest Avenue/Fontaine Street	SSSC	AM PM	1.4 (9.7) 1.4 (9.0)	A (A) A (A)	1.3 (9.8) 1.1 (9.2)	A (A) A (A)	No No
22	Fontaine Street/I-580 Overcrossing	SSSC	AM PM	3.2 (13.8) 2.3 (10.5)	A (B) A (B)	3.4 (14.5) 2.6 (10.5)	A (B) A (B)	No No
23	Mountain Boulevard/I-580 Overcrossing	SSSC	AM PM	3.7 (19.0) 3.2 (10.2)	A (C) A (A)	4.2 (26.3) 2.3 (14.9)	A (D) A (B)	No No
24	Mountain Boulevard/Existing Project Site Access	SSSC	AM PM	0.1 (10.7) 0.8 (7.3)	A (B) A (A)	1.1 (17.7) 2.1 (10.3)	A (C) A (B)	No No
25	Mountain Boulevard/Sequoyah Road	SSSC	AM PM	2.4 (16.9) 3.7 (9.5)	A (C) A (A)	2.3 (19.7) 2.4 (11.2)	A (C) A (B)	No No
26	Mountain Boulevard/Calafia Avenue	SSSC	AM PM	1.5 (14.4) 1.3 (8.8)	A (B) A (A)	1.3 (15.8) 0.6 (9.7)	A (C) A (A)	No No
27	International Boulevard/98th Avenue	Signal	AM PM	25.6 32.0	C C	25.9 33.2	C C	No No
28	Holly Street/98th Avenue	Signal	AM PM	4.7 3.8	A A	4.7 3.7	A A	No No
29	Plymouth Street/98th Avenue	Signal	AM PM	8.6 5.2	A A	8.4 5.0	A A	No No

TABLE 4.13-13 (Continued)
EXISTING PLUS PROJECT CONDITIONS INTERSECTION LOS SUMMARY

No.	Intersection	Traffic Control[a]	Peak Hour	Existing		Existing Plus Project		Significant
				Delay (sec/veh)[b]	LOS	Delay (sec/veh)[b]	LOS	Impact?[c]
30	Birch Street/98th Avenue	Signal	AM	6.3	A	6.0	A	No
			PM	3.5	A	3.3	A	No
31	Bancroft Avenue/98th Avenue	Signal	AM	35.9	D	38.4	D	No
			PM	44.1	D	44.3	D	No
32	MacArthur Boulevard/98th Avenue	Signal	AM	32.1	C	32.9	C	No
			PM	31.3	C	31.1	C	No
33	Thermal Street/98th Avenue	SSSC	AM	0.6 (17.2)	A (C)	0.7 (19.1)	A (C)	No
			PM	0.3 (17.3)	A (C)	0.3 (20.1)	A (C)	No
34	Lawlor Street/98th Avenue	Signal	AM	17.8	B	17.3	B	No
			PM	3.8	A	3.4	A	No
35	Stearns Avenue/98th Avenue	Signal	AM	8.9	A	8.8	A	No
			PM	5.7	A	5.4	A	No
36	Stanley Avenue/98th Avenue	SSSC	AM	23.6 **(>120.0)**	C **(F)**	28.2 **(>120.0)**	D **(F)**	No[e]
			PM	0.9 (16.7)	A (C)	0.9 (19.1)	A (C)	No
37	I-580 EB On-Ramp/98th Avenue	SSSC	AM	1.5 (13.5)	A (B)	2.0 (15.4)	A (C)	No
			PM	1.9 (10.2)	A (B)	2.1 (11.3)	A (B)	No
38	Golf Links Road/I-580 EB Off-Ramp/98th Avenue[d]	Signal	AM	22.6	C	24.3	C	No
			PM	25.0	C	24.6	C	No
39	I-580 WB Ramps/Golf Links Road[d]	Signal	AM	30.3	C	30.7	C	No
			PM	25.2	C	26.6	C	No
40	Mountain Boulevard/Golf Links Road[d]	SSSC	AM	**44.5 (>120.0)**	**E (F)**	**54.4 (>120.0)**	**F (F)**	**Yes (F)**
			PM	14.2 **(35.4)**	B **(E)**	**84.1 (>120.0)**	**F (F)**	**Yes (F)**
41	San Leandro Street/98th Avenue	Signal	AM	44.1	D	44.5	D	No
			PM	46.8	D	48.3	D	No
42	Mountain Boulevard/Creekside Parkway (Project Access)	Signal	AM	N/A	N/A	14.4	B	No
			PM			13.1	B	No
43	Mountain Boulevard/Creekside Loop (Project Access)	SSSC	AM	N/A	N/A	0.1 (14.4)	A (B)	No
			PM			0.0 (9.6)	A (A)	No
44	Keller Ave/Uplands Primary	SSSC	AM	N/A	N/A	0.1 (8.7)	A (A)	No
			PM			0.2 (9.0)	A (A)	No

NOTES: **bold** text indicates LOS E or LOS F operations.

[a] AWSC = All-Way Stop Control SSSC = Side-Street Stop Control
[b] The LOS/Delay for Side-Street Stop-Control intersections are presented as follows: intersection average (worst movement); for Signalized and All-Way Stop-Control, the LOS/Delay presented for overall intersection. Delays greater than 120 seconds are reported as ">120" due to methodology limitations of delay estimates for over-capacity conditions.
[c] Letter in parenthesis refers to the significant criteria triggering the impact, as listed above.
[d] Intersection analyzed using SimTraffic micro-simulation software.
[e] The project would not cause an impact at this unsignalized intersection because the project would not add more than 10 trips to a critical movement, although the intersection would meet the peak hour signal warrant.
[f] The project would not cause an impact at this unsignalized intersection because the intersection would not meet the peak hour signal warrant, although it would operate at LOS F.
[g] Intersection would be all-way stop-controlled with the project.

SOURCE: Fehr & Peers, 2016.

- I-580 Westbound On-Ramp/Mountain Boulevard/Maynard Avenue (intersection #10, side-street-stop-controlled) – the westbound approach (stop-controlled, single lane approach) would operate at LOS F during the AM peak hour; all approaches would operate at LOS A during the PM peak hour. The intersection does not meet the California MUTCD peak hour volume signal warrant.

- Mountain Boulevard/Keller Avenue (intersection #13, all-way-stop-controlled) – intersection would operate at LOS F during the AM and PM peak hours. The project would add more than 10 vehicle trips during the AM and PM peak hour to most movements at this intersection. The intersection meets the California MUTCD peak hour volume signal warrant during the AM and PM peak hours without the project and would continue to meet the peak hour volume signal warrant with the project.

- I-580 Westbound Off-Ramp/Mountain Boulevard/Shone Avenue (intersection #16, side-street-stop-controlled) – the eastbound left-turn movement (stop-controlled) would operate at LOS F during the AM and PM peak hours. The project would add 10 or more vehicle trips to the eastbound left-turn movement during the AM and PM peak hours and cause the intersection to meet the California MUTCD peak hour volume signal warrant during both peak hours.

- Stanley Avenue/98th Avenue (intersection #36, side-street-stop-controlled) – the westbound approach (stop-controlled, single lane approach) would operate at LOS F during the AM peak hour; all approaches would operate at LOS C or better during the PM peak hour. The intersection meets the California MUTCD peak hour volume signal warrant; the project does not add more than 10 vehicle trips to a critical movement.

- Mountain Boulevard/Golf Links Road (intersection #40, side-street-stop-controlled) – the southbound and westbound approaches (stop-controlled, single lane approach) would operate at LOS F during the AM and PM peak hours. The project would add more than 10 vehicle trips to the southbound right-turn and eastbound left-turn movements during the AM and PM peak hours and cause the intersection to meet the California MUTCD peak hour volume signal warrant during the AM peak hour.

Existing Plus Project Intersection Impacts and Mitigation Measures

The project would have a significant impact at six intersections. The impacts and recommended mitigation measures are discussed below for each of those six intersections. **Table 4.13-14** shows the LOS with the proposed mitigations.

Impact TRANS-1: Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized *I-580 Eastbound On-Ramp/Seminary Avenue/Kuhnle Avenue (intersection #2)* and after project completion, this intersection would continue to satisfy the MUTCD peak hour volume traffic signal warrant during the PM peak hour (Criterion f). This intersection operates at LOS E during the AM and PM peak hours, and meets the peak hour signal warrant during the PM peak hour under Existing conditions. (*Significant and Unavoidable*)

Mitigation Measure TRANS-1: Implement the following measures at the I-580 Eastbound On-Ramp/Seminary Avenue/Kuhnle Avenue intersection:

a) Signalize intersection providing actuated operations, with split phasing on all approaches to maximize the green time within each cycle for the southbound turning movements, and

TABLE 4.13-14
EXISTING PLUS PROJECT CONDITIONS LOS SUMMARY

No.	Intersection	Traffic Control[a]	Peak Hour	Existing		Existing Plus Project		Significant Impact?[c]	Existing Plus Project Mitigated		Significance After Mitigation
				Delay (sec/veh)[b]	LOS	Delay (sec/veh)[b]	LOS		Delay (sec/veh)[b]	LOS	
2	I-580 EB On-ramp/Seminary Avenue/Kuhnle Avenue	AWSC/ Signal[d]	AM PM	**36.7** **43.0**	**E** **E**	**36.9** **44.7**	**E** **E**	**Yes (F)** **Yes (F)**	20.8 27.5	C C	Significant and Unavoidable[f]
3	I-580 WB Off-ramp/Mountain Boulevard/Kuhnle Avenue	SSSC/ Signal[d]	AM PM	**120.0 (>120.0)** **>120.0 (>120.0)**	**F (F)** **F (F)**	**>120.0 (>120.0)** **>120.0 (>120.0)**	**F (F)** **F (F)**	**Yes (F)** **Yes (F)**	16.9 33.1	B C	Significant and Unavoidable[f]
12	I-580 EB Off-ramp/Fontaine Street/Keller Avenue	AWSC/ Signal[d]	AM PM	14.7 14.7	B B	18.0 29.5	C D	**Yes (F)** **Yes (F)**	29.6 27.7	C C	Significant and Unavoidable[f]
13	Mountain Boulevard/Keller Avenue	AWSC/ Signal[d]	AM PM	**47.9** 21.6	**E** C	**58.5** **56.2**	**F** **F**	**Yes (F)** **Yes (F)**	33.2 28.4	C C	Less Than Significant
16	I-580 WB Off-ramp/Mountain Boulevard/Shone Avenue	SSSC/ Signal[d]	AM PM	5.6 **(40.5)** 11.3 (21.6)	A **(E)** B (C)	13.2 **(112.4)** **55.8 (>120.0)**	B **(F)** **F (F)**	**Yes (F)** **Yes (F)**	11.6 21.8	B C	Significant and Unavoidable[f]
40	Mountain Boulevard/Golf Links Road	SSSC/ Signal[d,e]	AM PM	**44.5 (>120.0)** 14.2 **(35.4)**	**E (F)** B **(E)**	**54.4 (>120.0)** **84.1 (>120.0)**	**F (F)** **F (F)**	**Yes (F)** **Yes (F)**	63.0 28.5	E C	Significant and Unavoidable[f]

NOTES: **bold** text indicates LOS E or LOS F operations.

[a] AWSC = All-Way Stop Control SSSC = Side-Street Stop Control
[b] The LOS/Delay for Side-Street Stop-Control intersections are presented as follows: intersection average (worst movement); for Signalized and All-Way Stop-Control, the LOS/ Delay presented for overall intersection. Delays greater than 120 seconds are reported as ">120" due to methodology limitations of delay estimates for over-capacity conditions.
[c] Letter in parenthesis refers to the significant criteria triggering the impact, as listed above.
[d] Mitigation measure proposes installation of traffic signal at intersection.
[e] Intersection analyzed using SimTraffic micro-simulation software.
[f] The proposed mitigation measure would mitigate the impact to a less than significant level. The impact is conservatively identified as significant and unavoidable because City of Oakland, as lead agency, does not have jurisdiction at this intersection.

SOURCE: Fehr & Peers, 2016.

b) Coordinate the signal timing at this intersection with the adjacent intersection at I-580 Westbound Off-Ramp/Mountain Boulevard/Kuhnle Avenue (intersection #3, signalization proposed as part of Mitigation Measure TRANS-2). This intersection is under the jurisdiction of Caltrans so any equipment or facility upgrades must be approved by Caltrans prior to installation.

To implement this measure, the following shall be submitted to the City of Oakland's Transportation Services Division and Caltrans for review and approval:

- Plans, Specifications, and Estimates (PS&E) to modify intersection. All elements shall be designed to City and Caltrans standards in effect at the time of construction and all new or upgraded signals should include these enhancements. All other facilities supporting vehicle travel and alternative modes through the intersection should be brought up to both City standards and Americans with Disabilities Act (ADA) standards (according to Federal and State Access Board guidelines) at the time of construction. Current City Standards call for the elements listed below:
  - 2070L Type Controller with cabinet assembly
  - GPS communications (clock)
  - Accessible pedestrian crosswalks according to Federal and State Access Board guidelines with signals (audible and tactile)
  - Countdown pedestrian head module switch out
  - City standard ADA wheelchair ramps
  - Video detection on existing (or new, if required)
  - Mast arm poles, full actuation (where applicable)
  - Polara push buttons (full actuation)
  - Bicycle detection (full actuation)
  - Pull boxes
  - Signal interconnect and communication with trenching (where applicable), or through (E) conduit (where applicable)- 600 feet maximum
  - Conduit replacement contingency
  - Fiber Switch
  - PTZ Camera (where applicable)
  - Transit Signal Priority (TSP) equipment consistent with other signals along corridor
- Signal timing plans for the signals in the coordination group

These improvements are not included in the Southeast Oakland Area Traffic Improvement Fee (TIF) Program. In the absence of any applicable Southeast Oakland TIF for this improvement, the applicant shall install the improvements.

A straight line interpolation of intersection traffic volume between Existing and Existing Plus Project conditions indicates that mitigation at this intersection may be required when about 35 percent of the project is developed. Investigation of the need for this mitigation shall be studied at the time when this 35 percent threshold is reached and every three years thereafter until 2040 or until the mitigation measure is implemented, whichever occurs first. After implementation of this measure, the intersection would improve to LOS C during the AM and PM peak hours and reduce the impact to a less than significant level.

It is not certain that this mitigation measure could be implemented because the intersection is under the jurisdiction of Caltrans. City of Oakland, as lead agency, does not have jurisdiction to implement Measure TRANS-1 and the mitigation would need to be approved and implemented by Caltrans. Therefore, the impact is conservatively considered significant and unavoidable because the City cannot ensure its implementation. No secondary impacts would result from implementation of this measure.

Impact Conclusion: Significant and Unavoidable.

Comparison to 1998 EIS/EIR: New Significant Impact; Intersection Not Previously Analyzed; New Mitigation Measures identified.

Impact TRANS-2: Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized *I-580 Westbound Off-Ramp/Mountain Boulevard/Kuhnle Avenue (intersection #3)* and after project completion, this intersection would continue to satisfy the MUTCD peak hour volume traffic signal warrant during the PM peak hour (Criterion f).This intersection operates at LOS F during the AM and PM peaks, and meets the peak hour signal warrant during the PM peak hour under Existing conditions. (*Significant and Unavoidable*)

Mitigation Measure TRANS-2: Implement the following measures at the I-580 Westbound Off-Ramp/Mountain Boulevard/Kuhnle Avenue intersection:

a) Signalize intersection providing actuated operations, with split phasing on the east-west approaches (Mountain Boulevard/I-580 Westbound Off-Ramp) and permitted phasing on north-south (Kuhnle Avenue), and

b) Coordinate the signal timing at this intersection with the adjacent intersection at I-580 Eastbound On-Ramp/Seminary Avenue/Kuhnle Avenue (intersection #2, signalization proposed as part of Mitigation Measure TRANS-2). This intersection is under the jurisdiction of Caltrans so any equipment or facility upgrades must be approved by Caltrans prior to installation.

To implement this measure, the following shall be submitted to the City of Oakland's Transportation Services Division and Caltrans for review and approval:

- PS&E to modify intersection as detailed in Mitigation Measure TRANS-1
- Signal timing plans for the signals in the coordination group

This improvement is included in the Southeast Oakland Area TIF Program. Upon acceptance by the City, the applicant shall:

- Pay the applicable Southeast Oakland TIF fee, or
- Install the improvements and obtain a credit against its applicable TIF obligations and/or obtain reimbursement from monies collected under the Southeast Oakland TIF program for the amount the installation cos exceeds its TIF obligations; or
- Some combination of the above two mitigation methods.

A straight line interpolation of intersection traffic volume between Existing and Existing Plus Project conditions indicates that mitigation at this intersection may be required when about 85 percent of the project is developed. Investigation of the need for this mitigation shall be studied at the time when this 85 percent threshold is reached and every three years thereafter until 2040 or until the mitigation measure is implemented, whichever occurs first. After implementation of this measure, the intersection would improve to LOS B during the AM peak hour, to LOS C during the PM peak hour, and reduce the impact to a less than significant level.

Signalizing the northbound left-turn movement would result in the 95th percentile queues spilling back to the I-580 Eastbound On-Ramp/Seminary Avenue/ Kuhnle Avenue intersection during both AM and PM peak hours. The 50th Percentile queues (average queues) are expected to be within the provided storage, indicating that queues would not spill back most of the time and would clear at the end of most signal cycles. Although Mitigation Measure TRANS-2 would improve overall LOS during the AM and PM peak hours, signalizing this intersection may not be appropriate considering queue spillbacks on the northbound Kuhnle Avenue approach. Coordinating the proposed signals at intersections #2 and #3 can minimize queue lengths along northbound Kuhnle Avenue at intersection #3. It is not certain that this mitigation measure could be implemented because the intersection is under the jurisdiction of Caltrans. City of Oakland, as lead agency, does not have jurisdiction to implement Measure TRANS-2 and the mitigation would need to be approved and implemented by Caltrans. Therefore, the impact is conservatively considered significant and unavoidable because the City cannot ensure its implementation.

Impact Conclusion: Significant and Unavoidable.

Comparison to 1998 EIS/EIR: New Significant Impact; Intersection Not Previously Analyzed; New Mitigation Measures identified.

Impact TRANS-3: Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized *I-580 Eastbound Off-Ramp/Fontaine Street /Keller Avenue (intersection #12)* which would meet the peak hour signal warrant (Criterion f) during the AM and PM peak hours under Existing Plus Project conditions. (*Significant and Unavoidable*)

Mitigation Measure TRANS-3: Implement the following measures at the I-580 Eastbound Off-Ramp/Fontaine Street/Keller Avenue intersection:

a) Restripe westbound Keller Avenue approach to provide one left-turn lane and one shared through/right-turn lane,

b) Signalize intersection providing actuated operations, with protected left-turn phasing on the westbound Keller Avenue approach, and

c) Coordinate the signal timing at this intersection with the adjacent intersection at Mountain Boulevard/Keller Avenue (intersection #13, signalization proposed as part of Mitigation Measure TRANS-4) and I-580 Westbound Off-Ramp/Mountain Boulevard/Shone Avenue (intersection #16, signalization proposed as part of Mitigation Measure TRANS-5). This intersection is under the jurisdiction of Caltrans so any equipment or facility upgrades must be approved by Caltrans prior to installation.

To implement this measure, the following shall be submitted to the City of Oakland's Transportation Services Division and Caltrans for review and approval:

- PS&E to modify intersection as detailed in Mitigation Measure TRANS-1
- Signal timing plans for the signals in the coordination group

This improvement is included in the Southeast Oakland Area TIF Program. Upon acceptance by the City, the applicant shall:

- Pay the applicable Southeast Oakland TIF fee, or
- Install the improvements and obtain a credit against its applicable TIF obligations and/or obtain reimbursement from monies collected under the Southeast Oakland TIF program for the amount the installation cos exceeds its TIF obligations; or
- Some combination of the above two mitigation methods.

A straight line interpolation of intersection traffic volume between Existing and Existing Plus Project conditions indicates that mitigation at this intersection may be required when about 25 percent of the project is developed. Investigation of the need for this mitigation shall be studied at the time when this 25 percent threshold is reached and every three years thereafter until 2040 or until the mitigation measure is implemented, whichever occurs first. After implementation of this measure, the intersection would operate at LOS C during the AM and PM peak hours and reduce the impact to a less than significant level.

It is not certain that this mitigation measure could be implemented because the intersection is under the jurisdiction of Caltrans. City of Oakland, as lead agency, does not have jurisdiction to implement Measure TRANS-3 and the mitigation would need to be approved and implemented by Caltrans. Therefore, the impact is conservatively considered significant and unavoidable because the City cannot ensure its implementation. No secondary impacts would result from implementation of this measure.

Impact Conclusion: Significant and Unavoidable.

Comparison to 1998 EIS/EIR: No New Significant Impact or Changes. New Mitigation Measures identified.

Impact TRANS-4: Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized *Mountain Boulevard/ Keller Avenue (intersection #13)* and after project completion, this intersection would continue to satisfy the MUTCD peak hour volume traffic signal warrant during the AM and PM peak hours (Criterion f). This intersection meets the peak hour signal warrant during the AM and PM peak hours under Existing conditions. (*Less than Significant after Mitigation*)

Mitigation Measure TRANS-4: Implement the following measures at the Mountain Boulevard/Keller Avenue intersection:

a) Restripe eastbound Keller Avenue approach to provide one shared left-turn/through lane and one shared through/right-turn lane,

b) Restripe westbound Keller Avenue approach to provide one shared left-turn/through lane and one right-turn lane,

c) Restripe southbound Mountain Boulevard Avenue approach to provide one left-turn lane and one right-turn lane,

d) Signalize intersection providing actuated operations, with split phasing on the east-west approaches (Keller Avenue) and permitted phasing on north-south (Mountain Boulevard) approaches, and

e) Coordinate the signal timing at this intersection with the adjacent intersections at I-580 Eastbound Off-Ramp/Fontaine Street/Keller Avenue (intersection #12, signalization proposed as part of Mitigation Measure TRANS-3) and I-580 Westbound Off-Ramp/Mountain Boulevard/Shone Avenue (intersection #16, signalization proposed as part of Mitigation Measure TRANS-5).

To implement this measure, the following shall be submitted to the City of Oakland's Transportation Services Division for review and approval:

- PS&E to modify intersection as detailed in Mitigation Measure TRANS-1
- Signal timing plans for the signals in the coordination group

This improvement is included in the Southeast Oakland Area TIF Program. Upon acceptance by the City, the applicant shall:

- Pay the applicable Southeast Oakland TIF fee, or
- Install the improvements and obtain a credit against its applicable TIF obligations and/or obtain reimbursement from monies collected under the Southeast Oakland TIF program for the amount the installation cos exceeds its TIF obligations; or
- Some combination of the above two mitigation methods.

A straight line interpolation of intersection traffic volume between Existing and Existing Plus Project conditions indicates that mitigation at this intersection may be required when about five percent of the project is developed. Investigation of the need for this mitigation shall be studied at the time when this five percent threshold is reached and every three years thereafter until 2040 or until the mitigation measure is implemented, whichever occurs first.

After implementation of this measure, the intersection would improve to LOS C during the AM and PM peak hours. No secondary impacts would result from implementation of this measure.

Impact Conclusion: Less than Significant with Mitigation.

Comparison to 1998 EIS/EIR: No New Significant Impact or Changes.

Impact TRANS-5: Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized *I-580 Westbound Off-Ramp/Mountain Boulevard/Shone Avenue (intersection #16)* which would meet the peak hour signal warrant (Criterion f) during the AM and PM peak hours under Existing Plus Project conditions. (*Significant and Unavoidable*)

Mitigation Measure TRANS-5: Implement the following measures at the I-580 Westbound Off-Ramp/Mountain Boulevard/Shone Avenue intersection:

a) Restripe the I-580 westbound off-ramp approach to provide one left-turn lane and one shared left-turn/right-turn lane and re-stripe Mountain Boulevard to provide two receiving lanes,

b) Signalize intersection providing actuated operations, with split phasing on the east-west approaches (I-580 Westbound Off-Ramp/Shone Avenue) and permitted phasing on north-south (Mountain Boulevard) approaches, and

c) Coordinate the signal timing at this intersection with the adjacent intersections at I-580 Eastbound Off-Ramp/Fontaine Street/Keller Avenue (intersection #12, signalization proposed as part of Mitigation Measure TRANS-3) and Mountain Boulevard/Keller Avenue (intersection #13, signalization proposed as part of Mitigation Measure TRANS-4). This intersection is under the jurisdiction of Caltrans so any equipment or facility upgrades must be approved by Caltrans prior to installation.

To implement this measure, the following shall be submitted to the City of Oakland's Transportation Services Division and Caltrans for review and approval:

- PS&E to modify intersection as detailed in Mitigation Measure TRANS-1
- Signal timing plans for the signals in the coordination group

This improvement is included in the Southeast Oakland Area TIF Program. Upon acceptance by the City, the applicant shall:

- Pay the applicable Southeast Oakland TIF fee, or
- Install the improvements and obtain a credit against its applicable TIF obligations and/or obtain reimbursement from monies collected under the Southeast Oakland TIF program for the amount the installation cos exceeds its TIF obligations; or
- Some combination of the above two mitigation methods.

A straight line interpolation of intersection traffic volume between Existing and Existing Plus Project conditions indicates that mitigation at this intersection may be required when about 45 percent of the project is developed. Investigation of the need for this mitigation shall be studied at the time when this 45 percent threshold is reached and every three years thereafter until 2040 or until the mitigation measure is implemented, whichever occurs first. After implementation of this measure, the intersection would improve to LOS B during the AM peak hour, to LOS C during the PM peak hour, and reduce the impact to a less than significant level.

It is not certain that this mitigation measure could be implemented because the intersection is under the jurisdiction of Caltrans. City of Oakland, as lead agency, does not have jurisdiction to implement Measure TRANS-5 and the mitigation would need to be approved and implemented by Caltrans. Therefore, the impact is conservatively considered significant and unavoidable because the City cannot ensure its implementation. No secondary impacts would result from implementation of this measure.

Impact Conclusion: Significant and Unavoidable.

Comparison to 1998 EIS/EIR: No New Significant Impact or Changes. New Mitigation Measures identified.

Impact TRANS-6: Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized *Mountain Boulevard/Golf Links Road (intersection #40)* which would meet the peak hour signal warrant (Criterion f) during the AM peak hour under Existing Plus Project conditions. (*Significant and Unavoidable*)

Mitigation Measure TRANS-6: Implement the following measures at the Mountain Boulevard/Golf Links Road intersection:

a) Restripe the eastbound Golf Links Road approach to provide one left-turn lane and one shared left-turn/through/right-turn lane, and restripe Mountain Boulevard to provide two receiving lanes for a minimum of 100 feet,

b) Signalize intersection providing actuated operations, with split phasing on the east-west approaches (Golf Links Road) and permitted phasing on north-south (Mountain Boulevard/Oakland Zoo Entrance) approaches, and

c) Coordinate the signal timing at this intersection with the adjacent intersections at Golf Links Road/I-580 Eastbound Off-Ramp/98th (#38) and Golf Links Road/I-580 Westbound Ramps (#39) intersections. The Golf Links Road/I-580 ramp-terminal intersections are under the jurisdiction of Caltrans so any equipment or facility upgrades must be coordinated and approved by Caltrans prior to installation.

To implement this measure, the project applicant shall submit the following to the City of Oakland's Transportation Services Division for review and approval:

- PS&E to modify intersection as detailed in Mitigation Measure TRANS-1
- Signal timing plans for the signals in the coordination group

These improvements are not currently included in the Southeast Oakland Area TIF Program. In the absence of any applicable Southeast Oakland TIF for this improvement, the applicant shall install the improvements and may seek any applicable credits against its Citywide TIF obligations and/or reimbursement from monies collected under the Citywide TIF program for the amount the installation cost exceeds its Citywide TIF obligations or fair share contribution.

A straight line interpolation of intersection traffic volume between Existing and Existing Plus Project conditions indicates that mitigation at this intersection may be required when about 20 percent of the project is developed. Investigation of the need for this mitigation shall be studied at the time when this 20 percent threshold is reached and every three years thereafter until 2040 or until the mitigation measure is implemented, whichever occurs first. After implementation of this measure, the intersection would operate at LOS E during the AM peak hour and at LOS C during the PM peak hour and reduce the impact to a less than significant level.

Signalizing the Mountain Boulevard/Golf Links Road (intersection #40) may potentially affect the operations of the adjacent intersections on Golf Links Road at I-580 Eastbound Off-Ramp/98th Avenue (intersection #38) and at I-580 Westbound Ramps (intersection #39) because a signal would require vehicles on eastbound Golf Links Road to stop at the Mountain Boulevard intersection; this approach currently operates as a free uncontrolled movement. Thus, implementation of TRANS-6 would result in peak hour queues on eastbound Golf Links Road at Mountain Boulevard to spill back and block both signalized Golf Links Road/I-580 ramp-terminal intersections. However, the Golf Links Road/I-580 Eastbound Off-Ramp/98th Avenue (#38) and Golf Links Road/I-580 Westbound Ramps (#39) intersections would continue to operate at LOS D or better during the AM peak hour and at LOS C during the PM peak hour with implementation of TRANS-6.

Additionally, the City of Oakland is planning to implement Class 2 bicycle lanes along Golf Links Road between Mountain Boulevard and 98th Avenue. Planned bicycle lane improvements would require removal of the dedicated westbound right-turn lane at Golf Links Road/I-580 Westbound Ramps (intersection #39). Providing a through lane and a shared through/right-turn lane along westbound Golf Links Road between Mountain Boulevard and the I-580 Westbound Ramps could reduce the delay at the Golf Link Road/I-580 ramp-terminal intersections (#39 and #40). The planned Class 2 bicycle lanes would preclude providing a second westbound through lane on Golf Links Road between Mountain Boulevard and I-580 Westbound Ramps.

It is not certain that this mitigation measure could be implemented because the mitigation measure will potentially affect operations at the adjacent intersections and would require implementation of improvements under the jurisdiction of Caltrans. City of Oakland, as lead agency, does not have jurisdiction to implement Measure TRANS-6 and the mitigation would need to be approved and implemented by Caltrans. Therefore, the impact is conservatively considered significant and unavoidable because the City cannot ensure its implementation.

Impact Conclusion: Significant and Unavoidable.

Comparison to 1998 EIS/EIR: No New Significant Impact, but Updated Mitigation Measure Identified.

Existing Plus Project Freeway Operations

Existing Plus Project freeway section and ramp junction operations were evaluated for weekday AM and PM peak hours; results are summarized in **Table 4.13-15**. The HCM 2010 methodology analyzes freeway segments in isolation; therefore the methodology does not adequately evaluate queuing impacts from downstream bottlenecks, which can potentially underestimate density and LOS for segments that operate under congested conditions. The following study freeway segments are currently observed to operate under congested conditions within the study area and are expected to continue to operate at LOS F under Existing Plus Project conditions:

- I-580 Eastbound between Seminary Avenue and SR 13 (segment #1) during the PM peak hour.
- I-580 Eastbound/SR 13 Southbound On-Ramp Junction (segment #2) during the PM peak hour.
- I-580 Eastbound/Seminary Avenue On-Ramp Junction (segment #3) during the PM peak hour.
- I-580 Eastbound/Edwards Avenue Off-Ramp Junction (segment #4) during the PM peak hour.
- I-580 Eastbound between Edwards Avenue and Keller Avenue (segment #5) during the PM peak hour.
- I-580 Eastbound/Keller Avenue Off-Ramp Junction (segment #6) during the PM peak hour.
- SR 13 Southbound between Calaveras Avenue Off-Ramp and I-580 (segment #13) during the PM peak hour.
- I-580 Westbound/SR 13 Northbound off-Ramp Junction (segment #24) during the AM peak hour.
- I-580 Westbound between SR 13 Northbound and Frontage Road (segment #25) during the AM peak hour.

Appendix V-F presents the detailed LOS calculation worksheets.

Impact TRANS-7: Traffic generated by the Oak Knoll Project would increase the volume-to-capacity ratio by 0.03 or more along the following freeway segments which would operate at LOS F (Significance Threshold G) under Existing Plus Project conditions (*Significant and Unavoidable*):

- **I-580 Eastbound/SR 13 Southbound On-Ramp Junction (segment #2)**
- **I-580 Eastbound/Edwards Avenue Off-Ramp Junction (segment #4)**
- **I-580 Eastbound between Edwards Avenue and Keller Avenue (segment #5)**
- **I-580 Eastbound/Keller Avenue Off-Ramp Junction (segment #6)**

Mitigation Measure TRANS-7: No feasible mitigation measures are available that would mitigate the project impacts on the freeway segments.

TABLE 4.13-15
EXISTING PLUS PROJECT CONDITIONS FREEWAY LOS SUMMARY

No.	Mainline Location	Segment Type	Peak Hour	Existing			Existing Plus Project			Significant
				V/C[a]	Density[b]	LOS	V/C[a]	Density[b]	LOS	Impact?[d]
1	I-580 EB: Seminary Avenue to SR 13 SB	Basic	AM	0.37	12.8	B	0.38	13.0	B	No
			PM	**>1.00**	-	**F[c]**	**>1.00**	-	**F[c]**	No[e]
2	I-580 EB: SR 13 SB On-Ramp	Merge	AM	0.75	27.9	C	0.76	28.1	D	No
			PM	**>1.00**	-	**F[c]**	**>1.00**	-	**F[c]**	**Yes (G)**
3	I-580 EB: Seminary Avenue On-Ramp	Merge	AM	0.59	23.0	C	0.59	23.2	C	No
			PM	**>1.00**	-	**F[c]**	**>1.00**	-	**F[c]**	No[e]
4	I-580 EB: Edwards Avenue Off-Ramp	Diverge	AM	0.67	28.0	C	0.68	28.3	D	No
			PM	**>1.00**	-	**F[c]**	**>1.00**	-	**F[c]**	**Yes (G)**
5	I-580 EB: Edwards Avenue To Keller Avenue	Basic	AM	0.58	19.9	C	0.58	20.2	C	No
			PM	**>1.00**	-	**F[c]**	**>1.00**	-	**F[c]**	**Yes (G)**
6	I-580 EB: Keller Avenue Off-Ramp	Diverge	AM	0.60	24.9	C	0.61	25.4	C	No
			PM	**>1.00**	-	**F[c]**	**>1.00**	-	**F[c]**	**Yes (G)**
7	I-580 EB: Keller Avenue Off-Ramp to On-Ramp	Basic	AM	0.54	18.5	C	0.54	18.5	C	No
			PM	0.67	23.6	C	0.67	23.7	C	No
8	I-580 EB: Keller Avenue On-Ramp	Merge	AM	0.51	21.4	C	0.52	21.7	C	No
			PM	0.64	25.8	C	0.64	26.0	C	No
9	I-580 EB: Keller Avenue to Golf Links Road	Basic	AM	0.57	19.6	C	0.57	19.8	C	No
			PM	0.71	25.3	C	0.71	25.5	C	No
10	I-580 EB: Golf Links Road Off-Ramp	Diverge	AM	0.65	27.6	C	0.66	27.8	C	No
			PM	0.76	31.4	D	0.76	31.7	D	No
11	I-580 EB: Golf Links Road Off-Ramp to On-Ramp	Basic	AM	0.48	16.4	B	0.48	16.5	B	No
			PM	0.64	22.3	C	0.64	22.5	C	No
12	I-580 EB: Golf Links Road On-Ramp	Basic	AM	0.44	15.1	B	0.45	15.4	B	No
			PM	0.57	19.5	C	0.57	19.7	C	No
13	SR 13 SB: Calaveras Avenue to Seminary Avenue	Basic	AM	0.47	16.1	B	0.47	16.3	B	No
			PM	**>1.00**	-	**F[c]**	**>1.00**	-	**F[c]**	No[e]
14	I-580 WB: Golf Links Road Off-Ramp	Diverge	AM	0.79	32.3	D	0.79	32.6	D	No
			PM	0.76	31.2	D	0.77	31.8	D	No
15	I-580 WB: Golf Links Road Off-Ramp to On-Ramp	Basic	AM	0.66	23.3	C	0.67	23.5	C	No
			PM	0.65	22.6	C	0.66	23.0	C	No
16	I-580 WB: Golf Links Road On-Ramp	Merge	AM	0.70	27.6	C	0.70	27.7	C	No
			PM	0.67	26.8	C	0.68	27.1	C	No
17	I-580 WB: Golf Links Road to Keller Avenue	Basic	AM	0.73	26.4	D	0.74	26.6	D	No
			PM	0.71	25.4	C	0.72	25.9	C	No
18	I-580 WB: Keller Avenue Off-Ramp	Diverge	AM	0.72	29.5	D	0.72	29.8	D	No
			PM	0.73	29.9	D	0.75	30.7	D	No
19	I-580 WB: Keller Avenue Off-Ramp to On-Ramp	Basic	AM	0.72	25.7	C	0.72	25.7	C	No
			PM	0.67	23.5	C	0.67	23.6	C	No
20	I-580 WB: Keller Avenue On-Ramp	Merge	AM	0.73	28.7	D	0.77	30.1	D	No
			PM	0.63	25.4	C	0.66	26.3	C	No
21	I-580 WB: Keller Avenue to Edwards Avenue	Basic	AM	0.78	28.7	D	0.80	29.9	D	No
			PM	0.70	25.1	C	0.72	25.7	C	No

TABLE 4.13-15 (Continued)
EXISTING PLUS PROJECT CONDITIONS FREEWAY LOS SUMMARY

No.	Mainline Location	Segment Type	Peak Hour	Existing			Existing Plus Project			Significant
				V/C[a]	Density[b]	LOS	V/C[a]	Density[b]	LOS	Impact?[d]
22	I-580 WB: Edwards Avenue On-Ramp	Merge	AM	0.88	34.2	D	0.90	34.9	D	No
			PM	0.73	28.9	D	0.75	29.4	D	No
23	I-580 WB: Seminary Avenue Off-Ramp	Diverge	AM	0.87	35.3	E	0.89	36.2	E	No
			PM	0.78	31.9	D	0.79	32.5	D	No
24	I-580 WB: SR 13 NB Off-Ramp	Diverge	AM	**>1.00**	**-**	**F[c]**	**>1.00**	**-**	**F[c]**	No[e]
			PM	0.74	30.9	D	0.76	31.5	D	No
25	I-580 WB: SR 13 NB to Frontage Road	Basic	AM	**>1.00**	**-**	**F[c]**	**>1.00**	**-**	**F[c]**	No[e]
			PM	0.53	18.3	C	0.54	18.7	C	No
26	SR 13 NB: I-580 WB to Calaveras Avenue	Basic	AM	0.41	14.1	B	0.43	14.6	B	No
			PM	0.41	13.9	B	0.41	14.2	B	No

NOTES: **bold** text indicates LOS F operations.

a V/C ratios greater than 1.00 reported as ">1.00" for segments that operate under congested conditions based on existing field observations.
b Density measures in passenger cars per mile per lane. Density not reported for segments that operate under congested conditions based on existing field observations.
c Freeway segment operates under congested conditions based on existing field observations.
d Letter in parenthesis refers to the significant criteria triggering the impact, as listed above.
e The project would not cause an impact at this freeway segment or ramp junction because the project would not increase the V/C ratio by 0.03 or more, although segment would operate at LOS F.

SOURCE: Fehr & Peers, 2016.

No feasible mitigation measures are available that would mitigate the project impacts at the adversely affected freeway segments. Operations at these freeway segments can be improved by providing additional automobile travel lanes. However, additional travel lanes cannot be accommodated within the existing automobile right-of-way and would require additional right-of-way. In addition, all freeway segments are under the jurisdiction of Caltrans. City of Oakland, as lead agency, does not have jurisdiction on freeway segment. Thus, all mitigations would need to be approved and implemented by Caltrans. Therefore, the impact is considered significant and unavoidable because no feasible mitigation measures are available and the City cannot ensure implementation of any potential mitigation measure.

A transportation demand management (TDM) program will be implemented as part of the project in accordance with the City of Oaklands Standard Conditions of Approval. Although not accounted for in the project trip generation, TDM strategies can potentially reduce automobile trips generated by the project and reduce the magnitude of significant impacts at intersections and freeway segments. TDM strategies may include, but are not limited to private bus shuttles, casual carpooling, carsharing, guaranteed ride home programs, pre-tax commuter benefits, etc. Implementing various TDM strategies would reduce daily trips generated by the project; however significant impacts to freeway segments would remain significant and unavoidable.

Impact Conclusion: Significant and Unavoidable.

Comparison to 1998 EIS/EIR: New Significant Impact; No feasible Mitigation Measures.

2040 Plus Project Operations Analysis

This section analyzes the transportation system with traffic generated by the project added to the 2040 No Project traffic forecasts. This analysis presents the extent project impacts relative to year 2040 conditions based on direct application of Significance Threshold R and indirect application of Significance Thresholds A through H as listed above.

Traffic Volumes

Figures 8 and 9 in **Appendix V-B** provide peak hour intersection and freeway traffic volumes for the 2040 Plus Project Conditions, which consists of 2040 No Project traffic volumes plus net added traffic volumes generated by the project.

Roadway Network

As previously described, the project proposes the following external roadway connections and site access points:

- Unsignalized Keller Avenue/Williams Street/Creekside Parkway intersection (#14) would provide full access with stop-controlled northbound and southbound approaches.
- The unsignalized Mountain Boulevard/Main Street (#24) intersection would provide right-turn-in/right-turn-out access only with a stop-controlled westbound approach.

- The signalized Mountain Boulevard/Creekside Parkway intersection (#42).
- The unsignalized Mountain Boulevard/Creekside Loop intersection (#43) would provide right-turn-in/right-turn-out access only with a stop-controlled westbound approach.
- The project would provide a new partial-access unsignalized intersection at Keller Avenue/Uplands Primary (#44) providing right-turn-in/right-turn-out access only with a stop-controlled northbound Uplands Primary approach.

All other study intersections are expected to maintain the 2040 No Project lane configurations and traffic controls with implementation of the project.

Intersection Operations

Intersection LOS calculations were completed with the traffic volumes and roadway network described above. **Table 4.13-16** summarizes intersection operations under 2040 Plus Project conditions at the 43 study intersections. **Appendix V-G** presents the detailed intersection LOS calculation worksheets and California MUTCD peak hour volume traffic signal warrant sheets for 2040 Plus Project conditions.

The majority of study intersections would continue to operate at the same LOS, but would experience slightly more delay as compared to the 2040 No Project Conditions with the addition of project trips. All intersections, except the following, would continue to operate at LOS D or better during the AM and PM peak hours.

- I-580 Eastbound Off-Ramp/Seminary Avenue/Overdale Avenue (intersection #1, side-street-stop-controlled) – the southbound shared through/left-turn movement (stop-controlled) would operate at LOS F during the AM and PM peak hours. The intersection meets the California MUTCD peak hour volume signal warrant without the project; the project does not add more than 10 vehicle trips to a critical movement.
- I-580 Eastbound On-Ramp/Seminary Avenue/Kuhnle Avenue (intersection #2, all-way-stop-controlled) – intersection would continue to operate at LOS E during the AM peak hour and at LOS F during the PM peak hour. The intersection meets the California MUTCD peak hour volume signal warrant during the AM and PM peak hours without the project; the project would add more than 10 vehicle trips to a critical movement during the PM peak hour only.
- I-580 Westbound Off-Ramp/Mountain Boulevard/Kuhnle Avenue (intersection #3, side-street-stop-controlled) – the westbound left-turn movement (stop-controlled) would operate at LOS F during the AM and PM peak hours. The intersection meets the California MUTCD peak hour volume signal warrant without the project; the project would add more than 10 vehicle trips to the westbound left-turn critical movement during the AM and PM peak hours.
- MacArthur Boulevard/Foothill Boulevard/73rd Avenue (intersection #4, signalized) – would operate at LOS F conditions during the AM and PM peak hours; the project would not increase the intersection V/C ratio by 0.03 or more, and would not increase the critical movement V/C ratio by 0.05 or more.
- I-580 Westbound On-Ramp/Mountain Boulevard/Maynard Avenue (intersection #10, side-street-stop-controlled) – the westbound approach (stop-controlled, single lane approach) would operate at LOS F during the AM peak hour and at LOS E during the PM peak hour. The intersection would not meet the California MUTCD peak hour volume signal warrant.

TABLE 4.13-16
2040 PLUS PROJECT CONDITIONS INTERSECTION LOS SUMMARY

No.	Intersection	Traffic Control[a]	Peak Hour	2040 No Project		2040 Plus Project		Significant
				Delay (sec/veh)[b]	LOS	Delay (sec/veh)[b]	LOS	Impact?[c]
1	I-580 EB Off-Ramp/Seminary Avenue/Overdale Avenue	SSSC	AM PM	29.9 **(>120.0)** **77.0 (>120.0)**	D **(F)** **F (F)**	**36.1 (>120.0)** **82.2 (>120.0)**	**E (F)** **F (F)**	No[e] No[e]
2	I-580 EB On-Ramp/Seminary Avenue/Kuhnle Avenue	AWSC	AM PM	**38.4** **60.9**	**E** **F**	**38.7** **61.9**	**E** **F**	**Yes (F)** **Yes (F)**
3	I-580 WB Off-Ramp/Mountain Boulevard/Kuhnle Avenue	SSSC	AM PM	**>120.0 (>120.0)** **>120.0 (>120.0)**	**F (F)** **F (F)**	**>120.0 (>120.0)** **>120.0 (>120.0)**	**F (F)** **F (F)**	**Yes (F)** **Yes (F)**
4	MacArthur Boulevard/Foothill Boulevard/73rd Avenue	Signal	AM PM	**107.0** **>120.0**	**F** **F**	**111.2** **>120.0**	**F** **F**	No[f] No[f]
5	Ney Avenue/73rd Avenue	Signal	AM PM	4.3 4.1	A A	4.4 4.1	A A	No No
6	Greenly Drive/Edwards Avenue	Signal	AM PM	5.6 5.4	A A	5.6 5.4	A A	No No
7	I-580 EB Off-Ramp/Edwards Avenue	Signal	AM PM	14.8 14.8	B B	15.3 15.5	B B	No No
8	I-580 WB On-Ramp/Mountain Boulevard/Edwards Avenue	Signal	AM PM	18.2 12.7	B B	18.7 13.1	B B	No No
9	Mountain Boulevard/Rifle Lane	SSSC	AM PM	0.6 (14.6) 0.8 (11.2)	A (B) A (B)	0.6 (15.2) 0.8 (11.9)	A (C) A (B)	No No
10	I-580 WB On-Ramp/Mountain Boulevard/Maynard Avenue	SSSC	AM PM	6.7 **(>120.0)** 4.2 (25.2)	A **(F)** A (D)	16.0 **(>120.0)** 5.2 **(46.1)**	B **(F)** A **(E)**	No[g] No
11	Greenly Drive/Keller Avenue	AWSC	AM PM	7.8 8.2	A A	7.9 8.2	A A	No No
12	I-580 EB Off-Ramp/Fontaine Street/ Keller Avenue	AWSC	AM PM	18.3 24.4	C C	24.4 **40.5**	C **E**	**Yes (F)** **Yes (F)**
13	Mountain Boulevard/Keller Avenue	AWSC	AM PM	**56.0** **52.3**	**F** **F**	**63.9** **70.9**	**F** **F**	**Yes (F)** **Yes (F)**
14	Williams Street/Keller Avenue	SSSC/ AWSC[h]	AM PM	1.5 (10.8) 1.0 (11.4)	A (B) A (B)	11.0 10.8	B B	No No
15	Campus Drive/Keller Avenue	SSSC	AM PM	3.6 (12.1) 5.6 (17.1)	A (B) A (C)	3.7 (12.5) 5.9 (18.5)	A (B) A (C)	No No
16	I-580 WB Off-Ramp/Mountain Boulevard/Shone Avenue	SSSC	AM PM	9.1 **(62.8)** 20.2 **(41.9)**	A **(F)** C **(E)**	24.6 **(>120.0)** **114.0 (>120.0)**	C **(F)** **F (F)**	**Yes (F)** **Yes (F)**
17	Bancroft Avenue/82nd Avenue	Signal	AM PM	30.3 27.5	C C	31.4 29.1	C C	No No
18	MacArthur Boulevard/82nd Avenue	Signal	AM PM	11.8 11.4	B B	12.2 12.0	B B	No No
19	Golf Links Road/82nd Avenue	SSSC	AM PM	13.7 (16.9) 9.6 (14.0)	B (C) A (B)	14.6 (17.9) 10.4 (14.8)	B (C) B (B)	No No
20	Golf Links Road/Fontaine Street	AWSC	AM PM	14.6 12.1	B B	15.4 13.5	C B	No No
21	Crest Avenue/Fontaine Street	SSSC	AM PM	1.5 (10.6) 1.7 (10.0)	A (B) A (A)	1.4 (10.7) 1.5 (10.4)	A (B) A (B)	No No
22	Fontaine Street/I-580 Overcrossing	SSSC	AM PM	4.7 (17.2) 2.9 (11.2)	A (C) A (B)	5.0 (18.4) 3.1 (11.2)	A (C) A (B)	No No
23	Mountain Boulevard/I-580 Overcrossing	SSSC	AM PM	4.5 (21.0) 3.5 (11.0)	A (C) A (A)	5.4 (30.2) 2.8 (17.2)	A (D) A (B)	No No
24	Mountain Boulevard/Existing Project Site Access	SSSC	AM PM	0.8 (11.8) 1.1 (7.5)	A (B) A (A)	1.5 (19.4) 2.0 (10.7)	A (C) A (B)	No No
25	Mountain Boulevard/Sequoyah Road	SSSC	AM PM	2.7 (19.3) 3.9 (10.1)	A (C) A (B)	2.7 (23.5) 2.8 (12.3)	A (C) A (B)	No No
26	Mountain Boulevard/Calafia Avenue	SSSC	AM PM	2.1 (17.0) 1.8 (9.5)	A (C) A (A)	2.0 (19.7) 1.0 (11.1)	A (C) A (B)	No No
27	International Boulevard/98th Avenue	Signal	AM PM	49.3 **73.7**	D **E**	50.1 **78.7**	D **E**	No **Yes (C)**
28	Holly Street/98th Avenue	Signal	AM PM	5.9 4.4	A A	5.8 4.4	A A	No No
29	Plymouth Street/98th Avenue	Signal	AM PM	11.7 5.6	B A	11.6 5.5	B A	No No

TABLE 4.13-16 (Continued)
2040 PLUS PROJECT CONDITIONS INTERSECTION LOS SUMMARY

No.	Intersection	Traffic Control[a]	Peak Hour	2040 No Project		2040 Plus Project		Significant
				Delay (sec/veh)[b]	LOS	Delay (sec/veh)[b]	LOS	Impact?[c]
30	Birch Street/98th Avenue	Signal	AM	6.8	A	6.6	A	No
			PM	4.7	A	3.3	A	No
31	Bancroft Avenue/98th Avenue	Signal	AM	43.0	D	45.7	D	No
			PM	49.0	D	44.0	D	No
32	MacArthur Boulevard/98th Avenue	Signal	AM	39.6	D	40.7	D	No
			PM	40.9	D	42.7	D	No
33	Thermal Street/98th Avenue	SSSC	AM	1.5 (24.1)	A (C)	1.6 (28.1)	A (D)	No
			PM	0.8 **(41.2)**	A **(E)**	0.9 **(54.4)**	A **(F)**	No[g]
34	Lawlor Street/98th Avenue	Signal	AM	19.5	B	21.2	C	No
			PM	5.1	A	5.0	A	No
35	Stearns Avenue/98th Avenue	Signal	AM	18.0	B	17.9	B	No
			PM	7.0	A	6.9	A	No
36	Stanley Avenue/98th Avenue	SSSC	AM	**48.2 (>120.0)**	**E (F)**	**54.2 (>120.0)**	**F (F)**	No[e]
			PM	2.0 **(49.3)**	A **(E)**	2.6 **(70.2)**	A **(F)**	No[g]
37	I-580 EB On-Ramp/98th Avenue	SSSC	AM	2.6 (17.7)	A (C)	3.5 (22.2)	A (C)	No
			PM	2.0 (13.9)	A (B)	2.5 (17.2)	A (C)	No
38	Golf Links Road/I-580 EB Off-Ramp/98th Avenue[d]	Signal	AM	29.6	C	29.3	C	No
			PM	32.5	C	56.2	E	**Yes (A)**
39	I-580 WB Ramps/Golf Links Road[d]	Signal	AM	39.4	D	40.5	D	No
			PM	39.4	D	41.7	D	No
40	Mountain Boulevard/Golf Links Road[d]	SSSC	AM	**56.4 (>120.0)**	**F (F)**	**116.8 (>120.0)**	**F (F)**	**Yes (F)**
			PM	**76.6 (>120.0)**	**F (F)**	**>120.0 (>120.0)**	**F (F)**	**Yes (F)**
41	San Leandro Street/98th Avenue	Signal	AM	49.2	D	50.1	D	No
			PM	**60.3**	**E**	**60.7**	**E**	No[i]
42	Mountain Boulevard/Creekside Parkway (Project Access)	Signal	AM	N/A	N/A	15.2	B	No
			PM			13.5	B	No
43	Mountain Boulevard/Creekside Loop (Project Access)	SSSC	AM	N/A	N/A	0.1 (15.0)	A (B)	No
			PM			0.1 (9.1)	A (A)	No
44	Keller Avenue/Uplands Primary	SSSC	AM	N/A	N/A	0.1 (8.8)	A (A)	No
			PM			0.1 (9.1)	A (A)	No

NOTES: **bold** text indicates LOS E or LOS F operations.

a AWSC = All-Way Stop Control SSSC = Side-Street Stop Control
b The LOS/Delay for Side-Street Stop-Control intersections are presented as follows: intersection average (worst movement); for Signalized and All-Way Stop-Control, the LOS/Delay presented for overall intersection. Delays greater than 120 seconds are reported as ">120" due to methodology limitations of delay estimates for over-capacity conditions.
c Letter in parenthesis refers to the significant criteria triggering the impact, as listed above.
d Intersection analyzed using SimTraffic micro-simulation software.
e The project would not cause an impact at this unsignalized intersection because the project would not add more than 10 trips to a critical movement, although the intersection would meet the peak hour signal warrant.
f Although this signalized intersection would operate at LOS F under 2040 No Project and 2040 Plus Project Conditions, the project would not cause an impact at this intersection because the project would not increase the intersection V/C ratio by 0.03 or more, or the critical movement V/C ratio by 0.05 or more.
g The project would not cause an impact at this unsignalized intersection because the intersection would not meet the peak hour signal warrant, although it would operate at LOS F.
h Intersection would be all-way stop-controlled with the project.
i The project would not cause an impact at this signalized intersection because the project would not increase average intersection delay by more than four seconds or increase critical movement delay by more than six seconds.

SOURCE: Fehr & Peers, 2016.

- I-580 Eastbound Off-Ramp/Fontaine Street/Keller Avenue (intersection #12, all-way-stop-controlled) – intersection would operate at LOS C during the AM peak hour and at LOS E during the PM peak hour. The project would add more than 10 vehicles to the southbound and westbound left-turn movements during the AM and PM peak hours. The intersection would meet the California MUTCD peak hour volume signal warrant during both peak hours without the project and would continue to meet the peak hour volume signal warrant with the project.

- Mountain Boulevard/Keller Avenue (intersection #13, all-way-stop-controlled) – intersection would operate at LOS F during the AM and PM peak hours and would meet the California MUTCD peak hour volume signal warrant during both peak hours without the project. The project would add more than 10 vehicle trips during the AM and PM peak hour to most movements at this intersection.

- I-580 Westbound Off-Ramp/Mountain Boulevard/Shone Avenue (intersection #16, side-street-stop-controlled) – the eastbound left-turn movement (stop-controlled) would continue to operate at LOS F during the AM and PM peak hours. The project would add 10 or more vehicle trips to the eastbound left-turn movement during the AM and PM peak hours and cause the intersection to meet the California MUTCD peak hour volume signal warrant during both peak hours.

- International Boulevard/98th Avenue (intersection #27, signalized) – would operate at LOS D during the AM peak hour and at LOS E during the PM peak hour. The project would increase average vehicle delay by more than four seconds during the PM peak hour.

- Thermal Street/98th Avenue (intersection #33, side-street-stop-controlled) – the southbound approach (stop-controlled, single lane approach) would operate at LOS D during the AM peak hour and at LOS F during the PM peak hour. The intersection does not meet the California MUTCD peak hour volume signal warrant.

- Stanley Avenue/98th Avenue (intersection #36, side-street-stop-controlled) – the westbound approach (stop-controlled, single lane approach) would operate at LOS F during the AM and PM peak hours and would meet the California MUTCD peak hour volume signal warrant; however, the project does not add more than 10 vehicle trips to a critical movement.

- Golf Links Road/I-580 EB Off-Ramp/98th Avenue (intersection #38, signalized) – intersection would operate at LOS C during the AM peak hour and at LOS E during the PM peak hour. The project would cause the intersection to operate at LOS E and increase average vehicle delay by more than four seconds during the PM peak hour.

- Mountain Boulevard/Golf Links Road (intersection #40, side-street-stop-controlled) – the southbound and westbound approaches (stop-controlled, single lane approach) would operate at LOS F during the AM and PM peak hours. The project would add more than 10 vehicle trips to the southbound right-turn and eastbound left-turn movements during the AM and PM peak hours; the intersection would meet the California MUTCD peak hour volume signal warrant during the AM peak hour without the project and during both peak hours with the project.

- San Leandro Street/98th Avenue (intersection #41, signalized) – intersection would operate at LOS D during the AM peak hour and at LOS E during the PM peak hour; however, the project would not increase total intersection delay by four seconds or more, or increase critical movement delay by six seconds or more during the PM peak hour.

2040 Plus Project Intersection Impacts and Mitigation Measures

The project would have a significant impact at eight intersections. The impacts and recommended mitigation measures are discussed below for each of those seven intersections. **Table 4.13-17** shows the level of service with the proposed mitigations.

Impact TRANS-8: Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized *I-580 Eastbound On-Ramp/Seminary Avenue/Kuhnle Avenue (intersection #2)* and after project completion this intersection would continue to satisfy the MUTCD peak hour volume traffic signal warrant during the AM and PM peak hours (Criterion f) under 2040 Plus Project conditions. (*Significant and Unavoidable*)

Mitigation Measure TRANS-8: Implement Mitigation Measure TRANS-1.

After implementation of this measure, the intersection would operate at LOS C during the AM and PM peak hours and reduce the impact to a less than significant level. It is not certain that this mitigation measure could be implemented because the intersection is under the jurisdiction of Caltrans. City of Oakland, as lead agency, does not have jurisdiction to implement Measure TRANS-8 and the mitigation would need to be approved and implemented by Caltrans. Therefore, the impact is conservatively considered significant and unavoidable because the City cannot ensure its implementation. No secondary impacts would result from implementation of this measure.

Impact Conclusion: Significant and Unavoidable.

Comparison to 1998 EIS/EIR: New Significant Impact; Intersection Not Previously Analyzed. New Mitigation Measure identified.

Impact TRANS-9: Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized *I-580 Westbound Off-Ramp/Mountain Boulevard/Kuhnle Avenue (intersection #3)* and after project completion, this intersection would continue to satisfy the MUTCD peak hour volume traffic signal warrant during the AM and PM peak hours (Criterion f) under 2040 Plus Project conditions. (*Significant and Unavoidable*)

Mitigation Measure TRANS-9: Implement Mitigation Measure TRANS-2.

After implementation of this measure, the intersection would improve to LOS C during the AM peak hour and LOS D during the PM peak hour and reduce the impact to a less than significant level. Signalizing the northbound left-turn movement would result in the 95th percentile queues spilling back to the I-580 Eastbound On-Ramp/Seminary Avenue/Kuhnle Avenue intersection during both AM and PM peak hours. Although TRANS-9 would result in longer northbound queues, the proposed mitigation measure would improve overall LOS during the AM and PM peak hours. It is not certain that this mitigation measure could be implemented because the intersection is under the jurisdiction of Caltrans. City of Oakland, as lead agency, does not have

TABLE 4.13-17
2040 PLUS PROJECT CONDITIONS LOS SUMMARY

No.	Intersection	Traffic Control[a]	Peak Hour	2040 No Project		2040 Plus Project		Significant Impact?[c]	2040 Plus Project Mitigated		Significance After Mitigation
				Delay (sec/veh)[b]	LOS	Delay (sec/veh)[b]	LOS		Delay (sec/veh)[b]	LOS	
2	I-580 EB On-ramp/Seminary Avenue/Kuhnle Avenue	AWSC/ Signal[e]	AM PM	**38.4** **60.9**	**E** **F**	**38.7** **61.9**	**E** **F**	**Yes (F)** **Yes (F)**	22.9 34.1	C C	Significant and Unavoidable[g]
3	I-580 WB Off-ramp/Mountain Boulevard/Kuhnle Avenue	SSSC/ Signal[e]	AM PM	**>120.0 (>120.0)** **>120.0 (>120.0)**	**F (F)** **F (F)**	**>120.0 (>120.0)** **>120.0 (>120.0)**	**F (F)** **F (F)**	**Yes (F)** **Yes (F)**	22.1 41.4	C D	Significant and Unavoidable[g]
12	I-580 EB Off-ramp/Fontaine Street/Keller Avenue	AWSC/ Signal[e]	AM PM	18.3 24.4	C C	24.4 **40.5**	C **E**	**Yes (F)** **Yes (F)**	33.6 28.0	C C	Significant and Unavoidable[g]
13	Mountain Boulevard/Keller Avenue	AWSC/ Signal[e]	AM PM	**56.0** **52.3**	**F** **F**	**63.9** **70.9**	**F** **F**	**Yes (F)** **Yes (F)**	49.3 37.5	D D	Less Than Significant
16	I-580 WB Off-ramp/Mountain Boulevard/Shone Avenue	SSSC/ Signal[e]	AM PM	9.1 **(62.8)** 20.2 **(41.9)**	A **(F)** C **(E)**	24.6 **(>120.0)** **114.0 (>120.0)**	C **(F)** **F (F)**	**Yes (F)** **Yes (F)**	13.4 19.7	B B	Significant and Unavoidable[g]
27	International Boulevard/98th Avenue	Signal	AM PM	49.3 **73.7**	D **E**	50.1 **78.7**	D **E**	No **Yes (C)**	N/A		Significant and Unavoidable[h]
38	Golf Links Road/I-580 EB Off-ramp/98th Avenue[d,f]	Signal	AM PM	29.6 32.5	C C	29.3 56.2	C E	No No	26.8 31.6	C C	Significant and Unavoidable[g]
40	Mountain Boulevard/Golf Links Road[d,f]	SSSC/ Signal	AM PM	**56.4 (>120.0)** **76.6 (>120.0)**	**F (F)** **F (F)**	**116.8 (>120.0)** **>120.0 (>120.0)**	**F (F)** **F (F)**	**Yes (F)** **Yes (F)**	**103.9** **>120.0**	**F** **F**	Significant and Unavoidable[h]

NOTES: **bold** text indicates LOS E or LOS F operations.

a AWSC = All-Way Stop Control SSSC = Side-Street Stop Control
b The LOS/Delay for Side-Street Stop-Control intersections are presented as follows: intersection average (worst movement); for Signalized and All-Way Stop-Control, the LOS/Delay presented for overall intersection. Delays greater than 120 seconds are reported as ">120" due to methodology limitations of delay estimates for over-capacity conditions.
c Number in parenthesis refers to the significant criteria triggering the impact, as listed above.
d Primary mitigation measure consist of signalizing the Mountain Boulevard/Golf Links Road intersection and restriping the eastbound approach to provide one left-turn lane and one shared left/through/right lane, in addition to coordinating the signal timings with the adjacent Golf Links Road/I-580 ramp-terminal intersections. Widening the I-580 westbound off-ramp to provide one shared left/through lane and two right-turn lanes, extending the I-580 eastbound off-ramp shared through/right-turn lane storage to 450 feet, and reconfiguring Golf Links Road between I-580 eastbound off-ramp and the westbound ramps to provide two left-turn lanes and one through lane along eastbound Golf Links Road and one left-turn lane and one shared left/through lane along westbound Golf Links Road are also proposed.
e Mitigation measure proposes installation of traffic signal at intersection.
f Intersection analyzed using SimTraffic micro-simulation software.
g The proposed mitigation measure would mitigate the impact to a less than significant level. The impact is conservatively identified as significant and unavoidable because City of Oakland, as lead agency, does not have jurisdiction at this intersection.
h Mitigation measures not feasible at this intersection due to right-of-way constraints, therefore impact is identified as significant and unavoidable.

SOURCE: Fehr & Peers, 2016.

jurisdiction to implement Measure TRANS-9 and the mitigation would need to be approved and implemented by Caltrans. Therefore, the impact is conservatively considered significant and unavoidable because the City cannot ensure its implementation. No secondary impacts would result from implementation of this measure.

Impact Conclusion: Significant and Unavoidable.

Comparison to 1998 EIS/EIR: New Significant Impact; Intersection Not Previously Analyzed. New Mitigation Measures identified.

Impact TRANS-10: Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized *I-580 Eastbound Off-Ramp/Fontaine Street /Keller Avenue (intersection #12)* which would meet the peak hour signal warrant (Criterion f) during the AM and PM peak hours under 2040 Plus Project conditions. (*Significant and Unavoidable*)

Mitigation Measure TRANS-10: Implement Mitigation Measure TRANS-3.

After implementation of this measure, the intersection would operate at LOS C during the AM and PM peak hours and reduce the impact to a less than significant level. It is not certain that this mitigation measure could be implemented because the intersection is under the jurisdiction of Caltrans. City of Oakland, as lead agency, does not have jurisdiction to implement Measure TRANS-10 and the mitigation would need to be approved and implemented by Caltrans. Therefore, the impact is conservatively considered significant and unavoidable because the City cannot ensure its implementation. No secondary impacts would result from implementation of this measure.

Impact Conclusion: Significant and Unavoidable.

Comparison to 1998 EIS/EIR: New Significant Impact or Changes. New Mitigation Measures identified.

Impact TRANS-11: Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized *Mountain Boulevard/Keller Avenue (intersection #13)* and after project completion, this intersection would continue to satisfy the MUTCD peak hour volume traffic signal warrant during the AM and PM peak hours (Criterion f) under 2040 Plus Project conditions. (*Less than Significant after Mitigation*)

Mitigation Measure TRANS-11: Implement Mitigation Measure TRANS-4.

After implementation of this measure, the intersection would operate at LOS D during the AM and PM peak hours. No secondary impacts would result from implementation of this measure.

Impact Conclusion: Significant and Unavoidable.

Comparison to 1998 EIS/EIR: No New Significant Impact or Changes. New Mitigation Measures identified.

Impact TRANS-12: Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized *I-580 Westbound Off-Ramp/Mountain Boulevard/Shone Avenue (intersection #16)* which would meet the peak hour signal warrant (Criterion f) during the AM and PM peak hours under 2040 Plus Project conditions. (*Significant and Unavoidable*)

Mitigation Measure TRANS-12: Implement Mitigation Measure TRANS-5.

After implementation of this measure, the intersection would operate at LOS B during the AM and PM peak hours and reduce the impact to a less than significant level. It is not certain that this mitigation measure could be implemented because the intersection is under the jurisdiction of Caltrans. City of Oakland, as lead agency, does not have jurisdiction to implement Measure TRANS-12 and the mitigation would need to be approved and implemented by Caltrans. Therefore, the impact is conservatively considered significant and unavoidable because the City cannot ensure its implementation. No secondary impacts would result from implementation of this measure.

Impact Conclusion: Significant and Unavoidable.

Comparison to 1998 EIS/EIR: New Significant Impact or Changes. New Mitigation Measures identified.

Impact TRANS-13: Traffic generated by the Oak Knoll Project would increase the average intersection delay by more than four seconds at the signalized *International Boulevard/98th Avenue (Intersection #27),* which would operate at LOS E (Criterion c) during the PM peak hour under 2040 No Project conditions. (*Significant and Unavoidable*)

No feasible mitigation measures are available that would mitigate the project impact at the International Boulevard/98th Avenue (intersection #27). Traffic operations at the intersection can be improved by providing additional automobile travel lanes on either International Boulevard or 98th Avenue. However, these modifications cannot be accommodated within the existing automobile right-of-way and would require additional right-of-way, and/or loss of planned BRT lanes, which may result in secondary impacts on pedestrian circulation and/or bus operations. Therefore, the impact is considered significant and unavoidable.

Significance before Mitigation: Significant.

Significance after Mitigation: Significant and Unavoidable.

Comparison to 1998 EIS/EIR: New Significant Impact; Intersection Not Previously Analyzed. No feasible Mitigation Measure identified.

Impact TRANS-14: Traffic generated by the Oak Knoll Project would increase the average intersection delay and degrade the LOS from LOS C to LOS E (Criterion a) at the signalized *Golf Links Road/I-580 Eastbound Off-Ramp/98th Avenue (Intersection #38)*, during the PM peak hour. (*Significant and Unavoidable*)

Mitigation Measure TRANS-14: Implement the following measures at the Golf Links Road/I-580 Eastbound Off-Ramp/98th Avenue intersection:

a) Extend the shared through/right-turn lane on the I-580 eastbound off-ramp to provide a minimum 450 feet of storage length, and

b) Reconfigure Golf Links Road between the I-580 eastbound off-ramp and the I-580 westbound ramps to provide two left-turn lanes and one through lane along eastbound Golf Links Road and one left-turn lane and one shared left-turn/ through lane along westbound Golf Links Road.

These improvements are not currently included in any TIF program. The project applicant would pay the City for a fair share contribution to these improvements. Payment of its fair share would mitigate the project's contribution to the cumulative impact. After implementation of this measure, the intersection would operate at LOS C during the AM and PM peak hours.

It is not certain that this mitigation measure could be implemented because the mitigation measure will potentially affect operations at the adjacent intersections and would require implementation of improvements under the jurisdiction of Caltrans. City of Oakland, as lead agency, does not have jurisdiction to implement Measure TRANS-14 and the mitigation would need to be approved and implemented by Caltrans. Therefore, the impact is conservatively considered significant and unavoidable because the City cannot ensure its implementation. No secondary impacts would result from implementation of this measure.

Impact Conclusion: Significant and Unavoidable.

Comparison to 1998 EIS/EIR: New Significant Impact; Intersection Not Previously Analyzed. New Mitigation Measure identified.

Impact TRANS-15: Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized *Mountain Boulevard/Golf Links Road (intersection #40)* which would meet the peak hour signal warrant (Criterion f) during the AM and PM peak hours under 2040 Plus Project conditions. (*Significant and Unavoidable*)

Mitigation Measure TRANS-15: Implement Mitigation Measure TRANS-6 and the following measure:

a) Widen I-580 westbound off-ramp to provide one shared left-turn/through lane and two right-turn lanes (minimum 300 feet of storage length) approaching the intersection,

These improvements are not currently included in any TIF program. If, at the time the improvements are needed to mitigate the impact, signal warrants have been met, and Caltrans has approved the improvements to their facilities, then the project applicant shall fully fund and construct the improvements, and may seek reimbursement for the portion that is beyond their fair share contribution, from other potentially available funding sources.

After implementation of this measure, the intersection would continue to operate at LOS F during the AM and PM peak hours. Furthermore, as indicated under Impact Trans-6, signalizing the Mountain Boulevard/Golf Links Road (intersection #40) pursuant to Mitigation Measure Trans-6 would require vehicles on eastbound Golf Links Road to stop at the Mountain Boulevard intersection, resulting in peak hour queues on eastbound Golf Links Road at Mountain Boulevard to spill back and block both signalized Golf Links Road/I-580 ramp-terminal intersections. Additionally, the City of Oakland is planning to implement Class 2 bicycle lanes along Golf Links Road between Mountain Boulevard and 98th Avenue, and the planned Class 2 bicycle lanes would preclude providing a second westbound through lane on Golf Links Road between Mountain Boulevard and I-580 Westbound Ramps. Traffic operations at the Mountain Boulevard/Golf Links Road intersection can be further improved by providing additional automobile travel lanes on either the Mountain Boulevard or Golf Links Road approaches of the intersection. However, these modifications cannot be accommodated within the existing automobile right-of-way and would require additional right-of-way, and/or loss of planned Class 2 bicycle facilities, which may result in secondary impacts on pedestrian circulation and/or bus operations.

It is not certain that this mitigation measure could be implemented. City of Oakland, as lead agency, does not have jurisdiction to implement Measure TRANS-15 (changes to the I-580 ramps at Golf Links Road) and the mitigation would need to be approved and implemented by Caltrans. Therefore, the impact is considered significant and unavoidable because the City cannot ensure its implementation; furthermore the intersection would continue to operate at unacceptable LOS with implementation of Measure TRANS-15.

Impact Conclusion: Significant and Unavoidable.

Comparison to 1998 EIS/EIR: No New Significant Impact but Updated Mitigation Measure Identified.

2040 Plus Project Freeway Operations

2040 Plus Project freeway section and ramp junction operations were evaluated for weekday AM and PM peak hours; results are summarized in **Table 4.13-18**. The HCM 2010 methodology analyzes freeway segments in isolation; therefore the methodology does not adequately evaluate queuing impacts from downstream bottlenecks, which can potentially underestimate density and LOS for segments that operate under congested conditions. The following study freeway segments are currently observed to operate under congested conditions within the study area and would operate at LOS F under 2040 No Project and 2040 Plus Project conditions:

TABLE 4.13-18
2040 PLUS PROJECT CONDITIONS FREEWAY LOS SUMMARY

No.	Mainline Location	Segment Type	Peak Hour	2040 No Project			2040 Plus Project			Significant
				V/C[a]	Density[b]	LOS	V/C[a]	Density[b]	LOS	Impact?[d]
1	I-580 EB: Seminary Avenue to SR 13 SB	Basic	AM	0.40	13.8	B	0.41	13.9	B	No
			PM	**>1.00**	**-**	**F[c]**	**>1.00**	**-**	**F[c]**	No[e]
2	I-580 EB: SR 13 SB On-Ramp	Merge	AM	**0.98**	-	**F**	**0.99**	**-**	**F**	No[e]
			PM	**0.97**	-	**F**	**1.00**	**-**	**F**	**Yes (G)**
3	I-580 EB: Seminary Avenue On-Ramp	Merge	AM	0.71	27.3	B	0.71	27.5	C	No
			PM	**>1.00**	**-**	**F[c]**	**>1.00**	**-**	**F[c]**	No[e]
4	I-580 EB: Edwards Avenue Off-Ramp	Diverge	AM	0.82	33.6	D	0.83	33.9	D	No
			PM	**>1.00**	**-**	**F[c]**	**>1.00**	**-**	**F[c]**	No[e]
5	I-580 EB: Edwards Avenue To Keller Avenue	Basic	AM	0.69	24.6	B	0.70	24.9	C	No
			PM	**>1.00**	**-**	**F[c]**	**>1.00**	**-**	**F[c]**	**Yes (G)**
6	I-580 EB: Keller Avenue Off-Ramp	Diverge	AM	0.71	29.3	D	0.73	29.8	D	No
			PM	**>1.00**	**-**	**F[c]**	**>1.00**	**-**	**F[c]**	**Yes (G)**
7	I-580 EB: Keller Avenue Off-Ramp to On-Ramp	Basic	AM	0.65	22.6	B	0.65	22.6	C	No
			PM	0.79	29.3	D	0.79	29.4	D	No
8	I-580 EB: Keller Avenue On-Ramp	Merge	AM	0.62	25.0	B	0.62	25.3	C	No
			PM	0.78	30.8	D	0.79	31.1	D	No
9	I-580 EB: Keller Avenue to Golf Links Road	Basic	AM	0.68	24.2	B	0.69	24.4	C	No
			PM	0.85	32.7	D	0.85	33.1	D	No
10	I-580 EB: Golf Links Road Off-Ramp	Diverge	AM	0.78	32.3	D	0.78	32.5	D	No
			PM	0.93	37.8	E	0.93	38.1	E	No
11	I-580 EB: Golf Links Road Off-Ramp to On-Ramp	Basic	AM	0.58	19.9	B	0.58	20.1	C	No
			PM	0.75	27.2	D	0.75	27.4	D	No
12	I-580 EB: Golf Links Road On-Ramp	Basic	AM	0.54	18.5	B	0.55	18.8	C	No
			PM	0.66	23.1	B	0.67	23.4	C	No
13	SR 13 SB: Calaveras Avenue to Seminary Avenue	Basic	AM	0.68	24.2	B	0.69	24.4	C	No
			PM	**>1.00**	**-**	**F[c]**	**>1.00**	**-**	**F[c]**	No[e]
14	I-580 WB: Golf Links Road Off-Ramp	Diverge	AM	0.93	37.9	E	0.94	38.1	E	No
			PM	0.88	36.1	E	0.90	36.6	E	No
15	I-580 WB: Golf Links Road Off-Ramp to On-Ramp	Basic	AM	0.78	28.6	D	0.78	28.8	D	No
			PM	0.73	26.4	D	0.74	26.9	D	No
16	I-580 WB: Golf Links Road On-Ramp	Merge	AM	0.81	31.8	D	0.82	31.9	D	No
			PM	0.81	31.7	D	0.82	32.1	D	No
17	I-580 WB: Golf Links Road to Keller Avenue	Basic	AM	0.85	33.3	D	0.86	33.5	D	No
			PM	0.83	31.6	D	0.84	32.3	D	No
18	I-580 WB: Keller Avenue Off-Ramp	Diverge	AM	0.83	34.0	D	0.84	34.3	D	No
			PM	0.85	34.5	D	0.87	35.3	E	No
19	I-580 WB: Keller Avenue Off-Ramp to On-Ramp	Basic	AM	0.84	32.2	D	0.84	32.3	D	No
			PM	0.78	28.9	D	0.78	29.0	D	No
20	I-580 WB: Keller Avenue On-Ramp	Merge	AM	0.84	32.9	D	0.88	34.3	D	No
			PM	0.73	29.1	D	0.76	30.0	D	No

TABLE 4.13-18 (Continued)
2040 PLUS PROJECT CONDITIONS FREEWAY LOS SUMMARY

No.	Mainline Location	Segment Type	Peak Hour	2040 No Project			2040 Plus Project			Significant
				V/C[a]	Density[b]	LOS	V/C[a]	Density[b]	LOS	Impact?[d]
21	I-580 WB: Keller Avenue to Edwards Avenue	Basic	AM	0.91	36.8	E	0.93	38.4	E	No
			PM	0.82	31.1	D	0.83	31.9	D	No
22	I-580 WB: Edwards Avenue On-Ramp	Merge	AM	**1.00**	**-**	**F**	**1.02**	**-**	**F**	No[e]
			PM	0.84	32.6	D	0.85	33.1	D	No
23	I-580 WB: Seminary Avenue Off-Ramp	Diverge	AM	**1.00**	**-**	**F**	**1.05**	**-**	**F**	**Yes (G)**
			PM	0.90	36.6	E	0.92	37.2	E	No
24	I-580 WB: SR 13 NB Off-Ramp	Diverge	AM	**>1.00**	**-**	**F[c]**	**>1.00**	**-**	**F**	**Yes (G)**
			PM	0.89	35.6	E	0.90	36.1	E	No
25	I-580 WB: SR 13 NB to Frontage Road	Basic	AM	**>1.00**	**-**	**F[c]**	**>1.00**	**-**	**F[c]**	No[e]
			PM	0.59	20.6	B	0.60	20.9	C	No
26	SR 13 NB: I-580 WB to Calaveras Avenue	Basic	AM	0.49	16.9	B	0.51	17.3	B	No
			PM	0.50	17.3	B	0.51	17.6	B	No

NOTES: **bold** text indicates LOS F operations.

a V/C ratios greater than 1.00 reported as ">1.00" for segments that operate under congested conditions based on existing field observations.
b Density measures in passenger cars per mile per lane. Density not reported for segments that operate at V/C ratios greater than 1.0.
c Freeway segment operates under congested conditions based on existing field observations.
d Letter in parenthesis refers to the significant criteria triggering the impact, as listed above.
e The project would not cause an impact at this freeway segment or ramp junction because the project would not increase the V/C ratio by 0.03 or more, although segment would operate at LOS F.

SOURCE: Fehr & Peers, 2016.

- I-580 Eastbound between Seminary Avenue and SR 13 (segment #1) during the PM peak hour.
- I-580 Eastbound/SR 13 Southbound On-Ramp Junction (segment #2) during the PM peak hour.
- I-580 Eastbound/Seminary Avenue On-Ramp Junction (segment #3) during the PM peak hour.
- I-580 Eastbound/Edwards Avenue Off-Ramp Junction (segment #4) during the PM peak hour.
- I-580 Eastbound between Edwards Avenue and Keller Avenue (segment #5) during the PM peak hour.
- I-580 Eastbound/Keller Avenue Off-Ramp Junction (segment #6) during the PM peak hour.
- SR 13 Southbound between Calaveras Avenue Off-Ramp and I-580 (segment #13) during the PM peak hour.
- I-580 Westbound/SR 13 Northbound off-Ramp Junction (segment #24) during the AM peak hour.
- I-580 Westbound between SR 13 Northbound and Frontage Road (segment #25) during the AM peak hour.

The following freeway study segments would operate at LOS F assuming 2040 No Project and 2040 Plus Project conditions:

- I-580 Westbound/Edwards Avenue On-Ramp Junction (segment #22) during the AM peak hour.
- I-580 Westbound/Seminary Avenue Off-Ramp Junction (segment #23) during the AM peak hour.

Appendix V-G presents the detailed 2040 Plus Project LOS calculation worksheets.

Impact TRANS-16: Traffic generated by the Oak Knoll Project would increase the volume-to-capacity ratio by 0.03 or more along the following freeway segments which would operate at LOS F (Criterion g) under 2040 Plus Project conditions (*Significant prior to Mitigation*):

- **I-580 Eastbound/SR 13 Southbound On-Ramp Junction (segment #2)**
- **I-580 Eastbound between Edwards Avenue and Keller Avenue (segment #5)**
- **I-580 Eastbound/Keller Avenue Off-Ramp Junction (segment #6)**
- **I-580 Westbound/Seminary Avenue Off-Ramp Junction (segment #23)**
- **I-580 Westbound/Seminary Avenue Off-Ramp Junction (segment #24)**

Mitigation Measure TRANS-16: No feasible mitigation measures are available that would mitigate the project impacts on the freeway segments.

No feasible mitigation measures are available that would mitigate the project impacts at the adversely affected freeway segments. Operations at these freeway segments can be improved by providing additional automobile travel lanes. However, additional travel lanes cannot be

accommodated within the existing automobile right-of-way and would require additional right-of-way. In addition, all freeway segments are under the jurisdiction of Caltrans. City of Oakland, as lead agency, does not have jurisdiction on freeway segment. Thus, all mitigations would need to be approved and implemented by Caltrans. Therefore, the impact is considered significant and unavoidable because no feasible mitigation measures are available and the City cannot ensure implementation of any potential mitigation measure.

A transportation demand management (TDM) program will be implemented as part of the project in accordance with the City of Oaklands Standard Conditions of Approval. Although not accounted for in the project trip generation, TDM strategies can potentially reduce automobile trips generated by the project and reduce the magnitude of significant impacts at intersections and freeway segments. TDM strategies may include, but are not limited to private bus shuttles, casual carpooling, carsharing, pre-tax commuter benefits, etc. Implementing the required TDM strategies would reduce daily trips generated by the project; however significant impacts to freeway segments would remain significant and unavoidable.

Impact Conclusion: Significant and Unavoidable.

Comparison to 1998 EIS/EIR: New Significant Impact; Topic Not Previously Analyzed. No feasible Mitigation Measures identified.

Required Congestion Management Program (CMP) Evaluation

The CMP evaluation is based on application of Significance Thresholds G and H. The Alameda County Congestion Management Program (CMP) requires the assessment of development-driven impacts to regional roadways. Because the proposed development would generate more than 100 "net new" PM peak-hour trips, ACTC requires the use of the Countywide Travel Demand Forecasting Model to assess the impacts on regional roadways in the project vicinity. The CMP and Metropolitan Transportation System (MTS) roadways in the project vicinity identified in the NOP comments by ACTC (April 21, 2015 letter) include:

I-580, MacArthur Boulevard, Skyline Boulevard, Golf Links Road, and Redwood Road.[17]

The ACTC Model used in this study is a regional travel demand model that uses socio-economic data and roadway and transit network assumptions to forecast traffic volumes and transit ridership using a four-step modeling process that includes trip generation, trip distribution, mode split, and trip assignment. This process accounts for changes in travel patterns due to future growth and balances trip productions and attractions. This version of the Countywide Model is based on Association of Bay Area Governments (ABAG) *Projections 2013* land uses for 2020 and 2040.

[17] The roadway segments included in this evaluation are not based on an assessment of the project trip distribution or application of screening criteria to determine if the project would contribute enough new trips to warrant analysis.

For the purposes of this CMP and MTS analysis, the Oak Knoll project is assumed to not be included in the ACTC Model in order to present a more conservative analysis. The "constrained" traffic forecasts for the 2020 and 2040 scenarios were extracted from the ACTC Model for the CMP and MTS roadway segments from that model and used as the "No Project" forecasts. Vehicle trips generated by the proposed project were added to the "No Project" forecasts to estimate the "Plus Project" forecasts.[18]

The CMP and MTS segments were assessed using a v/c ratio methodology (TRB, 1985). For freeway segments, a per-lane capacity of 2,000 vehicles per hour (vph) was used, consistent with the latest CMP documents. For surface streets, a per-lane capacity of 800 vph was used. Roadway segments with a v/c ratio greater than 1.00 signify LOS F.

The "Plus Project" results were compared to the baseline results for the 2020 and 2040 horizon years. **Appendix V-H** provides the 2020 and 2040 peak-hour volumes, v/c ratios and the corresponding LOS for No Project and Plus Project conditions.

The proposed Oak Knoll development would contribute to 2020 and 2040 increases in traffic congestion on MTS roadways. However, the proposed project would not cause a roadway segment on the MTS to degrade from LOS E or better to LOS F. The proposed project also would not increase the v/c ratio by more than 0.03 for roadway segments that would operate at LOS F without the project.

This is a less-than-significant impact, and as a result no mitigation measures are required.

Transit Travel Time

The discussion of transit travel time is based on application of Significance Threshold I. In general, the City of Oakland has no basis to establish a numerical threshold for "substantially increased travel times" due to several factors:

- First, bus service, in general, is extremely transitory, and can change quite frequently, as is the case with AC Transit's bus network. Existing routes may be eliminated, or new routes may be put in service by the time the Oak Knoll development is built out. Similar to parking, transit service is not part of the physical environment, and can change over time in response to external factors.

[18] Due to differences in the land use assumptions and differences in analysis methodologies, the forecasted traffic volumes on the roadway links can be different from the intersection volumes, particularly at the local level. The first area of difference is the land use data sets employed for the intersection forecasts and the MTS forecasts. The intersection forecasts, which are used to assess project traffic impacts on City of Oakland intersections, are based on land use data adjusted to reflect all past, present, existing, approved, pending and reasonably foreseeable projects in the City of Oakland, which differs from the data in the ACTC Model. The second area of difference is the use of the Furness process. The intersection forecasts use the output of the ACTC Model as an input to develop intersection volumes in conjunction with existing traffic counts. The CMP and MTS roadway analysis is based on the outputs of the ACTC Model directly on a roadway segment level. It is not unusual to have discrepancies given that the two analyses measure impacts at a different scale. For local streets, intersections are typically a more accurate measure of operating conditions because the capacity of an urban street, defined as the number of vehicles that can pass through its intersections, is controlled by the capacity at its intersections.

- Second, any numerical threshold to determine the significance of increased travel times needs to consider additional characteristics of the bus service, including its headway (the amount of time between scheduled trips) and total travel time. Considering the transitory nature of bus service, establishing such thresholds is not reasonable, as service can be rerouted, eliminated, or created at any time. Consideration would also have to be given to different types of transit service (e.g., trunk service, Transbay service, local service, and community service), as they generally operate with different characteristics.
- Third, unlike the situation for intersections or roadway facilities, there are no well-established methodologies for characterizing the operations of transit service in relation to travel times. For intersections, clear distinctions are made between intersections that operate at acceptable conditions (e.g., LOS D or better) and those that operate at unacceptable conditions (e.g., LOS E or LOS F), and separate impact thresholds are provided. For bus service, however, there is no well-established LOS equivalent for characterizing transit service in relation to travel times.

The three factors described above would make establishing numerical thresholds for AC Transit travel times difficult and impractical, as the City would have little background or experience on which to base such thresholds. Rather than a quantitative threshold, the City uses a qualitative threshold of whether an increase in travel time would be noticeable to most bus riders. This section provides an analysis of how the proposed Oak Knoll development would affect transit travel times for local bus routes using this qualitative criterion.

Table 4.13-19 presents the transit travel times under Existing Plus Project conditions for the three primary routes (46, 46L and NX4) that operate along Mountain Boulevard with bus stops in the vicinity of the project site.[19] As shown in **Table 4.13-19**, the project, through its contribution of additional car trips on the streets used by buses, is expected to increase transit travel times along the routes by less than one minute, only eastbound Routes 46 and 46L during the AM peak hour would experience an increase in travel time of over one minute. However, implementation of the mitigation measures described in Section 4.13.7.3 would improve the transit travel times; travel times on most of the routes serving the project site are expected to increase by 30 seconds or less under this scenario compared to the Existing Conditions. The resulting increases would not be noticeable to most bus riders and would have a minor effect on transit service within the area as the estimated increase is within the variability in travel time experienced by each bus on these corridors. Based on this qualitative criterion, the project would not cause a significant impact to transit travel times.

[19] This EIR does not evaluate bus travel times under 2040 conditions because bus travel times are affected by a variety of factors that can change in the long-term, such as route changes or bus frequencies, which cannot be known at this time. Thus, the results would not be very accurate or meaningful.

TABLE 4.13-19
EXISTING CONDITIONS TRANSIT TRAVEL TIME SUMMARY

Bus Route/Direction	Peak Hour	Existing		Existing Plus Project		Existing Plus Project Mitigated[b]	
		Travel Time[a] (min:sec)	Average Speed (mph)	Travel Time[a] (min:sec)	Average Speed (mph)	Travel Time[a] (min:sec)	Average Speed (mph)
Route 46 EB (from Bancroft Ave/82nd Ave to Mountain Blvd/ Golf Links Rd)	AM	6:40	25	8:20	20	7:10	23
	PM	6:20	26	7:00	23	6:50	23
Route 46 WB (from Mountain Blvd/ Golf Links Rd to Bancroft Ave/ 82nd Ave)	AM	9:30	22	9:40	22	9:30	22
	PM	8:40	24	9:10	23	9:10	23
Route 46L EB (from Bancroft Ave/ 82nd Ave to Mountain Blvd/ Golf Links Rd)	AM	6:40	25	8:20	20	7:10	23
	PM	6:20	26	7:00	23	6:50	23
Route 46L WB (from Mountain Blvd/ Golf Links Rd to Bancroft Ave/ 82nd Ave)	AM	6:50	24	6:50	24	7:00	23
	PM	6:40	25	6:40	25	6:40	25
Route NX4 NB (from I-580 WB Ramps/ Golf Links Rd to I-580 WB On-Ramp/Edwards Ave)	AM	6:20	21	6:50	19	6:30	20
	PM	6:00	22	6:50	19	6:10	21
Route NX4 SB (from I-580 EB Off-Ramp/Edwards Ave to I-580 WB On-Ramp/ Fontaine St)	AM	2:20	19	2:30	18	2:30	17
	PM	2:30	18	3:00	15	2:40	16

NOTES:

[a] Corridor travel times calculated assuming a free-flow speed of 30 mph with the addition of the intersection delay **obtained from the Existing Conditions intersection analysis results presented in Section 4.13.7.3**.

[b] Analysis assumes proposed mitigation measures described in Section 4.13.7.3.

SOURCE: Fehr & Peers, 2016.

Vehicle, Pedestrian, and Bicycle Safety

The discussion of vehicle, pedestrian, and bicycle safety is based on application of Significance Thresholds J through N. The proposed project would result in increased vehicular traffic and pedestrian and bicycle activity in and around the project site. The proposed project would also modify existing intersections on Mountain Boulevard and Keller Avenue, in addition to adding two new intersections along Mountain Boulevard and one new intersection along Keller Avenue. This section discusses access and circulation for different travel modes as proposed for the project and described in the Complete Streets Guide (**Appendix J** to this Draft SEIR) prepared by the project applicant.

Transportation Hazards

The discussion of transportation hazards is based on application of Significance Threshold J. The proposed project would include developments and changes in the public right-of-way that could

affect transportation safety. The final detailed design for the project would be reviewed during the City's Design Review Process to ensure consistency with applicable design standards, such as adequate sight distance for pedestrians and vehicles at project driveways. The final design for the project would minimize potential conflicts between various modes and provide safe and efficient pedestrian, bicycle, and vehicle circulation within the project site and between the project and the surrounding circulation systems. Based on the project's site plan, the project is not expected to result in significant impact related to transportation hazards as discussed below.

The project would improve the existing project site access intersections at Mountain Boulevard and Keller Avenue. The Mountain Boulevard/Creekside Parkway intersection would be signalized and continue to provide full access. The intersection would maintain the 200 foot left-turn lane on southbound Mountain Boulevard, which is expected to provide adequate queue storage during the AM and PM peak hours. The Keller Avenue/Creekside Parkway intersection would continue to provide full access. The project proposes to convert the existing intersection from a side-street stop controlled intersection to an all-way stop controlled intersection due to limited sight distance for vehicles exiting northbound Creekside Parkway and turning left onto westbound Keller Avenue.

The project also proposes two additional access points along Mountain Boulevard, at Creekside Loop about 700 feet south of the Creekside Parkway intersection, and at Main Street about 500 feet north of the Creekside Parkway intersection. Both intersections would provide side-street stop controls at the approach to Mountain Boulevard and limit access to right-in/right-out only, which minimizes the number of turning movement conflicts. The project would also provide a side-street stop controlled intersection at Keller Avenue/Uplands Primary intersection with right-in/right-out access only.

All streets within the project site are designed as two-lane facilities (one lane per direction) with 10 to 11 foot travel lanes, with most streets providing parking one or both sides of the street. All internal project streets are designed for and posted for 25 mph speed limit. All intersections within the site (excluding proposed intersections along Mountain Boulevard and Keller Avenue) would be unsignalized, providing either side-street stop or all-way stop controls.

The proposed Oak Knoll project would not directly or indirectly cause or expose roadway users (e.g., motorists, pedestrians, bus riders, bicyclists) to a permanent and substantial transportation hazard due to a new or existing physical design feature or incompatible use. Compliance with the City's street design standards is considered sufficient to ensure lack of a permanent and substantial transportation hazard from new or existing physical design features. In addition, the proposed uses at the project site (residential and commercial) would be similar to and compatible with the adjacent uses. This is a less than significant impact, and no mitigation measures are required.

Pedestrian Safety

The discussion of pedestrian safety is based on application of Significance Threshold K. The project proposes several changes to the pedestrian infrastructure within and around the site. Based

on the project's site plan and Complete Streets Guide (Appendix F), the project is not expected to result in significant impacts related to pedestrian safety as discussed below.

Minimum six foot sidewalks are proposed along both sides of the majority of the streets within the project site, only the Gardencourt and Creekside Village alleyways would not provide sidewalks. Excluding the alleyways, the project would provide a connected sidewalk network throughout the site. In addition, a 14-foot Class 1 multi-use trail is proposed along Rifle Range Creek. Other off-street pedestrian paths and recreational hiking trails are also proposed throughout the site. Off-street pedestrian sidewalks and paths increase pedestrian safety.

Landscaped buffers ranging between five and six feet wide are proposed between the sidewalk and on-street parking along all sidewalks within the site. Landscaped buffers improve pedestrian comfort and safety, and enhance streetscape aesthetics. Curb extensions would also be provided along all streets that provide on-street parking in an effort to minimize crossing distances and enhance sight distance at pedestrian crossings for safer crossings. Curb extensions, combined with narrow travel lane widths (10-11 feet) encourage lower automobile speeds throughout the site, which also helps keep pedestrians safe.

The project also proposes enhancements to existing pedestrian connections at Mountain Boulevard and Keller Avenue. The project would provide minimum six foot sidewalk along the project site frontage on Mountain Boulevard; a sidewalk along this segment of northbound Mountain Boulevard does not currently exist in the vicinity of the project site. The project would retain existing sidewalks along the project frontage on Keller Avenue and would provide pedestrian connections to Keller Avenue from Creekside Parkway and Uplands Primary. The proposed Class I trail would also provide pedestrian connections to Keller Avenue and Mountain Boulevard. Overall, the project would provide a low-stress and safe pedestrian network throughout the site. The proposed Oak Knoll project would not directly or indirectly result in a permanent substantial decrease in pedestrian safety. This is a less than significant impact, and no mitigation measures are required.

While not required to address a CEQA impact, the following recommendation would improve pedestrian safety within and around the project site.

Recommendation TRANS-1: Provide high-visibility crosswalks across Mountain Boulevard at Creekside Parkway, across Mountain Boulevard at Sequoyah Road, across Keller Avenue at Creekside Parkway, and at the unsignalized and uncontrolled movements at intersections within the site, consistent with City of Oakland's guidelines in place at the time of final design.

High-visibility crosswalks[20] increase the visibility of pedestrian crossings and discourage drivers from encroaching onto crosswalks. Existing crossings across Mountain Boulevard and Keller Avenue would be improved by implementing high-visibility crosswalks at both intersections with Creekside Parkway, and at the Mountain Boulevard/Sequoyah Road intersection.

[20] High-visiblity crosswalks are marked crosswalks that consist of a variety of pavement marking patterns with or without flashing beacons.

Bicyclist Safety

The discussion of bicyclist safety is based on application of Significance Threshold L. The project proposes several changes to the bicycle infrastructure within and around the site. Based on the project's site plan and Complete Streets Guide (Appendix F), the project is not expected to result in significant impacts related to bicyclist safety as discussed below.

The project proposes a Class 1 multi-use trail along Rifle Range Creek. The Class 1 trail would provide a low-stress off-street facility for bicyclists to travel across the project site between Mountain Boulevard and Keller Avenue. The Class 1 facility would connect to proposed Class 2 bicycle lanes along Mountain Boulevard. The project would provide the Class 2 bicycle lanes along the Mountain Boulevard frontage, consistent with the City of Oakland's plan to implement Class 2 bicycle lanes along the Mountain Boulevard corridor as part of an effort to connect it to the MacArthur Boulevard bikeway at Mills College and the Bancroft Avenue bikeway at 106th Avenue. Currently, there are no Class 2 bicycle lanes along Mountain Boulevard; therefore the project would improve off-site bicyclist safety along Mountain Boulevard in the vicinity of the site.

The project proposes Class 3 bicycle routes along Creekside Loop and Main Street. The bicycle routes would provide mixed-flow (vehicles and bicycles) operations along both roadways with the addition of signage and striping that would be implemented along the bicycle routes to inform drivers to share the road with bicyclists. All streets within the project site would provide mixed-flow operations with one lane per direction and posted speed limit of 25 mph. As previously described, the internal project streets are designed for low speeds. According to the Level of Traffic Stress methodology (Mineta Transportation Institute, 2012), a two-lane street with a 25 mph posted speed limit would provide a low-stress facility that most adult and children bicyclist can tolerate and feel safe while bicycling.

The proposed Oak Knoll project would not directly or indirectly result in a permanent substantial decrease in bicyclist safety on or off the project site. The addition of bicycle lanes increases rather than decreases bicyclist safety. This is a less than significant impact, and no mitigation measures are required.

Bus Rider Safety

The discussion of bus rider safety is based on application of Significance Threshold M. Bus riders would use pedestrian facilities to travel between the bus stops and the project site.

The nearest bus stops to the project site are on Mountain Boulevard at the intersections with the existing site access driveway and Sequoya Road, and on Keller Avenue at the site access intersection. Existing transit routes that operate in the vicinity of the project site are listed in **Table 4.13-2**. All bus stops near the site are located at the far-side of the intersection and provide a sign with the transit route number; only the bus stops near the existing Mountain Boulevard/site access intersection provide benches. Furthermore, sidewalks are not provided along northbound Mountain Boulevard which results in inadequate pedestrian access under Existing Conditions; the southbound Mountain Boulevard bus stop at Sequoya also lacks sidewalk access.

The project would relocate the existing Mountain Boulevard bus stops at the existing site access intersection to the far-side of the proposed Creekside Parkway intersection. The project would also improve the pedestrian connections between the project site and existing bus stops adjacent to the site. A connected sidewalk network is proposed for the site. New sidewalks along the northbound Mountain Boulevard site frontage would be implemented, enhancing pedestrian access to the existing bus stops. Overall, the project is expected to improve pedestrian access to existing bus stops near the project site and is therefore not expected to result in significant impacts to bus rider safety. In addition, as discussed above, the project would not create traffic hazards that would decrease bus rider safety.

The project applicant will coordinate with City of Oakland and AC Transit to investigate the potential for re-routing existing AC Transit service through the project site along Creekside Parkway between Mountain Boulevard and Keller Avenue, as well as the potential for providing peak period weekday shuttle service between the project site and the Coliseum BART station. These route changes would not affect bus rider safety. If the routes are changed, bus riders from the project site would have shorter walks to bus stops that would be equally safe. The proposed Oak Knoll project would not directly or indirectly result in a permanent substantial decrease in bus rider safety. This is a less than significant impact, and no mitigation measures are required.

While not required to address a CEQA impact, the following recommendation would improve access and comfort for bus riders.

Recommendation TRANS-2: Improve the following existing bus stops in the vicinity of the project site to provide bus shelter, bench, wayfinding information, pedestrian scale lighting and minimum 80 foot red curb.

- Mountain Boulevard/Creekside Parkway
- Mountain Boulevard/Sequoya Road
- Keller Avenue/Creekside Parkway

Note that the project would relocate the existing Mountain Boulevard bus stops at the existing site access intersection to the far-side of the proposed Creekside Parkway intersection.

Implementation of Recommendation TRANS-1, which would provide high-visibility crosswalks across Mountain Boulevard at Creekside Parkway, across Mountain Boulevard at Sequoyah Road and across Keller Avenue at Creekside Parkway, would also improve pedestrian access to existing bus stops at those intersections.

Recommendation TRANS-3: Provide sidewalk along southbound Mountain Boulevard to close the existing gap between the Oak Knoll Heights exit driveway and the existing bus stop at Sequoyah Road.

Currently, there are no sidewalks along southbound Mountain Boulevard between the Oak Knoll Heights development and Sequoyah Road, which limits pedestrian access to the existing bus stop on southbound Mountain Boulevard at Sequoyah Road. The project would provide a new

sidewalk along the northbound Mountain Boulevard site frontage, improving the pedestrian connections to bus stops on Mountain Boulevard at Sequoyah Road. Implementing Recommendation TRANS-3 would further improve bus rider comfort and safety between the project site and the southbound Mountain Boulevard bus stop at Sequoyah Road.

The proposed Oak Knoll project would not directly or indirectly result in a permanent substantial decrease in bus rider safety.

At-Grade Railroad Crossings

The discussion of at-grade railroad crossing safety is based on application of Significance Threshold N. The Oak Knoll Project is not located near any at-grade railroad crossings. Therefore, it would not generate substantial traffic of any travel mode travelling across at-grade railroad crossings. This is a less than significant impact, and no mitigation measures are required.

Other Thresholds

Consistency with Adopted Policies, Plans or Programs Supporting Alternative Transportation

The discussion of consistency with adopted policies, plans or programs supporting is based on application of Significance Threshold O. A discussion of applicable policies and plans is provided below. The proposed Oak Knoll project, and the associated mitigation measures presented in this EIR, are consistent with these policies, plans and programs, and would not cause a significant impact by conflicting with adopted policies, plans, or programs supporting public transit, bicycle, or pedestrian transportation.

The City of Oakland General Plan LUTE, as well as the City's Public Transit and Alternative Mode and Complete Streets Policies, state a strong preference for encouraging the use of non-automobile transportation modes, such as transit, bicycling, and walking. The proposed project would encourage the use of non-automobile transportation modes because it would provide a walkable environment with improved connections to bicycle infrastructure and transit service. Specifically, the project proposes implementation of a Complete Streets Plan, which would encourage non-automobile trips internal to the site.

As required by City of Oakland's SCA TRA-4, the project would implement a TDM program to directly encourage project residents and employees to shift from driving alone to other modes of travel. The City's TDM goal (as defined under SCA TRA-4) is a 20 percent reduction in drive alone trips. The TDM program would consist of strategies and infrastructure improvements that incentivize travel by non-automobile modes, such as subsidized transit fares and preferential carpool parking.

As previously described, the project would alter the public right-of-way in the project vicinity. However, these modifications would generally enhance pedestrian and bicycle access and safety. Overall, the proposed project is consistent with both the City's Pedestrian Master Plan and Bicycle Master Plan because modifications proposed to existing pedestrian or bicycle facilities in

the surrounding areas would not adversely affect current pedestrian and bicycle access and circulation and would not adversely affect installation of future facilities. Instead, the project would improve access, circulation, safety, and comfort for pedestrians, bicyclists, and bus riders, further encouraging the use of these modes in the project vicinity. The project is also anticipated to include short-term and long-term bicycle parking that encourage bicycle activity, pursuant to SCA TRA-2 (addressed in more detail in Section 4.13.8 below).

The proposed project would not conflict with adopted City policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities. This is a less than significant impact, and no mitigation measures are required.

Construction-Period Impacts

The following peak construction activity assumptions are proposed by the project as of the writing of this section:

- About 400 truck loads to haul soils out of the project site. This would occur over an approximate 10-day period with about six truck hauls per hour between 9:00 AM and 4:00 PM.
- About 3,400 truck loads to haul non-hazardous asphalts, concrete and pipeline wastes out of the project site. This would occur over an approximate 120-day period with about six truck hauls per hour between 9:00 AM and 4:00 PM.

The discussion of construction-period impacts is based on application of Significance Threshold P. During the construction of each phase of the Oak Knoll development, temporary and intermittent transportation impacts may result from truck movements as well as construction worker vehicles to and from the construction site. The construction-related traffic may temporary reduce capacities of roadways in the vicinity because of the slower movements and larger turning radii of construction trucks compared to passenger vehicles.

Truck traffic that occurs during the peak commute hours (weekdays, 7:00 to 9:00 AM and 4:00 to 6:00 PM) may result in worse LOS and higher delays at study intersections during the construction period. However, the majority of construction truck activity is expected to occur between 9:00 AM and 4:00 PM and not during the peak commute hours.

It is expected that construction worker parking and construction staging would be accommodated within the Oak Knoll site. Thus, construction worker parking and staging are not expected to spill over into the adjacent neighborhoods.

The City of Oakland SCA TRA-1, Construction Traffic and Parking, as described on page 4.13-37, requires that a Construction Traffic Management Plan be developed as part of a larger Construction Management Plan to address potentially significant impacts during a project's construction. To further implement SCA TRA-1, the Construction Traffic Management Plan developed for a project shall include the following:

- A set of comprehensive traffic control measures for auto, transit, bicycle and pedestrian detours, including detour signs if required
- Lane closure procedures
- Signs and cones for drivers
- Designated construction access routes, with special consideration given to truck access due to I-580 prohibition on trucks

In addition to preparing a Construction Traffic Management Plan, the project applicant shall repair damage to the public right-of-way, including streets and sidewalks caused by project construction prior to approval of the final inspection of the construction-related permit; all damage that is a threat to public safety shall be repaired immediately.

Thus, with the implementation of SCA TRA-1 as part of each phase of the project construction, the proposed project would result in less-than-significant impact. There may be short-term temporary, adverse effects on the circulation system during construction of each project phase but these would not rise to the level of a significant impact due to their temporary nature.

Changes in Air Traffic Patterns

The discussion of changes in air traffic patterns is based on application of Significance Threshold Q. The Oakland International Airport is located about four miles west of the proposed project. The height of the building proposed by the project would not interfere with current flight patterns of Oakland International Airport or other nearby airports. Therefore, the proposed development would result in a less-than-significant impact on air traffic patterns.

4.13.8 Planning-Related Non-CEQA Issues Discussion

This section discusses transportation-related topics that are not considerations under CEQA but are evaluated to inform decision makers and the public about these issues. For each topic, the section begins with a summary of the City's guidelines for evaluation followed by analysis.

The items discussed in this section include:

- Parking Considerations for Bicycles and Automobiles
- Transit Ridership
- Intersection Queuing Analysis
- Traffic Control
- Vehicles Miles Travelled

Parking-Related Impacts

This section summarizes vehicle and bicycle parking requirements per City of Oakland municipal code and estimates parking demand for the project.

Parking Supply

The proposed parking supply for the project is summarized in **Table 4.16-20**. The project proposes a minimum of two off-street parking spaces per residential unit and a total of 142 off-street spaces for townhome guests. A total of 288 off-street parking spaces are proposed for the Village Commercial lot and 78 spaces are proposed for the Community Center lot. On-street parking will also be allowed throughout the site, streets would provide parking for about 470 automobiles.

TABLE 4.13-20
PARKING SUPPLY

Land Use	Parking Supply
Residential Off-Street Parking Supply	
Single-Family Home Small Lot Type[a]	3.25 spaces/unit (205 total spaces)
Single-Family Home Courtyard Type[b]	4 spaces/unit (472 total spaces)
Single-Family Home Medium and Large Lot Type[b]	4 spaces/unit (752 total spaces)
Townhomes[c]	2 spaces/unit (1,132 total spaces)
Townhome Guest Parking	142 spaces
Total	**2,703 spaces**
Non-Residential Off-Street Parking Supply	
Village Commercial Parking Lot	288 spaces
Community Center Parking Lot	78 spaces
Total	**366 spaces**
On-Street Parking Supply	
Total On-Street Parking Supply[d]	470 spaces

NOTES:
a Supply estimate assumes 1.75 garage spaces and 1.5 driveway spaces per unit for 63 proposed units.
b Supply estimate assumes 2 garage spaces and 2 driveway spaces per unit for 118 proposed courtyard type units and 188 proposed medium/large lot units.
c Supply estimate assumes 2 garage spaces per unit for 566 proposed units.
d On-street parking supply estimate provided by Hart|Howerton.

SOURCE: Hart | Howerton, February 2016.

City Code Vehicle Parking Requirement

City of Oakland Municipal code requirements for the Residential Hillside (RH) zoning district apply to the project site. RH zoning (Section 17.116.060) requires two automobile parking spaces per dwelling unit. As shown in **Table 4.13-20**, the project proposes to provide two or more spaces per unit for all residential units, meeting or exceeding City code requirements.

Table 4.13-21 summarizes the code-required and proposed parking supply for the non-residential components of the project. The RH zoning (Section 17.116.080) requires one automobile parking space per 400 square feet of commercial space for general retail sales. The project proposes two non-residential lots, one for the Village Commercial area and one for the Community Center and commercial area. The Village Commercial would require 180 off-street parking spaces, and

would provide 288 spaces, exceeding City requirements by 108 spaces. The City code does not specify specific requirements for Community Centers. Therefore, the commercial requirement under City code was applied to the total Community Center and commercial area serving the Community Center parking lot. The Community Center parking lot would require 35 off-street parking spaces, and would provide 78 spaces, exceeding City requirements by 43 spaces.

TABLE 4.13-21
REQUIRED AND PROPOSED NON-RESIDENTIAL PARKING

Land Use	Ratio[a]	Units[b]	Parking Spaces
Village Commercial Parking Lot			
Village Commercial	1:400	72 KSF	180 spaces (minimum required)
		Proposed Parking Supply	288 spaces
		Parking Surplus	108 spaces
Community Center Parking Lot			
Community Center/ Commercial	1:400	14 KSF	35 spaces (minimum required)
		Proposed Parking Supply	78 spaces
		Parking Surplus	43 spaces

NOTES:
a Source: City of Oakland Municipal Code Sections 17.116.080 - Off-Street Parking Requirements for Commercial = 1 space per 400 square feet.
b KSF = 1,000 square feet.

SOURCE: Fehr & Peers, 2016.

Parking Demand Analysis

Parking demand for the residential and commercial component of the project was estimated using ITE *Parking Generation, 4th Edition*. According to ITE, the average parking demand is 1.83 automobiles per single-family dwelling unit and 1.38 automobiles per townhome. The project proposes a minimum of two off-street parking spaces per dwelling unit; therefore proposed off-street parking supply is expected to accommodate the residential parking demand.

Table 4.13-22 presents peak non-residential parking demand on a typical weekday and Saturday (note that parking demand would be higher on Saturdays than Sundays). The peak parking demand under typical conditions for the Village Commercial is estimated to be about 184 spaces on weekdays and207 spaces on Saturdays, which would result in a parking surplus of about 104 spaces and 81 spaces, respectively.

The peak parking demand under typical conditions for the Community Center lot is estimated to be about 39 spaces on weekdays and 42 spaces on Saturdays, which would result in a parking surplus of about 39 and 36 spaces, respectively.

The proposed project would provide adequate parking to satisfy City Code requirements and estimated weekday and weekend parking demand for the commercial off-street lots. In addition, the project would also satisfy City Code requirements for residential parking.

TABLE 4.13-22
NON-RESIDENTIAL PARKING DEMAND

Land Use	Size[a]	Peak Weekday Demand	Peak Saturday Demand
Village Commercial Parking Lot			
Commercial[b]	72 KSF	184 spaces	207 spaces
	Total Parking Demand	**184 spaces**	**207 spaces**
	Parking Supply	**288 spaces**	**288 spaces**
	Parking Surplus	**104 spaces**	**81 spaces**
Community Center Parking Lot			
Community Center[c]	4 KSF	13 spaces	13 spaces
Commercial[b]	10 KSF	26 spaces	29 spaces
	Total Parking Demand	**39 spaces**	**42 spaces**
	Parking Supply	**78 spaces**	**78 spaces**
	Parking Surplus	**39 spaces**	**36 spaces**

NOTES:
a KSF = 1,000 square feet.
b ITE Parking Generation (4th Edition) land use category 820 (Shopping Center)
Weekdays: Average parking demand rate is 2.55 spaces per KSF (non-Friday non-December)
Saturday: Average parking demand rate is 2.87 spaces per KSF (non-December)
c ITE Parking Generation (4th Edition) land use category 495 (Recreational Community Center)
Average parking demand rate is 3.20 spaces per KSF for weekdays and weekends.

SOURCE: Fehr & Peers, 2016.

City Code Bicycle Parking Requirement

Chapter 17.117 of the Oakland Municipal Code requires long-term and short-term bicycle parking for new buildings. Long-term bicycle parking includes lockers or locked enclosures and short-term bicycle parking includes bicycle racks. Bicycle parking requirements do not apply to single-family homes and townhomes in suburban areas since it is expected that the dwelling units would provide adequate bicycle parking within each unit.

Table 4.13-23 presents the bicycle parking requirement for the non-residential components of the project. The City requires eight long-term bicycle parking spaces and 36 short-term spaces within the Village Commercial development, compared to two long-term and seven short-term spaces within the Community Center commercial site. The project proposes to meet the City's long-term and short-term bicycle parking Code requirements.

Transit Ridership

Transit load is not part of the permanent physical environment; transit service changes over time as people change their travel patterns. Therefore, the effect of the proposed project on transit ridership need not be considered a significant environmental impact under CEQA unless it would cause significant secondary effects, such as causing the construction of new permanent transit facilities which in turn causes physical effects on the environment. Furthermore, an increase in transit ridership is an environmental benefit, not an adverse impact. One of the goals of the Land Use and Transportation Element of the Oakland General Plan is to promote transit ridership. The

TABLE 4.13-23
BICYCLE PARKING REQUIREMENTS

Land Use	Size[a]	Long-Term		Short-Term	
		Spaces per Unit[b]	Spaces	Spaces per Unit[b]	Spaces
Village Commercial	72 KSF	1:12 KSF	6	1:2 KSF	36
Community Center/Commercial	14 KSF	1:12 KSF	2	1:2 KSF	7
Total Required Bicycle Spaces			**8**		**43**

NOTES:
[a] DU = dwelling unit; KSF = 1,000 square feet.
[b] Based on Oakland Municipal Code Sections 17.117.090 and 17.117.110.

SOURCE: Fehr & Peers, 2016.

City of Oakland, however, in its review of the proposed project, takes into account the project's potential effect on transit ridership. As such, although not required by CEQA, transit ridership is evaluated in this document as a non-CEQA topic for informational purposes.

This document evaluates whether the proposed project would exceed any of the following:

- Increase the average ridership on AC Transit lines by three (3) percent at bus stops where the average load factor in place would exceed 125 percent over a peak thirty minute period;
- Increase the peak hour average ridership on BART by three (3) percent where the passenger volume would exceed the standing capacity of BART trains; or,
- Increase the peak hour average ridership at a BART station by three (3) percent where average waiting time at fare gates would exceed one minute.

AC Transit Ridership

As shown in **Table 4.13-11**, the project would generate about 40 new AM peak hour, 71 new PM peak hour and 765 transit trips. Assuming that all transit trips would be AC Transit bus trips, and considering that about eight buses operate on Mountain Boulevard adjacent to the project site during the peak hours, it is expected that ridership on buses in the project vicinity would increase by about five riders per bus during the AM peak hour and about nine riders per bus during the PM peak hour. **Table 4.13-24** summarizes maximum load factors on buses serving the project site with and without trips generated by the project. As shown in **Table 4.13-24**, the project would generate about nine new peak hour bus trips along each route (both directions) that operates in the vicinity of the project site. Routes 46 and 46L have adequate seating capacity to accommodate new bus trips generated by the project during peak hours. Project generated bus trips would increase the Route NX4 maximum load factor to 114 percent in the eastbound direction and to 100 percent in the westbound direction; maximum load factor would be less than 125 percent with the addition of project generated bus trips.

The proposed Oak Knoll project would not increase average ridership on AC Transit lines by three percent at bus stops where the average load factor with the project in place would exceed 125 percent over a peak 30-minute period.

TABLE 4.13-24
AC TRANSIT PASSENGER LOAD ANALYSIS SUMMARY

Bus Route and Stop Location	Direction	Average Capacity (Seats)	Existing		Existing Plus Project	
			Maximum Load[a] (Passengers)	Maximum Load Factor[b]	Maximum Load[c] (Passengers)	Maximum Load Factor[b]
46 – Mountain Boulevard at Project Access	EB	36	4	11%	13	36%
	WB		6	17%	15	42%
46L – Mountain Boulevard at Sequoyah Road	EB	16	3	19%	12	75%
	WB		4	25%	13	81%
NX4 – Leona Drive at Monte Vista Driveway (EB Direction) and Mountain Boulevard at Golf Links Road (WB Direction)	EB	36	32	89%	41	114%
	WB		27	75%	32	89%

NOTES:
a Maximum number of passengers on the bus observed on a typical weekday.
b Maximum load divided by average seated capacity.
c Maximum number of passengers on the bus plus project generated bus trips.

SOURCE: Fehr & Peers, 2016.

BART Ridership and Faregates

The project would generate about 25 new AM peak hour and 45 new PM peak hour BART trips.[21] Considering that the Coliseum BART Station is served by about 24 trains during the peak hours, it is expected that the proposed project would increase ridership on BART by less than two riders per train during the peak hours. This level of increase would not have a substantial effect on BART ridership or queues at BART faregates.

The proposed Oak Knoll project would not increase peak hour average ridership on BART by three percent where the passenger volume would exceed the standing capacity of BART trains.

Intersection Queuing Analysis

City of Oakland requires the Evaluation of a project's potential effect on 95th percentile queuing. This document evaluates whether the project would:

- Cause an increase in 95th percentile queue length of 25 feet or more at a study, signalized intersection under the Existing Plus Project and 2040 Plus Project Conditions.

Environmental impacts on intersection traffic operations were analyzed through the delay/ LOS analysis presented earlier in this document. Although not an environmental impact, an analysis of project's impacts on queuing at intersections was also completed to provide additional information to aid the public and decision makers in evaluating and considering the merits of the proposed project.

21 Data is based on the *California Household Travel Survey* (CHTS) results for the Oakland Hills area, which shows about 63 percent of transit trips are BART trips.

Queuing analysis for closely spaced intersections and intersections with movements that operate at LOS D or worse under No Project conditions was completed for the Existing and 2040 scenarios using the Synchro/SimTraffic software. The software calculates the expected queue using a formula that extrapolates the length of queue based on cycle lengths. This methodology provides reasonable results for locations operating in the LOS A through LOS D, but can misrepresent conditions as intersection operations approach capacity. In these instances, the software output denotes the condition with a letter/symbol adjacent to the analysis output worksheet. Furthermore, the Synchro software has limitations with estimating 95th percentile queues at unsignalized intersections; the software does not report queues at all-way stop intersections and often reports queues for partial movements at side-street stop intersections.

Queuing impacts were identified where the trips generated by the project would add 25 or more feet to the 95th percentile queue if the 95th percentile queue was over the available storage length with or without the project. **Appendix V-I** summarizes queues at the study intersections. **Tables 4.13-25** and **4.13-26** summarize intersection movements where the project is expected to increase the 95th percentile queues by 25 feet or greater and exceed the storage length under Existing Conditions, and 2040 Conditions, respectively. The project would increase the 95th percentile queues by 25 feet or more along the following movements that would exceed the available storage length:

- I-580 Westbound Off-Ramp/Mountain Boulevard/Kunhle Avenue (intersection #3) – implementing Mitigation Measure TRANS-2 would signalize the currently side-street stop-controlled intersection and increase the northbound left-turn (which currently operates as a free unsignalized movement) 95th percentile queues by more than 25 feet during both AM and PM peak hours under Existing Plus Project Mitigated and 2040 Plus Project Mitigated conditions. Although Mitigation Measure TRANS-2 would substantially increase the northbound left-turn 95th percentile queues, signalizing the intersection would improve intersection operations from LOS F to LOS D or better during both AM and PM peak hours under Existing Plus Project and 2040 Plus Project conditions. Providing two northbound left-turn lanes would reduce 95th percentile queues, however, right-of-way constraints would preclude such improvement.

- MacArthur Boulevard/Foothill Boulevard/73rd Avenue (intersection #4) – the project would increase the westbound through movement 95th percentile queues by more than 25 feet during the AM and PM peak hours under Existing Plus Project and 2040 Plus Project conditions. The project would not cause a significant impact at this intersection because the project would not increase the intersection volume-to-capacity ratio by more than 0.03 since the intersection would operate at LOS F during the AM and PM peak hours with and without the project. Providing two westbound through lanes would reduce 95th percentile queues, however, right-of-way constraints would preclude such improvement.

- Golf Links Road/I-580 Eastbound Off-Ramp/98th Avenue (intersection #38) – the project would increase the westbound left-turn movement 95th percentile queues by 180 feet during the PM peak hour under 2040 Plus Project conditions. Implementing Mitigation Measure TRANS-14 would reduce the westbound left-turn 95th percentile queue to be contained within the provided storage length.

TABLE 4.13-25
EXISTING CONDITIONS QUEUEING SUMMARY[a]

Intersection	Movement[b]	Storage (feet)	AM Peak Hour 95th Percentile Queue Length (feet)					PM Peak Hour 95th Percentile Queue Length (feet)				
			Existing	Existing Plus Project		Existing Plus Project With Mitigation		Existing	Existing Plus Project		Existing Plus Project With Mitigation	
				Length	Difference	Length	Difference		Length	Difference	Length	Difference
3. I-580 Westbound Off-Ramp/ Mountain Boulevard/ Kunhle Avenue	NB-L	125	60	60	0	**700**	**+640**	30	30	0	**400**	**+370**
4. MacArthur Boulevard/Foothill Boulevard/73rd Avenue	WB-TR	350	**650**	**690**	+**40**	N/A		**470**	**540**	**+70**	N/A	
39. I-580 Westbound Ramps/ Golf Links Road	EB-LT	350	380	**420**	**+40**	**480**	**+100**	260	260	0	340	+80
	EB-T	350	380	**400**	**+20**	**520**	**+140**	200	260	+60	260	+60
	NB-R	275	260	**280**	**+20**	**300**	**+40**	140	160	+20	180	+40
40. Mountain Boulevard/Golf Links Road	EB-L	125	60	80	+20	**160**	**+100**	20	40	+20	**160**	**+140**
	EB-TR/ EB-LTR[c]	125	40	60	+20	**240**	**+200**	20	20	0	**240**	**+220**

NOTES: **bold** text indicates queues exceeding available storage.

a This table summarizes intersection movements where the project would increase 95th percentile queues by 25 feet or greater along movements that exceed the storage capacity.
b NB-northbound, SB-southbound, EB-eastbound, WB-westbound, L-left turn movement, T-through movement, R-right turn movement.
c Proposed mitigation measure would convert the existing eastbound left-turn lane into a shared left-turn/through/right-turn lane.

SOURCE: Fehr & Peers, 2016.

TABLE 4.13-26
2040 CONDITIONS QUEUEING SUMMARY[a]

Intersection	Movement[b]	Storage (feet)	AM Peak Hour 95th Percentile Queue Length (feet)					PM Peak Hour 95th Percentile Queue Length (feet)				
				2040 Plus Project		2040Plus Project With Mitigation			2040 Plus Project		2040 Plus Project With Mitigation	
			2040	Length	Difference	Length	Difference	2040	Length	Difference	Length	Difference
3. I-580 Westbound Off-Ramp/ Mountain Boulevard/ Kunhle Avenue	NB-L	125	80	80	0	**770**	**+690**	60	60	0	**490**	**+430**
4. MacArthur Boulevard/Foothill Boulevard/73rd Avenue	WB-TR	350	**860**	**890**	**+30**	N/A		**690**	**740**	**+50**	N/A	
38. Golf Links Road/I-580 Eastbound Off-Ramp/98th Avenue	WB-L	350	260	280	+20	280	+20	240	**420**	**+180**	340	+100
39. I-580 Westbound Ramps/Golf Links Road	EB-T	350	**440**	**480**	**+40**	**400**	**-40**	240	**420**	**+180**	340	+100
40. Mountain Boulevard/Golf Links Road	EB-L	125	**140**	**140**	**0**	**220**	**+80**	120	**140**	**+20**	**200**	**+80**
	EB-TR/ EB-LTR[c]	125	**200**	**220**	**+20**	**200**	**0**	120	**200**	**+80**	**200**	**+80**
	NB-LT	400	40	40	0	220	+180	80	80	0	**580**	**+500**

NOTES: **bold** text indicates queues exceeding available storage.

a This table summarizes intersection movements where the project would increase 95th percentile queues by 25 feet or greater along movements that exceed the storage capacity.
b NB-northbound, SB-southbound, EB-eastbound, WB-westbound, L-left turn movement, T-through movement, R-right turn movement.
c Proposed mitigation measure would convert the existing eastbound left-turn lane into a shared left-turn/through/right-turn lane.

SOURCE: Fehr & Peers, 2016.

- I-580 Westbound Ramps/Golf Links Road (intersection #39) – implementing Mitigation Measure TRANS-6 (signalizing the adjacent closely-spaced intersection of Mountain Boulevard/Golf Links Road) would result in queue spillback along the eastbound Golf Link Road approach during the AM peak hour under Existing Plus Project conditions. The project is also expected to increase the eastbound through movement 95th percentile queue by more than 25 feet during the AM and PM peak hours under 2040 Plus Project conditions. Implementing Mitigation Measures TRANS-14 and TRANS-15 under 2040 Plus Project conditions would reduce 95th percentile queue lengths along the eastbound left-turn lane movement and through movement to less than a 25 foot difference along movements that would exceed the storage capacity under 2040 No Project conditions.
- Mountain Boulevard/Golf Links Road (intersection #40) – implementing Mitigation Measure TRANS-6 (signalizing the intersection) would cause queue spillback along the eastbound approach during the AM and PM peak hour under Existing Plus Project conditions. Implementing Mitigation Measure TRANS-15 under 2040 Plus Project conditions would continue to result in queue spillback along the eastbound approach during the AM and PM peak hours. The distance between the I-580 westbound ramps and Mountain Boulevard is about 125 feet, signalizing the Mountain Boulevard/Golf Links Road intersection is expected to result in 95th percentile queue spillback along eastbound approach under all analysis scenarios.

Traffic Control

City of Oakland requires evaluating the need for additional traffic control devices using the California Manual for Uniform Traffic Control Devices (CA MUTCD) and applicable City standards.

To assess consideration for signalization of stop-controlled intersections, the CA MUTCD presents eight signal warrants. Generally, meeting one or more of the signal warrants could justify signalization of an intersection. However, meeting one or more of the signal warrants does not mean that the intersection must be signalized. Therefore, an evaluation of all applicable warrants should be conducted and additional factors (e.g., congestion, approach conditions, collision record) should be considered before the decision to install a signal is made. This EIR evaluates the peak hour vehicular volume warrant (Warrant 3) for urban conditions because this warrant is one of the thresholds of significance used by City of Oakland to determine if a project causes a significant impact. **Table 4.13-27** summarizes the signal warrants analysis. Signal warrant analysis worksheets are provided in **Appendix V-C** for Existing Conditions, **Appendix V-D** for 2040 No Project Conditions, **Appendix V-F** for Existing Plus Project Conditions and **Appendix V-G** for 2040 Plus Project Conditions.

As shown in **Table 4.13-27**, the following intersections meet the peak hour signal warrant under Existing Conditions:

- I-580 Eastbound Off-ramp/Seminary Avenue/Overdale Avenue (intersection #1),
- I-580 Eastbound On-ramp/Seminary Avenue/Kuhnle Avenue (intersection #2),
- I-580 Westbound Off-ramp/Mountain Boulevard/Kuhnle Avenue (intersection #3),
- Mountain Boulevard/Keller Avenue (intersection #13), and
- Stanley Avenue/98th Avenue (intersection #36).

TABLE 4.13-27
EXISTING CONDITIONS PEAK HOUR SIGNAL WARRANT ANALYSIS

No.	Intersection	Traffic Control[a]	Existing	Existing Plus Project	2040 No Project	2040 Plus Project
1	I-580 EB Off-Ramp/Seminary Avenue/Overdale Avenue	SSSC	Yes	Yes	Yes	Yes
2	I-580 EB On-Ramp/Seminary Avenue/Kuhnle Avenue	AWSC	Yes	Yes	Yes	Yes
3	I-580 WB Off-Ramp/Mountain Boulevard/Kuhnle Avenue	SSSC	Yes	Yes	Yes	Yes
9	Mountain Boulevard/Rifle Lane	SSSC	No	No	No	No
10	I-580 WB On-Ramp/Mountain Boulevard/Maynard Avenue	SSSC	No	No	No	No
11	Greenly Drive/Keller Avenue	AWSC	No	No	No	No
12	I-580 EB Off-Ramp/Fontaine Street/ Keller Avenue	AWSC	No	Yes	Yes	Yes
13	Mountain Boulevard/Keller Avenue	AWSC	Yes	Yes	Yes	Yes
14	Williams Street/Keller Avenue	SSSC	No	No	No	No
15	Campus Drive/Keller Avenue	SSSC	No	No	No	No
16	I-580 WB Off-Ramp/Mountain Boulevard/Shone Avenue	SSSC	No	Yes	No	Yes
19	Golf Links Road/82nd Avenue	SSSC	No	No	No	No
20	Golf Links Road/Fontaine Street	AWSC	No	No	No	No
21	Crest Avenue/Fontaine Street	SSSC	No	No	No	No
22	Fontaine Street/I-580 Overcrossing	SSSC	No	No	No	No
23	Mountain Boulevard/I-580 Overcrossing	SSSC	No	No	No	Yes
24	Mountain Boulevard/Existing Project Site Access	SSSC	No	No	No	No
25	Mountain Boulevard/Sequoyah Road	SSSC	No	No	No	No
26	Mountain Boulevard/Calafia Avenue	SSSC	No	No	No	No
33	Thermal Street/98th Avenue	SSSC	No	No	No	No
36	Stanley Avenue/98th Avenue	SSSC	Yes	Yes	Yes	Yes
37	I-580 EB On-Ramp/98th Avenue	SSSC	No	No	No	No
40	Mountain Boulevard/Golf Links Road	SSSC	No	Yes	Yes	Yes
43	Mountain Boulevard/Creekside Loop (Project Access)	SSSC	Does Not Exist	No	Does Not Exist	No
44	Keller Avenue/Uplands Primary (Project Access)	SSSC	Does Not Exist	No	Does Not Exist	No

NOTES:
[a] AWSC = All-Way Stop Control SSSC = Side-Street Stop Control

SOURCE: Fehr & Peers, 2016.

The addition of project traffic would cause the following three intersections to meet the peak hour signal warrant under Existing Plus Project conditions:

- I-580 Eastbound Off-Ramp/Fontaine Street/Keller Avenue (intersection #12),
- I-580 Westbound Off-Ramp Mountain Boulevard/Shone Avenue (intersection #16), and
- Mountain Boulevard/Golf Links Road (intersection #40).

As discussed in Section 4.13.7, the project would cause significant impacts under Existing Plus Project and 2040 Plus Project Conditions at the following intersections,

- I-580 Eastbound On-ramp/Seminary Avenue/Kuhnle Avenue (intersection #2), Mitigation Measure TRANS-1 proposes to signalize the intersection.
- I-580 Westbound Off-ramp/Mountain Boulevard/Kuhnle Avenue (intersection #3), Mitigation Measure TRANS-2 proposes to signalize the intersection.
- I-580 Eastbound Off-Ramp/Fontaine Street/Keller Avenue (intersection #12), Mitigation Measure TRANS-3 proposes to signalize the intersection.
- Mountain Boulevard/Keller Avenue (intersection #13), Mitigation Measure TRANS-4 proposes to signalize the intersection.
- I-580 Westbound Off-Ramp Mountain Boulevard/Shone Avenue (intersection #16), Mitigation Measure TRANS-5 proposes to signalize the intersection.
- Mountain Boulevard/Golf Links Road (intersection #40), Mitigation Measure TRANS-6 proposes to signalize the intersection.

The following three intersections would meet the peak hour signal warrant under 2040 Plus Project Conditions; however, as described in Section 4.13.7, the project would not cause an impact at any of these locations because the project would add less than 10 trips to the critical movements:

- I-580 Eastbound Off-ramp/Seminary Avenue/Overdale Avenue (intersection #1),
- Mountain Boulevard/I-580 Overcrossing (intersection #23), and
- Stanley Avenue/98th Avenue (intersection #36).

Collision History

City of Oakland requires evaluation of three years of vehicle, pedestrian, and bicycle collision data for intersections and roadway segments within three blocks of the project site to determine if the project would contribute to an existing problem or if any improvements are recommended in order to alleviate potential effects of the project.

Collision data was obtained through the Traffic Injury Mapping System (TIMS) for segments on Mountain Boulevard and Keller Avenue adjacent to the project site for the five year period from 2008 through 2012. **Appendix V-J** summarizes the data for vehicle/vehicle, vehicle/bicycle, and vehicle/pedestrian collisions.

A total of seven collisions, all of which were vehicle/vehicle collisions, were reported at intersections and mid-block segments in the study area. All seven collisions resulted in injury. No fatal collisions were reported during this period in the study area.

The highest number of vehicle/vehicle collisions and injuries was reported on Keller Avenue. A total of five vehicle/vehicle collisions were reported over the five year period, four between Skyline Boulevard and Williams Street and one between Williams Street and Mountain Boulevard. Two collisions were reported on Mountain Boulevard, one on the segment between Shone Avenue and I-580 overcrossing and the second at the Mountain Boulevard/Golf Links Road intersection.

The proposed project would result in additional automobile traffic, as well as pedestrian and bicycle activity in the vicinity of the project site. The proposed project would include design features that would improve safety for all users, as described in the previous sections.

Vehicle Miles of Travel

The City of Oakland's *Transportation Impact Study Guidelines* does not currently have an adopted methodology to estimate vehicle miles of travel (VMT) for proposed developments. VMT was calculated assuming project trip generation for typical weekday conditions using the CalEEMod method. CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and greenhouse gas (GHG) emissions associated with a variety of land use projects. CalEEMod includes settings for average trip lengths and vehicle miles traveled for various land use categories, as a component to calculating vehicular emissions from a development project.

The CalEEMod method inputs were modified as described below to reflect local context, modifications include:

- Trip length data from the 2012 California Household Travel Survey (CHTS) database for the Oakland Hills area[22] was assumed,
- Trips generated by the Project's residential land uses were adjusted to assume 100 percent primary trips (default method assumes 86 percent primary trips, 11 percent diverted trips and three percent pass-by trips for residential land uses), and
- Internal trip distances were accounted for in the weighted average trip length estimate.

[22] Average trip length was estimated using the 2012 *California Household Travel Survey* results for the Oakland Hills area, which includes the following Census tracts: 4001, 4044, 4045.02, 4046, 4047, 4067, 4069, 4078, 4079, 4080, 4081, 4082, 4083, 4098, 4099, 4100 and 4101. According to the 2012 CHTS results for the Oakland Hills area, the average trip distance for Home-Based-Work (HBW) trips is 11 miles, compared to 6.5 miles for Home-Based-Other (HBO) trips and 5.7 miles for Non-Home-Based-Work (NHBW) trips.

Table 4.13-28 summarizes the modified CalEEMod method assumptions. The project is estimated to generate a total of 70,450 VMT on a typical weekday. The City of Oakland does not currently have adopted thresholds of significance for the VMT analysis, therefore this estimation is provided for informational purposes only. Climate change impacts related to VMT are analyzed in Chapter 4.6, *Greenhouse Gas Emissions and Climate Change*.

TABLE 4.13-28
DAILY PROJECT VEHICLE MILES OF TRAVEL

Methodology Inputs/Outputs	Methodology Assumptions
Primary Trip Link Percentage – External Trips	100% for Residential Land Uses 54% for Shopping Center Land Uses
Diverted Trip Link Percentage – External Trips	0% for Residential Land Uses, and 35% for Shopping Center Land Uses
Pass-By Trip Link Percentage – External Trips	0% for Residential Land Uses, and 11% for Shopping Center Land Uses
Trip Lengths	<u>External Trips – Residential Land Uses</u> Home-Based-Work Trips = 11.0 miles Home-Based-Shop Trips = 6.5 miles Home-Based-Other Trips = 6.5 miles <u>External Trips – Commercial Land Uses</u> Commercial-Costumer Trips = 6.5 miles Commercial-Work Trips = 11.0 miles Commercial-Non-Work Trips = 5.7 miles Diverted Trips = 25% of Average Primary Trip Length Pass-By Trips = 0.1 miles <u>Internal Trips</u> Internal Trips = 0.5 miles
Weighted Average Trip Length[a]	5.7 miles
Weekday Project Trip Generation	12,360 Total Trips
Total Weekday VMT	70,450 VMT
Per Service Population Weekday VMT	30.4 VMT per person

NOTES:
[a] Weighted average trip length estimate considers all external and internal trips.

SOURCE: *California Emissions Estimator Model* (version 2013.2.2) and Fehr & Peers, 2016.

A preliminary TDM Plan has been developed for the project which identifies potential strategies to reduce the number of automobile trips and VMT generated by the project, capable of achieving a 10 percent VMT reduction. The City's TDM goal for the project (pursuant to SCA TRA-4) is a 20 percent reduction, which would even further reduce overall VMT.

4.14 Utilities and Service Systems

4.14.1 Introduction

To determine whether the proposed Project would result in any new impacts related to utilities and service systems, or increases in the severity of impacts previously discussed in the 1998 EIS/EIR, this analysis considers the impacts related to utilities and service systems that would result from the proposed Project, under current environmental and regulatory conditions and circumstances, and compares these impacts to those identified in the 1998 EIS/EIR, and to the applicability of mitigation measures in that document.

4.14.2 Setting

Water Service

Water Supply System

The East Bay Municipal Utility District (EBMUD) provides water to the Project site. EBMUD's service area comprises Contra Costa and Alameda Counties, and extends from Crockett in the north to San Lorenzo in the south, including the city of Oakland, and from San Francisco Bay east to Walnut Creek (EBMUD, 2015a). The 627-square-mile Mokelumne River watershed is the major water source for EBMUD, with the source of water originating in the Sierra Nevada Mountains of eastern California. The watershed of this river collects snowmelt from western slope of the Sierra Nevada in Alpine, Amador, and Calaveras counties. Water from the river is collected at the Pardee Dam and Reservoir, located 38 miles northeast of Stockton near the town of Jackson. A portion of the water stored in Pardee Reservoir is conveyed to the EBMUD service area via the Mokelumne Aqueducts. The remainder of the water is released into the nearby Camanche Reservoir. EBMUD has water rights and contracts for up to 325 million gallons per day (mgd) from the Mokelumne River, but the precise amount of this entitlement available in any given year is dependent on a range of variables. EBMUD's contract with the U.S. Bureau of Reclamation for a supplemental water supply from the Sacramento River gives the agency rights to 100 mgd from the Sacramento River in dry years (EBMUD, 2015a).

EBMUD's water supply and distribution system includes six water treatment plants which have a combined treatment capacity of over 375 mgd (EBMUD, 2015b). EBMUD treats water through aeration, coagulation, flocculation, sedimentation, filtration, disinfection, fluoridation, and corrosion control (BKF, 2015a). Potable water to the Project site is supplied by EBMUD through two pressure zones: Piedmont Pressure Zone (B3A) and Country Club Pressure Zone (B5D).

In addition, EBMUD has been recycling water at its main wastewater treatment facility since 1971. Recycled water is suitable for land uses that do not require potable water sources, such as golf courses, park irrigation, school grounds, habitat restoration, some agricultural areas, and industrial uses. Incentives used by EBMUD to encourage customers to use recycled water include rate discounts on recycled water and low-interest loans used to retrofit buildings to accommodate

recycled water. EBMUD's existing and committed inventory of recycled water projects were estimated to generate 8.1 mgd of recycled water in fiscal year 2014 (EBMUD, 2015c).

The East Bayshore Recycled Water Project, which is currently being constructed in phases, uses water treated in EBMUD's wastewater treatment plant (see Sanitary Sewer Service, below) and will, upon completion, supply an annual average of 2.5 mgd of recycled water to locations in Alameda, Albany, Berkeley, Emeryville, and Oakland. Recycled water will be used for irrigation, industrial, and commercial activities, and may be used for wetland restoration projects, and will offset demands for potable water. The first customers received deliveries in 2008, and, in fiscal year 2014, the project delivered recycled water to offset the need for more than 56 million gallons of drinking water (EBMUD, 2015d). EBMUD began expanding the recycled water pipeline northward in 2012 and is continuing construction in Emeryville through 2015.

No recycled water connection exist in the Project area; the nearest is located near the Embarcadero in Oakland, approximately 7 miles from the Oak Knoll Project site (BKF, 2015).

Outparcel Water Utilities

The privately-owned outparcels, Seneca and the Credit Union (see 3.1.2, *Project Site Description and Ownership*),located on the former NMCO property, but not included within the Oak Knoll Project site, are served by existing water lines that once served the entire Naval Hospital site. The system is looped onsite with lines located on all sides of the outparcels. The onsite system is also connected to the public water system (owned and operated by EBMUD) at two main locations – one on Mountain Boulevard and another on Keller Avenue. (BKF, 2016b)

Municipal Water Supply Plan and Programs

EBMUD's *2010 Urban Water Management Plan* (UWMP) was adopted by the EBMUD Board of Directors on June 28, 2011, and presents current and projected water usage, water supply planning, water conservation, and recycling programs over a 20-year planning horizon (EBMUD, 2011). The UWMP sets minimum performance goals for water supply in the service area including reliability, flexibility, and the minimization of water rationing. Water conservation and recycling are key components of the UWMP. According to the UWMP, the projected water demand for EBMUD's service area in 2010 was 216 mgd and is anticipated to increase to 229 mgd in 2030. This projection assumes that EBMUD's water conservation program would reduce annual demand by 56 mgd and the water recycling program would decrease water demand by 19 mgd (EBMUD, 2011). 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.

On April 24, 2012, EBMUD adopted the *Water Supply Management Program 2040 Plan* (WSMP). The WSMP is a program-level effort that estimates EBMUD's dry-year water supply needs through 2040 and anticipates 50 mgd of future supply being provided by water conservation and recycling. The demand for water in EBMUD's service area is projected to increase to 247 mgd by 2040 under a 15 percent maximum customer rationing scenario (EBMUD, 2012). EBMUD also published the *2014 Climate Change Monitoring and Response Plan*, which analyzes climate change impacts to

EBMUD's water supply and develop strategies for adaptation. The report recommends an adaptation approach to climate change by adjusting EBMUD's water supply portfolio approach with a rationing target of up to 15 percent in order to have more flexibility to respond to changing conditions related to climate change. On-going water conservation and recycling programs would further reduce demand and lessen impacts on supplies that are impacted by climate change (EBMUD, 2014a).

EBMUD's Policy 9.05 requires that customers use non-potable water, including recycled water, to offset demand on EBMUD's limited potable water. This policy requires the use of non-potable water for nondomestic purposes when it is of adequate quality and quantity, available at reasonable cost, not detrimental to public health and not injurious to plant, fish and wildlife supply.

In 2015, EBMUD adopted two ordinances pertaining to water use. The excessive water use ordinance penalizes households who use 1,000 gallons per day, which is four times the amount of water used by the average residential customer. The water theft ordinance allows EBMUD to fine persons for stealing water or making unauthorized use of a public fire hydrant.

On June 9, 2015, the EBMUD Board of Directors adopted new rates, effective as of July 1, including a temporary Stage 4 drought surcharge of up to 25 percent to cover the expense of purchasing additional water supplies, more conservation services and enforcement of water us restrictions (EBMUD, 2015e). The average household using 246 gallons per day (10 units per month), who does not conserve, would see an increase by $11.65 with the addition of this surcharge. The drought surcharge will be removed if conditions improve to Stage 1 or 0.

Sanitary Sewer Service

Sanitary Sewer Conveyance

The City of Oakland is responsible for operation and maintenance of the local sanitary sewer collection system within the Project site, while EBMUD is responsible for operation and maintenance of interceptor lines and the treatment of sewage. The City's sewer collection system includes over 930 miles of pipes ranging in size from 6-inches to 72-inches, as well as seven pump stations. Local collection lines within the Project site range in size from 8- to 21-inches. The collection system is separated into basins and sub-basins, with the Project site located within Basin 85-401 and 85-502. A significant portion of the Project site is within Basin 85-401; the remaining portion of the site is in Basin 85-502 (BKF, 2015b). Each numbered sub-basin encompasses a specific physical area, and its sewer flows are assigned to a single discharge point from the City's collection system into EBMUD's interceptor lines.

The City has instituted an Inflow and Infiltration (I&I) Correction Program to reduce wet weather overflows into the sanitary sewer system. This program is anticipated to increase the capacity of the collection system to allow an approximately 20 percent increase in wastewater flows for each subarea within the City.

In 1985, the City completed a Sewer System Evaluation Survey (SSES) for South Oakland, which included the Project site. The results of this survey indicate that sanitary sewer system infrastructure underlying the Project site is within one of the older areas within Basin 85-401, and is more likely to have a higher percentage of rainfall-derived I&I than other parts of the basin. Much of the Project site is currently abandoned, and there is minimal on-site water usage that results in sewer flow (BKF, 2015b).

An engineering evaluation of the Project site recommends that all existing sanitary sewer lines within the site be abandoned, as they are aging and not consistent with the site development plans, and further recommends that a new sewer system be installed to support the proposed development and reduce existing rainfall derived I&I (BKF, 2015b).

The existing sanitary sewer line that serves the outparcels adjacent to the Project site is located on the unnamed road east of the Credit Union parcel. (BKF, 2016b)

Sanitary Sewer Treatment

EBMUD provides sanitary sewer treatment services to approximately 655,00 people within an 88-square-mile area, treating wastewater from Alameda, Albany, Berkeley, El Cerrito, Emeryville, Kensington, Oakland, Piedmont and part of Richmond. EBMUD's collection system includes approximately 37 miles of interceptor pipelines and 15 pump stations, and five overflow structures. EBMUD's Main Wastewater Treatment Plant is located southwest of the Interstate 580/Interstate 80 interchange in Oakland, adjacent to the San Francisco/Oakland Bay Bridge approach. The plant is designed to provide primary treatment for up to 320 mgd and secondary treatment for a maximum flow of 168 mgd. Average daily flow is 63 mgd (EBMUD, 2015c).

Stormwater Drainage Facilities

Stormwater runoff in Oakland is collected from southwesterly flows from the Oakland/Berkeley hills to the developed flatlands, where it then flows primarily through underground storm drains and culverts to the San Francisco Bay via the Oakland Estuary (directly or by way of Lake Merritt), or through the City of Emeryville. The Project site is at the toe of the Oakland hills and generally slopes southwest towards the San Francisco Bay (BKF, 2015). The center of the site is relatively flat; Rifle Range Creek flows across the Project site from north to southwest.

Stormwater runoff from the Project site is conveyed as overland flow on paved areas, in below ground storm drain systems, and through engineered ditches. All onsite flow is discharged to Rifle Range Creek, which is a regional conveyance channel that flows through the East Bay Regional Park District's Leona Detention Basin. Peak flows are weakened within the Detention Basin, decreasing peak flow rate through the site from storm events. The creek enters the Project site at Keller Avenue and discharges at Mountain Boulevard. The total drainage area of the creek at Mountain Boulevard is approximately 920 acres (including the Project site). Rifle Range Creek is primarily a natural open channel, although flow is also conveyed through approximately 870 feet of culvert and several road crossings. The creek has an average slope of 2.8 percent throughout the Project site (BKF, 2015).

An engineering study performed for the Project site indicates the current storm drain system does not meet present standards for stormwater conveyance. Additionally, there are no storm water treatment or detention facilities within the Project site. Consequently, the study recommended abandoning the existing drainage system and constructing new drainage infrastructure at the site (BKF, 2015).

There are two existing storm drain lines that currently serve the outparcels. One storm drain line is located within the proposed Town Center parcel. This line conveys storm water from the west portion of the Seneca parcel (i.e. the helipad area) and ultimately discharges to the City storm drain main on Mountain Boulevard. The other storm drain line is located on the unnamed road (east of the Credit Union). This line runs along the north side of the unnamed road and ultimately discharges to Rifle Range Creek north of the intersection of unnamed road (i.e., future Creekside Loop) and Creekside Parkway. (BKF, 2016b)

Solid Waste

Waste Management and Disposal

Non-hazardous waste in the City of Oakland is collected by Waste Management of Alameda County (WMAC), which provides curbside pickup for residential, commercial and industrial non-hazardous waste, and transports it to WMAC's Davis Street Transfer Station in San Leandro. Transfer trucks haul waste to the Altamont Landfill and Resource Facility, located approximately 35 miles east of Oakland near Livermore. In 2014, approximately 269,847 tons of disposed solid waste was generated in Oakland, including 230,797 tons that went to the Altamont Landfill (CalRecycle, 2015a). Most of the remaining solid waste was sent to four other landfills: Forward Landfill in San Joaquin County; the Keller Canyon Landfill in Contra Costa County, Potrero Hills Landfill in Solano County, and the Vasco Road Landfill in Alameda County. The Altamont Landfill has a maximum permitted capacity of 62,000,000 cubic yards. As of 2005, 74 percent of this capacity was remaining (CalRecycle, 2015b).

Alameda County's Integrated Waste Management Plan, prepared by the Alameda County Waste Management Authority pursuant to Assembly Bill 939 (see below), projects an expected closure for the Vasco Road Landfill in 2022 and Altamont Landfill in 2040 (ACWMA, 2011).

Waste Generation and Diversion

AB 939, enacted in 1989, requires Source Reduction and Recycling Element of each city and county to include an implementation schedule to divert a percentage of its solid waste from landfill disposal through source reduction, recycling, and composting activities. AB 939 specifies a required diversion rate of at least 50 percent of wastes by the year 2000. The California Department of Resources Recycling and Recovery (CalRecycle) indicates that the Oakland's diversion rate was 59 percent in 2006. Beginning with the 2007 jurisdiction annual reports, diversion rates were no longer measured. With the passage of SB 1016 in 2006, the Per Capita Disposal Measurement System, only per capita disposal rates are measured to determine if jurisdiction's efforts are meeting the intent of AB 939. In 2013, Oakland had a per resident disposal target rate of 5.8 pounds per day (PPD) and a per employee disposal target rate of

15.3 PPD. In 2013, the City reported an actual annual per resident PPD of 3.9 and 9.2 PPD per employee, thereby meeting the City's waste diversion goals for 2013 (CalRecycle, 2015c).

Energy Services

Electricity and gas service in the City of Oakland is provided primarily by Pacific Gas and Electric (PG&E), which owns the gas and electrical utility supply lines. PG&E provides "bundled" services (i.e., electricity, transmission and distribution services) to most of the six million customers in its service territory, including residential, commercial, industrial and agricultural consumers. Customers also can obtain electricity from alternative providers such as municipalities or Customer Choice Aggregators (CCAs), as well as from self-generation resources, such as rooftop solar installations.

Electrical energy is supplied to the City of Oakland via electrical substations, to which electricity is transported through high-voltage electric cables. Large transformers at the local substations convert the electricity which is provided to the existing PG&E customers. Throughout most of Oakland, electrical power is delivered via overhead distribution and transmission lines, and natural gas is distributed through underground piping. In recent years, PG&E continued to make improvements to its electric transmission and distribution systems to accommodate the integration of new renewable energy resources, distributed generation resources, and energy storage facilities, and to help create a platform for the development of new Smart Grid technologies. PG&E expands its services on an as-needed basis and requires the user to fund the extension of service. There is an existing 12-kilovolt (kV) electrical system on the Project site.

Also see comprehensive Energy Services Setting in Section 4.15, *Energy*.

Regulatory Setting

Water Quality, Supply, and Distribution

Safe Drinking Water Act

The USEPA administers the Safe Drinking Water Act (SDWA), the primary federal law that regulates the quality of drinking water and establishes standards to protect public health and safety. The Department of Health Services (DHS) implements the SDWA and oversees public water system quality statewide. DHS establishes legal drinking water standards for contaminates that could threaten public health.

Senate Bill (SB) 610 / Senate Bill (SB) 221

Senate Bill (SB) 610, codified as Sections 10910-10915 of the California Public Resources Code, requires local water providers to conduct a water supply assessment for projects proposing over 500 housing units[1], 250,000 square feet of commercial office space (or more than 1,000 employees), a shopping center or business establishment with over 500,000 square feet (or more than 1,000 employees), or equivalent usage. Local water suppliers must also prepare or have

[1] Senate Bill (SB) 221 similarly amended the Subdivision Map Act to ensure confirmation that public water supply is sufficient to serve proposed development projects of 500 dwelling units or more.

already prepared an Urban Water Management Plan to guide planning and development in the water supplier's service area, and specifically pursue efficient use of water resources.

Water Conservation in Landscaping Act (Assembly Bill 1881, 2006)

The Water Conservation in Landscaping Act of 2006 (Assembly Bill 1881, Laird) requires cities, counties, and charter cities and charter counties to adopt landscape water conservation ordinances by January 1, 2010. Pursuant to this law, the Department of Water Resources (DWR) has prepared a Model Water Efficient Landscape Ordinance (Model Ordinance) for use by local agencies. Executive Order B-29-15 calls for revising the Model Ordinance to increase water efficiency standards for new and retrofitted landscapes through more efficient irrigation systems, greywater usage, onsite storm water capture, and by limiting the portion of landscapes that can be covered in turf. It also requires reporting on the implementation and enforcement of local ordinances, with required reports due by December 31, 2015. Most new and rehabilitated landscapes are subject to a water efficient landscape ordinance. Public landscapes and private development projects are subject to the Model Ordinance. However, the Ordinance does not apply to registered local, state, or federal historic sites, ecological restoration projects, mined-land reclamation projects, or plant collections. Oakland requires new projects to comply with the State Model Water Efficient Landscape Ordinance and its Bay-Friendly Landscape Ordinance.

Stormwater Drainage

Oakland Storm Drainage Standards (Oakland Municipal Code 13.14)

Chapter 13.14 of the Oakland Municipal Code (Storm Drainage Standards) specifies standards for the construction and installation of new storm drainage systems in new developments, which shall be designed in accordance with the City of Oakland's Storm Drainage Design Guidelines As well as the applicable municipal separate storm sewer systems (MS4) permit.

Regulations related to the quality and quantity of stormwater runoff (i.e., Federal Clean Water Act / NPDES) are discussed in Section 4.8, *Hydrology and Water Quality*.

Solid Waste

Assembly Bill (AB) 939

Assembly Bill (AB) 939, enacted in 1989 and known as the Integrated Waste Management Act, required each city and/or county to prepare a Source Reduction and Recycling Element to demonstrate reduction in the amount of waste being disposed to landfills, with diversion goals of 50 percent by the year 2000. Diversion includes waste prevention, reuse, and recycling. Senate Bill (SB) 1016 revised the reporting requirements of AB 939 by implementing a per capita disposal rate based on a jurisdiction's population (or employment) and its disposal. The 50 percent equivalent per capita disposal target is the average amount of disposal a jurisdiction would have had during 2003 to 2006 if it had been exactly at a 50 percent diversion rate.

Assembly Bill (AB) 341

Assembly Bill (AB) 341, enacted in 2011 applies to businesses generating four or more cubic yards of garbage per week, and to multi-family residential buildings with five or more units. Effective July 1, 2012, it requires affected businesses and multi-family property owners to have recycling service sufficient to handle the amount of recyclable material produced at the business or property.

Alameda County Waste Reduction and Recycling Initiative (Measure D)

In addition to AB 939, the 1990 Voter Initiative Measure D (Alameda County Waste Reduction and Recycling Initiative) mandates Alameda County to divert 75 percent of its solid waste from landfills by the year 2010.

Alameda County Ordinance Prohibiting the Landfill Disposal of Plant Debris (Ordinance 2008-01)

Ordinance 2008-01 was enacted in 2009 and applies to any businesses or organization generating significant amounts of plant debris, and that hauls the material to Alameda County disposal facilities, or places the material in bins for collection. Affected businesses and organizations include but are not limited to: residential landscapers and gardeners; commercial landscapers and gardeners; commercial and residential property managers; municipalities and institutions (e.g. colleges, hospitals); and businesses subscribing to four cubic yards or more of weekly solid waste collection service.

Alameda County Mandatory Recycling Ordinance (Ordinance 2012-01)

Ordinance 2012-01 was enacted in 2012 and applies to businesses generating four or more cubic yards of solid waste per week, and to multi-family residential buildings with five or more units. Phase 1 of the ordinance, effective July 1, 2012, requires affected businesses and multi-family property owners to have recycling service sufficient to handle the amount of recyclable material produced at their business or property. This includes paper, cardboard, and recyclable food and beverage glass containers, aluminum and metal containers, and HDPE and PET plastic bottles. Phase 2 of the ordinance, effective July 1, 2014, will add discarded food and compostable papers to the materials covered in Phase 1, and apply to all businesses that generate solid waste.

Construction and Demolition (C&D) Debris Waste Reduction and Recycling Ordinance (Oakland Municipal Code 15.34)

The City of Oakland's Construction and Demolition (C&D) Ordinance is intended to further the goals of AB 939 and Alameda County's Measure D. The C&D Ordinance affects the following projects:

- All New Construction;
- All Alterations, Renovations, Repairs, or Modifications with construction value of $50,000 or greater, excluding R-3;
- All Demolition, including Soft Demo, and excluding R-3;

Building permit applicants (Applicants) must complete a Waste Reduction and Recycling Plan (WRRP) as part of the Building Permit Application process to detail the plan for salvaging and recycling C&D debris generated during the course of the project. Standards current at the time of this writing call for salvage and/or recycling 100% of asphalt and concrete, and at least 65% of all remaining debris. These standards are subject to administrative adjustment and applicants must follow the standards published at the time of building permit application.

The City will not issue a building permit for a covered project without an approved WRRP on file.

Upon approval of the WRRP and issuance of the permit(s), the applicant shall execute the plan. Prior to the Final Inspection, Temporary Certificate of Occupancy or Certificate of Occupancy, the Applicant must complete and obtain approval of a Construction and Demolition Summary Report (CDSR). The CDSR documents the salvage, recycling and disposal activities that took place during the project. The CDSR must include documentation, such as scale tickets, that support the data provided in the CDSR.[2]

Energy

California Building and Energy Efficiency Standards (Title 24)

Title 24, Part 6 of the California Code of Regulations (CCR) requires that the design of building shells and building components conserve energy. These standards are updated periodically to consider and incorporate new energy efficiency technologies and methods. Residential buildings built to 2016 Title 24 Standards, which will go in effect on January 1, 2017, will use about 28 percent less energy for lighting, heating, cooling, ventilation, and water heating compared to the 2013 Title 24 Standards, which went into effect on January 1, 2014. The 2013 Standards are approximately 24 percent more energy efficient for residential buildings, and 30 percent more energy efficient for nonresidential buildings, compared to the previous 2008 Building and Energy Efficiency Standards (CEC, 2016).

California Green Buildings Standards Code (CALGreen)

On July 17, 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Part 11, Title 24) was adopted as part of the California Building Standards Code (Title 24, CCR), known as CALGreen. The 2010 edition of the code established voluntary standards on planning and design for sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and internal air quality. The mandatory provisions of the code became effective January 1, 2011. CALGreen refers to the mandatory Building and Energy Efficiency Standards described above, and also includes voluntary Tier 1 and Tier 2 programs for cities and counties that wish to adopt more stringent Green Building requirements.

[2] More details are available at: http://www2.oaklandnet.com/Government/o/PWA/o/FE/s/GAR/OAK024368.

See comprehensive *Regulatory Setting* for Energy is presented in Section 4.15, *Energy*.

Local Plans and Policies

City of Oakland General Plan

The Oakland General Plan LUTE includes the following policy related to the provision of utilities and infrastructure:

- ***Policy I/C 1.9:*** Adequate public infrastructure should be ensured within existing and proposed industrial and commercial areas to retain viable uses, improve the marketability of existing, vacant or underutilized sites, and encourage future use and development of these areas with activities consistent with the goals of the *General Plan.*

- ***Policy N.12.4:*** Electrical, telephone, and related distribution lines should be undergrounded in commercial and residential areas, except where special local conditions, such as limited visibility of the poles and wires makes this unneeded. They should also be underground in appropriate institutional, industrial, and other areas, and generally along freeways, scenic routes, and heavily traveled streets. Programs should lead systematically toward the eventual undergrounding of all existing lines in such places. Where significant utility extensions are taking place in these areas, such as in new subdivisions, utilities should be installed underground at the start.

City of Oakland Standard Conditions of Approval and Uniformly Applied Development Standards Imposed as Standard Conditions of Approval

The Standard Conditions of Approval (SCAs) relevant to the Project's impacts related to utilities and service systems are presented below. If the Project is approved by the City, all applicable SCAs would be adopted as conditions of approval and required, as applicable, to be implemented during project construction and operation to address impacts related to utilities and service systems. The SCAs are incorporated and required as part of the Project, so they are not listed as mitigation measures.

- **SCA UTIL-1: Construction and Demolition Waste Reduction and Recycling.** *Prior to approval of construction-related permit.* The project applicant shall comply with the City of Oakland Construction and Demolition Waste Reduction and Recycling Ordinance (chapter 15.34 of the Oakland Municipal Code) by submitting a Construction and Demolition Waste Reduction and Recycling Plan (WRRP) for City review and approval, and shall implement the approved WRRP. Projects subject to these requirements include all new construction, renovations/alterations/modifications with construction values of $50,000 or more (except R-3 type construction), and all demolition (including soft demolition) except demolition of type R-3 construction. The WRRP must specify the methods by which the project will divert construction and demolition debris waste from landfill disposal in accordance with current City requirements. The WRRP may be submitted electronically at www.greenhalosystems.com or manually at the City's Green Building Resource Center. Current standards, FAQs, and forms are available on the City's website and in the Green Building Resource Center.

  When Required: Prior to approval of construction-related permit

  Initial Approval: Public Works Department, Environmental Services Division

Monitoring/Inspection: Public Works Department, Environmental Services Division

- **SCA UTIL-2: Underground Utilities**. *During construction*. The project applicant shall place underground all new utilities serving the project and under the control of the project applicant and the City, including all new gas, electric, cable, and telephone facilities, fire alarm conduits, street light wiring, and other wiring, conduits, and similar facilities. The new facilities shall be placed underground along the project's street frontage and from the project structures to the point of service. Utilities under the control of other agencies, such as PG&E, shall be placed underground if feasible. All utilities shall be installed in accordance with standard specifications of the serving utilities.

  When Required: During construction

  Initial Approval: N/A

  Monitoring/Inspection: Bureau of Building

- **SCA UTIL-3: Recycling Collection and Storage Space**. *Prior to approval of construction-related permit*. The project applicant shall comply with the City of Oakland Recycling Space Allocation Ordinance (chapter 17.118 of the Oakland Planning Code). The project drawings submitted for construction-related permits shall contain recycling collection and storage areas in compliance with the Ordinance. For residential projects, at least two cubic feet of storage and collection space per residential unit is required, with a minimum of ten cubic feet. For nonresidential projects, at least two cubic feet of storage and collection space per 1,000 square feet of building floor area is required, with a minimum of ten cubic feet.

  When Required: Prior to approval of construction-related permit

  Initial Approval: Bureau of Planning

  Monitoring/Inspection: Bureau of Building

- **SCA UTIL-4: Sanitary Sewer System.** *Prior to approval of construction-related permit.* The project applicant shall prepare and submit a Sanitary Sewer Impact Analysis to the City for review and approval in accordance with the City of Oakland Sanitary Sewer Design Guidelines. The Impact Analysis shall include an estimate of pre-project and post-project wastewater flow from the project site. In the event that the Impact Analysis indicates that the net increase in project wastewater flow exceeds City-projected increases in wastewater flow in the sanitary sewer system, the project applicant shall pay the Sanitary Sewer Impact Fee in accordance with the City's Master Fee Schedule for funding improvements to the sanitary sewer system.

  When Required: Prior to approval of construction-related permit

  Initial Approval: Public Works Department, Department of Engineering and Construction

  Monitoring/Inspection: N/A

- **SCA UTIL-5: Storm Drain System.** *Prior to approval of construction-related permit.* The project storm drainage system shall be designed in accordance with the City of Oakland's Storm Drainage Design Guidelines. To the maximum extent practicable, peak stormwater runoff from the project site shall be reduced by at least 25 percent compared to the pre-project condition.

When Required: Prior to approval of construction-related permit

Initial Approval: Bureau of Building

Monitoring/Inspection: Bureau of Building

- **SCA UTIL-6: Water Efficient Landscapes (WELO).** *Prior to approval of construction-related permit.*

  The following condition applies to all landscape projects (the total area of planting, turf, and water features) that meet one of the following criteria:

  a. New Construction Projects with an aggregate landscape area equal to or greater than 500 sq.ft (For the purpose of this condition "New Construction" means a new building with a landscape or other new landscape not associated with a building);

  b. Rehabilitated Landscape Projects with an aggregate landscape area equal to or greater than 2,500 sq. ft. (For the purpose of this Condition "Rehabilitated" means any re-landscaping project);

  New Water Efficient Landscapes - WELO

  Requirement: The project applicant shall comply with California's Water efficient Landscape Ordinance (WELO) in order to reduce landscape water usage. For any landscape project with an aggregate (total noncontiguous) landscape area equal to 2,500 sq. ft or less., the project applicant may implement either the Prescriptive Measures or the Performance Measures, of, and in accordance with the California's Model Water Efficient Landscape Ordinance. For any landscape project with an aggregate (total noncontiguous) landscape area over 2,500 sq. ft., the project applicant shall implement the Performance Measures in accordance with the WELO.

  Prescriptive Measures: Prior to construction, the project applicant shall submit documentation showing compliance with Appendix D of California's Model Water Efficient Landscape Ordinance (see website below starting on page 23).

  http://www.water.ca.gov/wateruseefficiency/landscapeordinance/docs/Title%2023%20extract%20-%20Official%20CCR%20pages.pdf

  Performance Measures: Prior to construction, the project applicant shall prepare and submit a Landscape Documentation Package for review and approval, which includes the following:

  a. Project Information:

     i. Date,

     ii. Applicant and property owner name,

     iii. Project address,

     iv. Total landscape area,

     v. Project type (new, rehabilitated, cemetery, or home owner installed),

     vi. Water supply type and water purveyor,

     vii. Checklist of documents in the package, and

viii. Applicant signature and date with the statement: "I agree to comply with the requirements of the water efficient landscape ordinance and submit a complete Landscape Documentation Package."

b. Water Efficient Landscape Worksheet

i. Hydrozone Information Table

ii. Water Budget Calculations with Maximum Applied Water Allowance (MAWA) and Estimated Total Water Use

c. Soil Management Report

d. Landscape Design Plan

e. Irrigation Design Plan, and

f. Grading Plan

Upon installation of the landscaping and irrigation systems, the Project applicant shall submit a Certificate of Completion and landscape and irrigation maintenance schedule for review and approval by the City. The Certificate of Compliance shall also be submitted to the local water purveyor and property owner or his or her designee.

For the specific requirements within the Water Efficient Landscape Worksheet, Soil Management Report, Landscape Design Plan, Irrigation Design Plan and Grading Plan, see the link below starting on page 5.

http://www.water.ca.gov/wateruseefficiency/landscapeordinance/docs/Title%2023%20extract%20-%20Official%20CCR%20pages.pdf

When Required: Prior to approval of construction-related permit

Initial Approval: Bureau of Planning and Bureau of Building

Monitoring/Inspection: Bureau of Building

The following applicable Standard Conditions of Approval that address utilities and service systems are stated in full in Section 4.6, *Greenhouse Gas Emissions and Climate Change*, and Section 4.8, *Hydrology and Water Quality*, of this document.

- **SCA GHG-1: Greenhouse Gas Reduction Plan**
- **SCA GHG-2: Green Building Requirements – Bay Friendly Landscapes**
- **SCA HYD-1: Erosion and Sedimentation Control Plan for Construction**
- **SCA HYD-2: State Construction General Permit**
- **SCA HYD-3: Drainage Plan for Post-Construction Stormwater Runoff on Hillside Properties**
- **SCA HYD-4: Site Design Measures to Reduce Stormwater Runoff**
- **SCA HYD-5: Source Control Measures to Limit Stormwater Pollution**

- **SCA HYD-6: NPDES C.3 Stormwater Requirements for Regulated Projects**
- **SCA HYD-7: Architectural Copper**

4.14.3 Discussion of Impacts

Significance Criteria

The City of Oakland has established thresholds of significance for CEQA impacts (City of Oakland, 2013). Per the City's thresholds, the proposed Project would cause significant adverse impacts related to utilities and service systems if it would:

a) Exceed wastewater treatment requirements of the San Francisco Bay Regional Water Quality Control Board;

b) Require or result in construction of new storm water drainage facilities or expansion of existing facilities, construction of which could cause significant environmental effects;

c) Exceed water supplies available to serve the project from existing entitlements and resources, and require or result in construction of water facilities or expansion of existing facilities, construction of which could cause significant environmental effects;

d) Result in a determination by the wastewater treatment provider which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the providers' existing commitments and require or result in construction of new wastewater treatment facilities or expansion of existing facilities, construction of which could cause significant environmental effects;

e) Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs and require or result in construction of landfill facilities or expansion of existing facilities, construction of which could cause significant environmental effects;

f) Violate applicable federal, state, and local statutes and regulations related to solid waste;

g) Violate applicable federal, state and local statutes and regulations relating to energy standards; or

h) Result in a determination by the energy provider which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the providers' existing commitments and require or result in construction of new energy facilities or expansion of existing facilities, construction of which could cause significant environmental effects.

Approach to Analysis

Project Water Supply and WSA

In 2006, pursuant to Sections 10910-10915 (SB 610) of the California Water Code, the City of Oakland requested consultation with EBMUD regarding the water supply needs of a previously

proposed 960 unit project at Oak Knoll.[3] In response, EBMUD prepared a Water Supply Assessment (WSA). The 2006 WSA evaluated historical average water demand, and estimated water demand, of the project proposed in 2006, and its accounting within the 2005 Urban Water Management Plan (UWMP). Historical average annual water demand for the Oak Knoll Naval Medical Center Project was approximately 250,000 gallons per day (gpd); the estimated water demand for the 2006 project was 220,000 gpd (EBMUD, 2006). The 2005 UWMP concluded that that EBMUD has and will have adequate water supplies to serve existing and projected demand during normal and wet years, but that deficits are projected for drought years. Up to a 25 percent water conservation is required in a severe drought and the proposed Project would be subject to this drought restriction.

On April 10, 2015, EBMUD reviewed the currently proposed Project, a revised version of the project first evaluated in 2006, which has since been further modified. EBMUD estimated that the proposed project demand would be 234,000 gpd, and determined that the Project demand was accounted for in EBMUD's projections in its 2010 Urban Water Management Plan, and therefore a new WSA is not required (EBMUD, 2015f). EBMUD sent a follow up letter on September 15, 2015, stating that the water demand of 234,000 gpd stated in the April 10th letter was in error and should be corrected to 207,000 gpd. (Both correspondence are included in **Appendix EE** to this Draft SEIR.) As discussed further below, water demand is projected to be 213,250 gpd. Despite the corrected water demand estimate, EBMUD did not change its position that it could meet demand for 234,000 gpd. In compliance with California Water Code Section 10910(h), EBMUD concluded that because the Project had already been the subject of a WSA in 2006, no additional WSA would be required since there is no substantial increase in water demand, no change in conditions affecting the ability to provide a sufficient supply of water, nor any significant new information made available (EBMUD, 2015g). The EBMUD letter explains that the 2010 Urban Water Management Plan took into account drought conditions.

Impacts and Mitigation Measures

Wastewater Collection and Treatment Systems

Impact UTIL-1: Sanitary wastewater generated by construction and operation of the proposed Project would not exceed wastewater treatment requirements of the San Francisco Bay Regional Water Quality Control Board nor result in a determination by the wastewater treatment provider that it does not have adequate capacity to serve the Project's projected demand. (Criteria a and d) (*Less than Significant with SCA*)

1998 EIS/EIR.

The 1998 EIS/EIR indicated that development of the Maximum Capacity Alternative would not adversely impact the effectiveness of the existing sanitary sewer system to convey and treat wastewater that would be generated by the Alternative. It can reasonably be concluded from this

[3] A "project," as defined by SB 610, includes proposals for new residential use over 500 units; retail use over 500,000 square feet; office use over 250,000 square feet; hotel/motel use over 500 rooms; industrial use over 40 acres or 650,000 square feet; a mixed-use project including any use as large as the above; or any project that would demand water greater than the equivalent of 500 dwelling units.

finding that the Maximum Capacity Alternative would not require construction of wastewater treatment faculties (the current, applicable significance criterion under the CEQA Guidelines). The 1998 EIS/EIR did not include specific estimates of wastewater volumes for the Maximum Capacity Alternative, but concluded that a nonsignificant (i.e., less than significant) impact would occur given the "good condition and satisfactory condition of the existing system's infrastructure" (U.S. Navy, 1998).

Proposed Project.

As presented in the Oak Knoll Preliminary Sanitary Sewer Plan Master Plan (Preliminary Sewer Plan) and 2016 supplement prepared by BKF Engineers (BKF, 2015b/2016) (included as **Appendix U** to this Draft SEIR), most of the Project site is located in an older area of Basin 85-401 where there is high infiltration and inflow[4], and a small portion of the site is within Basin 85-502. Because the existing on-site system is aging (with illicit connections, cracked pipes, and other sources of infiltration and inflow) and is not located to suit the proposed development, the existing sanitary sewer system on the Project site will be abandoned and replaced (BKF, 2015b). The proposed sanitary sewer system will be designed to comply with the City of Oakland Sanitary Sewer Guidelines.

In relation to existing conditions, the Project would increase estimated peak dry weather flow rates, but would decrease runoff and infiltration that would contribute to peak wet weather flow rates by more than the amount that it would increase dry weather flow rates, resulting in a net decrease of peak wet weather flows over existing conditions with the project.

Dry weather flow rates are the flow rates without taking rainfall infiltration and inflow into consideration. The Project site currently has no dry weather flow because it is vacant. The estimated peak dry weather flow rate from the site with development of the proposed Project would be approximately 0.405 mgd, according to the 2016 supplement to the Preliminary Sewer Plan (also in Appendix U). Increased dry weather flows would be accommodated with a new on-site sanitary sewer system. According to EBMUD, there is adequate capacity at EBMUD's treatment facility to accommodate and treat the increased dry weather flows, which are set forth in **Table 4.14-1**. (EBMUD, 2015f.)

TABLE 4.14-1
ESTIMATED PROJECT WASTEWATER FLOW

Existing Land Use Category	Average Flow Factor (gpd/unit)	Estimated Flow (gpd)
363 Residential, Single Family	250	90,750
572 Residential, Townhomes	200	114,400
82,000 SF commercial/institutional	0.1	8,200
Total		**213,350**

SOURCE: BKF, 2015b/2016

[4] The inflow and infiltration of stormwater into EBMUD and Oakland sewer lines results in high flow levels and overflow of untreated wastewater during wet weather.

According to the Preliminary Sewer Plan report and 2016 supplement (Appendix CC), the dry weather existing peak flow allocation from the Project site was approximately 0.232 million gallons per day (mgd), based on a 1985 study of flows from uses then on the site. The Project's flow rate would be an increase of approximately 0.173 mgd compared to the historical peak flow allocation.

Wet weather flow rates are calculated by adding all flow that would enter the sewer system from rainfall infiltration and inflow to dry weather flow rates, and represent peak flow conditions. The Project would reduce flow rates from infiltration and inflow by replacing the existing on-site sanitary sewer system. The proposed replacement system would reduce the per day groundwater infiltration (GWI) and rainfall dependent infiltration and inflow (RDI/I) (i.e., inflow or non-sewer water into the system) from approximately 4,000 gallons per acre per day (or 0.748 mgd) into the sewer system to approximately 915 gallons per acre per day (or 0.171 mgd).[5] The replacement system has been designed to preliminarily convey the sanitary sewer flow with a depth of less than two-thirds full, which would ensure adequate freeboard for peak wet weather flow conditions. As a result, with implementation of the proposed replacement sanitary sewer system, the Project would decrease RDI/I flows by about 0.577 mgd (BKF, 2015b/2016).

The peak wet weather flows through the site with development of the Project and the replacement sewer system would be 0.576 mgd, which is lower than the site's existing peak RDI/I flows. Therefore, even though the Project increases dry weather flows, Project peak wet weather flows would be lower than existing RDI/I flows and historical peak wet weather flows, indicating that the Project would not require additional wastewater treatment capacity.

Based on the existing conditions, projected Project wastewater flow provided in Table 4.14-1, and the estimated peak sewer flows reported in the Oak Knoll Preliminary Sanitary Sewer Plan and 2016 supplement, the proposed Project would not require or result in the construction of a new wastewater treatment facility or physical modifications to EBMUD's existing treatment facilities due to estimated reduced with-Project flows. Therefore, the Project would not result in a significant impact.

As indicated above, the Project would involve construction of a new sanitary sewer collection and conveyance system onsite. City of Oakland **SCA UTIL-4 (Sanitary Sewer System)** will be incorporated into the Project to ensure adequate service design and capacity of the collection system for the Project, as well as to specify and implement mechanisms to control or minimize increases in infiltration/inflow associated with the proposed Project.

A 2009 federal consent decree required EBMUD to eliminate wet weather facility discharges by 2036. To meet this requirement, EBMUD is required to implement its Regional Private Sewer Lateral Ordinance (RPSL Ordinance), construct various improvements to its interceptor system, and identify key areas of inflow and rapid infiltration over a 22-year period. Therefore, in order to

[5] The Preliminary Sewer Plan report indicates that further sewer flow monitoring studies would be required to establish the percent of infiltration and inflow that are associated with the Project site versus the portion associated with the portions of Basin 85-401 that are outside of the Project site. To be conservative, this analysis assumes all flows are associated with the Project.

contribute to these legally required I/I reductions, the Project shall comply with EBMUD's RPSL Ordinance through existing regulatory requirements and incorporation of SCA UTIL-4.

Based on Project's projected sewer flows, EBMUD has indicated it has capacity to provide wastewater treatment services to the Project. (EBMUD, 2015f.) EMBUD will thus ensure that such wastewater would be treated to meet applicable San Francisco Bay Regional Water Quality Control Board standards. The quality and quantity of the residential wastewater that would be generated by the Project would not contain any unusual constituents that would require some alterations to the EBMUD wastewater treatment facilities or which would conflict with the wastewater treatment standards under which the plant must operate.

As described in the Environmental Setting, the existing sanitary sewer line that serves Seneca is located on the unnamed road east of the Credit Union parcel. This line will be removed during Phase 1 construction. In its place, a new connection point will be provided to Seneca at the northwest corner of the proposed Town Center (in the same area as the existing storm drain and water connection points.

As part of the relocated system, a new sewer line will be installed along the western property line and it will connect to the existing sewer lateral that discharges to the City's sewer main on Mountain Boulevard. The existing laterals that serve the outparcels will be rerouted to this new Mountain Boulevard connection point. To keep the outparcels functional at all times during the construction of the Oak Knoll Project, the existing utility lines serving the outparcels would be kept in place and/or rerouted during construction.

In summary, the 1998 EIS/EIR identified a less-than-significant impact since no wastewater treatment facilities would be required. The proposed Project proposes to replace the existing Navy sanitary sewer system. The Project would also have a less than significant impact on stormwater drainage facilities. Impacts relating to construction of the new sewer system are analyzed in other sections of this document, as appropriate.

With this replacement, there is a net reduction in impact of the proposed Project compared to the Maximum Capacity Alternative. No new information of substantial importance or substantial change in circumstances exist that would result in a new significant impact regarding wastewater facilities compared to those identified for the Maximum Capacity Alternative in the 1998 EIS/EIR.

Impact Conclusion: Less than Significant with SCA.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact or Changes. No New Mitigation Measure Identified.

Storm Water Drainage

Impact UTIL-2: Construction and operation of the proposed Project would result in construction of new storm water drainage facilities or expansion of existing facilities, but the construction of which would not cause significant environmental effects. (Criterion b) (*Less than Significant with SCA*)

1998 EIS/EIR.

The 1998 EIS/EIR indicated that development of the Maximum Capacity Alternative would not require construction of a new stormwater drainage system and therefore would not result in a significant environmental impact resulting from the construction of stormwater facilities. This conclusion was based on the 1998 EIS/EIR analysis that the Project would likely decrease the amount of impervious surfaces on the Project site and increase open space and landscaped areas (pervious surfaces), and would therefore decrease stormwater runoff from the property. Further, as discussed under *Hydrology and Water Quality*, the 1998 EIS/EIR identified other water quality impacts as "nonsignificant" (i.e., less than significant) because the Alternative would comply with applicable laws, regulations, and standards applicable at that time, including preparation and implementation of a storm water pollution prevention plan (SWPPP) and Stormwater Management Plan (SWMP), consistent with the National Pollution Discharge Elimination System permit program (under section 402[p] of the Clean Water Act) and Regional Water Quality Control Board requirements.

Proposed Project.

A Preliminary Storm Drainage Master Plan report prepared by BKF Engineers for the Project (BKF, 2015) (included as **Appendix Y** to this Draft SEIR) reports that the existing on-site storm drain system is aging, lacks best management practices (BMPs) for stormwater treatment, and is not configured to accommodate the configuration proposed for the Oak Knoll Project. Therefore, the existing drainage system will be removed and replaced. The Project would incorporate City **SCA UTIL-5 (Storm Drain System)**, which requires that the storm drainage system be designed in accordance with the City of Oakland's Storm Drainage Design Guidelines and reduce maximum peak stormwater runoff by at least 25 percent compared to the pre-project conditions, as feasible.

The proposed storm drainage system will include street curb and gutter system, a network of new underground storm drain lines with multiple outfalls to Rifle Range Creek, concrete lined ditches and storm water management facilities. For the most part, storm water management facilities such as bio-retention areas, grass swales, tree wells, pervious pavers and others will be the first point of surface flow interception followed by storm drain lines discharging to Rifle Range Creek. Rifle Range Creek would continue to be the primary drainage facility through the Project area. However, as part of the Project, portions of the Rifle Range Creek channel would be restored and the channel storage capacity increased.

As described in the *Environmental Setting*, there are two existing storm drain lines that currently serve the outparcels, Seneca and the Credit Union. To maintain service to Seneca during

construction, the existing point of connection at the northwest corner of the proposed Town Center will remain in place.

The existing storm drain lines will remain and new connections to the Project's new storm drain line, located on the north side of the Village Center and in the Project's existing road between Seneca and the Credit Union parcels, will be provided during construction. (BKF, 2016b)

As described in detail under Section 4.8, *Hydrology and Water Quality* (Impact HYD-1) in this document, the proposed stormwater management facilities would include: a) low impact development features such as disconnected impervious surfaces or impervious areas separated by pervious areas, down spouts draining to pervious or landscaped areas, permeable pavement or pavers, rain gardens, tree wells and, b) treatment facilities such as grass swales and bio-treatment basins, to provide storm water treatment for on-site runoff and flow attenuation in accordance with the C.3 Requirements.

An assessment of stormwater drainage, capacity, and system design is detailed in Section 4.8, *Hydrology and Water Quality*. This analysis of utilities and service systems specifically assesses whether the Project would result in a significant impact due to the construction of a new stormwater drainage system (or expansion of existing system).

To the extent that the construction activities required for the Project's stormwater drainage system, including improvement to Rifle Range Creek, would potentially result in significant adverse environmental effects, these effects are less than significant with incorporation of SCAs regarding potential adverse construction effects to air quality; biological resources; cultural resources, geology and soils; hydrology and water quality; noise, and transportation identified throughout this document. These include SCA AIR-1 (Construction-Related Air Pollution Controls, Dust and Equipment Emissions), SCA BIO-1 (Tree Removal During Bird Breeding Season), SCA BIO-3 (Creek Protection Plan), SCA BIO-4 (Creek Dewatering/Diversion), SCA CUL-2 (Archaeological and Paleontological Resources – Discovery During Construction), SCA CUL-3 (Archaeologically Sensitive Areas – Pre-Construction Measures; Provision B: Construction ALERT Sheet), SCA GEO-3 (Construction-Related Permit(s), SCA HYD-1 (Erosion and Sedimentation Control Plan for Construction), SCA HYD-2 (State Construction General Permit), SCA NOI-1 (Construction Days/Hours), SCA NOI-2 (Construction Noise), SCA NOI-4 (Project-Specific Construction Noise Reduction Measures), SCA NOI-5 (Construction Noise Complaint Procedures), and SCA TRA-1 (Construction Activity in the Public Right-of-Way). Taken together, the impact regarding the effects of constructing the proposed stormwater drainage system would be less than significant.

According to BKF Engineers, while there is no evidence of large-scale pipe or inlet failure onsite (such as creek bank failure), deterioration of the existing system may have occurred due to lack of maintenance since approximately 1996 (upon closure of the NMCO). This change in circumstances is not considered substantial and has not resulted in a new significant impact related to the need for new facilities, the construction of which would cause significant impacts not previously identified.

Impact Conclusion: Less than Significant with SCAs.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact or Changes. No New Mitigation Measure Identified.

Water

Impact UTIL-3: The water demand generated by the proposed Project would not exceed water supplies available to serve the Project from existing entitlements and resources, but would result in construction of water facilities and expansion of existing facilities, construction of which would not cause significant environmental effects. (Criterion c) (*Less than Significant with SCA*)

1998 EIS/EIR.

According to the 1998 EIS/EIR, the Maximum Capacity Alternative would generate the need for approximately 191 million gallons of potable water per year (or 0.52 million gallons per day [mgd]) (including water required for golf course irrigation) compared to the estimated historical annual water demand of 90 million gallons per year. This represents a net increase of 112 percent compared to historical demand.

As stated in the 1998 EIS/EIR,

> the Maximum Capacity Alternative is estimated to increase population in the region of influence by 3,006 which includes 1,565 residential users, and 1,441 commercial users (please see table 4-5). Multiplying 1,565 residential users times an estimated 120 gallons per day per residential user (Department of Water Resources 1994a) equals 187,800 gallons of residential use per day. Multiplying 1,441 commercial users times an estimated 70 gallons per day per commercial user (Department of Water Resources 1994b) equals 100,870 gallons of commercial use per day. Adding these estimated daily residential (187,800 gallons) and commercial (100,870) uses equals 288,670 gallons per day estimated water use on site. Multiplying this use rate times 365 days subtotals 105,364,550 gallons. Adding at [sic] estimated 85,490,000 gallons per year to irrigate the 83-acre golf course (based on an irrigation rate of 1.03 million gallons per acre per year) totals 190,854,550 gallons per year estimated potable water demand. This represents an increase of about 112 percent over the estimated historic annual use of 90,000,000 gallons per year.

The 1998 EIS/EIR identified the following Mitigation 1 in the 1998 EIS/EIR to conserve water and prohibit water waste and reduce the significant water supply impact to less than significant.

> **1998 EIS/EIR Mitigation 1:** The City of Oakland will expressly identify the water supplier(s) that will provide water service to the alternative (Cal. Pub Res. Code Section 21151.9; Cal. Wat. Code Sections 10910-10915). The City will ask those suppliers whether the water demand associated with the alternatives had been included and assessed in the suppliers' urban water management plans, and will require such plans to be updated to account for estimated demand from this alternative. Government Code Sections 65352 and 65352.5 require cities to consult with water suppliers in connection with such proposed projects. Moreover, Government Code Section 65302, subdivision (d), requires cities to

coordinate with such suppliers in preparing the conservation elements of their general plans. That coordination is required to include the discussion and evaluation of any water supply and demand information described in Section 65352.5, if that information has been submitted by the water agency to the city. In addition to supplier identification and coordination, the following best management practices will be implemented by future site developers:

- Interior and exterior water audits and incentive programs for single family residential, multi-family residential, and commercial users;
- requirement of ultra low flush toilets in all new construction;
- distribution system water audits, leak detection and repair;
- metering for all new connection and billing by volume of use;
- large landscape water audits (golf course and recreational areas);
- landscape water conservation for new single family homes; and
- water waste prohibitions.

Implementation of these water conservation practices will be consistent with the guidelines and schedules set forth in the Memorandum of Understanding Regarding Urban Water Conservation in California (California Urban Water Conservation Council 1994). Supplier identification, coordination, and best management practices implementation would reduce water supply impacts to a less than significant level by ensuring that the water supply system will have adequate capacity prior to development approval.

Proposed Project.

Compared to the Maximum Capacity Alternative analyzed in the 1998 EIS/EIR, the proposed Project includes 351 more single family residential units and nearly 318,000 fewer square feet of commercial development. The Oak Knoll Preliminary Water Master Plan report (Preliminary Water Plan) prepared by BKF Engineers (included as **Appendix DD** to this Draft SEIR) indicates that the resulting potable water demand would be approximately 0.21 mgd - approximately 0.31 mgd less than the 0.52 mgd estimated for the Maximum Capacity Alternative in the 1998 EIS/EIR (BKF, 2015a). The update estimated in Table 4.14-1 estimates that demand would be approximately 0.21 mgd. According to the Preliminary Water Plan, the Project would design and construct all new water distribution facilities onsite in compliance with City of Oakland requirements and standards, and the facilities would be designed to provide adequate pressure for fire flow in accordance with design criteria established by the Oakland Fire Marshall and the East Bay Municipal Utilities District (EBMUD) (BKF, 2015a).

In 2006, the City of Oakland submitted a request to EBMUD to prepare a water supply assessment (WSA) for the proposed Project. In response, EBMUD prepared a WSA for the then-proposed project indicating it could meet project demand of 220,000 gallons per day. (See **Appendix EE** for a copy of the EBMUD WSA with accompanying City correspondence.) As shown below, the Project is now estimated to demand 213,350 gpd, which is within the projections already made by EBMUD and the original WSA.

EBMUD also concluded that there have been no changes in circumstances or conditions that substantially affect its ability to provide a sufficient supply of water for the project, including the current drought and the approval of the 2010 Urban Water Management Plan (UWMP). EBMUD considered that there has been a severe drought in California that in early 2014 prompted the EBMUD Board of Directors to establish a water supply action plan and in April 2014, declare a water supply deficiency and purchase federal Sacramento River water through the Freeport Regional Water Facility in an effort to guard against further cutbacks (EBMUD, 2014d; 2014c). In August 2014, the EBMUD Board of Directors declared a water shortage emergency, as well as adopted restrictions on water use and revised the action plan. (EBMUD, 2014e). In October 2014, EBMUD acknowledged that customers had exceeded the goal of 10-percent reduction in water use, and imposed a new rate structure with an excessive use penalty for households using excessive water, as well as a credit for very low water use.

EBMUD sought public input for the new drought rate structure, which is proposed as part of the 2016–2017 budget (EBMUD, 2014f). System-wide, EBMUD's customers reduced water use 12 percent from February 2014 to February 2015, as compared to one year earlier (EBMUD, 2015h). The district's Water Shortage Emergency Action Plan 2015 calls for customers to voluntarily cut back water use to 15 percent below average, give specific advice to customers about how to achieve that reduction, offer free devices and technical assistance, and implement state water use prohibitions (EBMUD, 2015i). In 2015, EBMUD declared a Stage 4 critical drought and set a community-wide goal to reduce water use 20 percent compared to 2013. EMBUD has yet to confirm whether this goal was achieved but did state that it was on pace to meet the reduction target.

EBMUD concluded that the drought and above listed response to it does not constitute a change in circumstances or conditions that substantially affects its ability to supply the Project with water. The 2006 WSA relied on EBMUD's 2005 UWMP and considered multi-year droughts in its analysis. EBMUD adopted a new UWMP ("2010 UWMP") since approval of the 2006 WSA, and both the 2005 UWMP and 2010 UWMP conclude that EBMUD will be able to continue to provide water service during multi-year droughts with implementation of various drought-related actions, including achieving reductions in customer demand. As discussed above, consistent with the drought-related actions anticipated in the 2005 and 2010 UWMPs and the 2006 WSA, to address the current drought, EBMUD has adopted new water use restrictions and purchased supplemental water supplies to ensure its ability to provide water service to its customers. The Project would be subject to the same restrictions and requirements as other EBMUD customers. EBMUD thus concluded that there have been no changes in circumstances or conditions that substantially affect its ability to provide a sufficient supply of water for the project, including the approval of the 2010 UWMP and the current drought.

EBMUD also concluded that no significant information has become available that was not known and could not have been known at the time the 2006 WSA was prepared because EBMUD had already identified that a multi-year drought was possible when it prepared the 2006 WSA and considered such droughts in that document. The 2010 UWMP similarly anticipated the potential for drought. In addition, the 2010 UWMP assumes the same water use for the project area as the 2005 UWMP. The project area's General Plan designation has not changed, and the City has continued to indicate that the project area is planned for redevelopment with a significant number of residences

and commercial uses. The 2010 UWMP indicates that EBMUD has taken the project into account in its water supply and demand projections through 2040. The 2010 UWMP thus does not present new information that would change the conclusions in the 2006 WSA.

Accordingly, EBMUD concluded that no additional WSA would be required for the Project since there has been no substantial increase in water demand, no change in conditions affecting the ability to provide a sufficient supply of water, nor any significant new information made available which was not known and could not have been known at the time when the 2006 WSA was prepared (EBMUD, 2015g).

Since EBMUD's September 15, 2015 letter, the Project's unit mix has been further refined. The Project previously had been planned to include 134 apartment units; it now calls for only single-family homes and multi-family town homes. The proposed total unit count (935) remains unchanged from that previously considered by EBMUD. The potential for an additional 10,000 square feet of community/commercial use was also added. As shown in **Table 4.14-2**, the Project is now estimated to require 213,350 gpd of water. This estimate is below the 220,000 gpd and 234,000 gpd numbers that EBMUD has indicated it has capacity to provide to the Project. (See **Appendix EE** for a copy of the EBMUD WSA with accompanying City correspondence.) The Project's estimated potable water demand is shown in Table 4.14-2 below.

Additionally, since the proposed Project has been determined by the City to be generally consistent with the 1996 Final Base Reuse Plan and the 1998 General Plan Land Use Diagram (with consideration of proposed residential land uses in the northeasternmost portion of the site subject to appeal, as discussed under Section 4.9, *Land Use and Planning*), and since these plans would have been considered in EBMUD's projections, the conservative estimated demand of 0.21 mgd would also be consistent with EBMUD's demand projections. Thus, based on EBMUD's letters and the 2010 Urban Water Management Plan, the proposed Project would not exceed EBMUD's capacity to serve the Project and would not result in a significant impact.

TABLE 4.14-2
STANDARD RATES FOR AVERAGE DAILY WATER USAGE

Land Use Category	Standard Rate (gpd/unit) or (gpd/SF)	Estimated Existing Demand (gpd)
Residential, Single Family – 363 units	250	90,750
Residential, Multiple Family Town Home – 572 units	200	114,400
Commercial – 82,000 sq.ft.	0.1	8,200
Total		**213,350**

SOURCE: BKF, 2016a

Furthermore, regarding the potential water usage of the proposed Project will implement several City SCAs adopted since the 1998 EIS/EIR that address measures in Mitigation 1 in the 1998 EIS/EIR. These include **SCA GHG-2 (Green Building Requirements – Bay Friendly Landscapes)** which include water conservation measures such as the use of low flow toilets and

faucets, and showerheads and water meters for landscaping. Additionally, the Project will incorporate **SCA UTIL-6 (Water Efficient Landscaping Ordinance [WELO]**) that requires compliance with the water efficient landscape ordinance which will reduced potential water usage and therefore further reduce this already less than significant impact.

To maintain service to the outparcels, Seneca and the Credit Union, during construction, the existing water and fire suppression services to the outparcels will be kept operational by maintaining a looped system around the outparcels, and maintaining the connection to the EBMUD's water system at all times. (BKF, 2016b)

As discussed in Impact UTIL-1 regarding the potential construction-period impacts associated with constructing the new water facilities for the Project, several SCAs would apply and address potentially potential adverse construction effects with construction of new water infrastructure. These include SCA AIR-1 (Construction-Related Air Pollution Controls, Dust and Equipment Emissions), SCA BIO-1 (Tree Removal During Bird Breeding Season), SCA BIO-3 (Creek Protection Plan), SCA BIO-4 (Creek Dewatering/Diversion), SCA CUL-2 (Archaeological and Paleontological Resources – Discovery During Construction), SCA CUL-3 (Archaeologically Sensitive Areas – Pre-Construction Measures; Provision B: Construction ALERT Sheet), SCA GEO-3 (Construction-Related Permit(s), SCA HYD-1 (Erosion and Sedimentation Control Plan for Construction), SCA HYD-2 (State Construction General Permit), SCA NOI-1 (Construction Days/Hours), SCA NOI-2 (Construction Noise), SCA NOI-4 (Project-Specific Construction Noise Reduction Measures), SCA NOI-5 (Construction Noise Complaint Procedures), and SCA TRA-1 (Construction Activity in the Public Right-of-Way). Taken together, the impact regarding the effects of constructing the proposed new water facilities would be less than significant.

While it is possible that the existing system may have experienced some level of deterioration due to lack of maintenance of use since approximately 1996 (upon closure of the NMCO), this change in circumstance is not considered substantial to adversely affect the provision of sufficient water supplies for the Project because as part of the Project, a new water conveyance system would be constructed and would replace the old system. The impacts from constructing the system are considered in the relevant chapters of this EIR, including traffic, air quality, biological resources, and cultural resources.

The Project would not exceed water supplies available to serve the Project, and the Project would thus not result in a significant impact.

Impact Conclusion: Less than Significant with SCAs.

Comparison to 1998 EIS/EIR Findings: No New Significant Impact or Changes. Previous Mitigation not Required. No New Mitigation Measure Identified.

Solid Waste

Impact UTIL-4: The Project would be served by a landfill with sufficient permitted capacity to accommodate the Project's solid waste disposal needs and would not require the construction of landfill facilities or expansion of existing facilities, construction of which could cause significant environmental effects nor would it violate applicable federal, state, and local statutes and regulations related to solid waste. (Criteria e and f) (*Less than Significant with SCAs*)

1998 EIS/EIR.

The 1998 EIS/EIR indicated that development or operation of the Maximum Capacity Alternative would not result in a significant impact regarding the capacity of the solid waste conveyance and disposal systems that would have served that Alternative. According to the 1998 EIS/EIR, historically, approximately 100 tons of solid waste and trash was generated per week during pre-closure conditions. The 1998 EIS/EIR identified the potential impact resulting from the Project's effect of increased solid waste on existing landfill capacities and applicable regulations as "nonsignificant" (i.e., less than significant).

> **(1998 EIS/EIR).** Utilities and Service Systems: Solid Waste (Cumulative). A significant and mitigable impact would occur if solid waste diversion (reduction and recycling) goals are not met on a regional basis. There is a current capacity shortfall of about eight million tons of landfill capacity to meet projected needs through the year 2010.

The 1998 EIS/EIR further identified that a significant but mitigable cumulative impact would occur regarding sufficient landfill capacity if solid waste diversion (reduction and recycling) goals were not met on a regional basis. The analysis identified that demolition of buildings on the NMCO property to accommodate the Maximum Capacity Alternative would generate an estimated 71,346 tons of solid waste. The analysis conducted in 1998 reported that when combined with other regional activities that would generate substantial quantities of solid waste, the cumulative generation of demolition waste may prevent Alameda County from meeting Cal/EPA's solid waste reduction standards of 50 percent diversion by year 2000, particularly given the 8 million ton shortfall of landfill capacity needed to meet projected needs through year 2010 (as estimated by Alameda County Waste Management Authority in 1998).

> **(1998 EIS/EIR).** Demolition of the hospital and all other buildings that would not be used as part of one of the reuse alternatives, would result in about 71,346 tons of waste. Of this total, an estimated 36,616 tons, or about 51 percent of the demolition waste would be generated by demolishing the hospital building. Demolition of the remaining buildings would amount to the remaining buildings would amount to the remaining 34,730 tons. The 71,346 tons of waste represent less than one percent of the existing landfill capacity. Although it is a very small percentage of available landfill capacity, it still represents a potentially significant impact, because of the estimated eight million ton shortfall of landfill capacity in the County. This would significantly impact Alameda County's ability to meet their integrated waste management plan diversion goals. This would not be an immediate impact, since existing landfill capacity is adequate to absorb NMCO demolition waste. However, over the long term, in combination with other activities that generate substantial quantities of solid waste that will need to be diverted or landfilled, the generation of this demolition waste represents a potentially significant and mitigable impact.

The 1998 EIS/EIR identified the following mitigation for which the City of Oakland would be responsible for implementing to reduce the potential significant cumulative impact to less than significant:

> **1998 EIS/EIR Mitigation**: The City shall develop and implement, over the long term and in consultation with the California Integrated Waste Management Board (CIWMB), a construction and demolition materials waste diversion program integrating materials exchange, recycling, salvage, and other waste recovery and reuse activities to realize maximum reasonable diversion of such material from landfills. Effective implementation of that program, combined with the achievement of quantitative estimates of source reduction and recycling attributable to long-term Alameda County policies and plans to expand existing, or acquire and develop new landfill capacity, should accommodate increased volumes of solid waste, thereby resulting in this impact being nonsignificant.

Proposed Project.

The proposed Project includes 351 more residential units and 318,000 fewer square feet of commercial / community development compared to the Maximum Capacity Alternative (see Table 4.1). Based on the estimated resident population for the proposed Project (2,236 residents, see Table 4.10-4 in Section 4.10, *Population and Housing*) and the Maximum Capacity Alternative (3,006 residents), the proposed Project would generate approximately the same amount of solid waste per year from residential use as the Maximum Capacity Alternative, based on 2013 solid waste generation estimates calculated by CalRecycle for residential use (3.9 pounds per year per resident). Solid waste generated by non-residential uses are based on numbers of employees by land use, which has been calculated to be approximately 180 employees (see Table 4.10-5 in Section 4.10, *Population and Housing*). While detailed employment estimates were not available for the Maximum Capacity Alternative, it is reasonable to conclude that the annual solid waste generated by 72,000 square feet of commercial use and 10,000 square feet of community commercial (with the proposed Project) would be substantially less than the annual amount of solid waste generated by 400,000 square feet of mixed use (commercial, office, institutional) (with the Maximum Capacity Alternative). Thus, the Project would result in similar types of solid waste generation and volumes, compared to the MCA, and like the MCA, would result in less-than-significant project impacts. No new project impact is identified.

The Project applicant proposes to recycle or re-use all of the demolished materials onsite, consisting largely of concrete and asphalt materials from the proposed Project. CalRecycle publishes disposal rate targets for residential and business uses that, in 2013, were 5.8 pounds per day per resident and 15.3 pounds per day per employee for Oakland. In 2013, the actual disposal rate for residents was 3.9 pounds per day and for employees it was 9.2 pounds per day (CalRecycle, 2015c). Based on these rates, the proposed commercial and residential uses on the Project site would generate approximately 3,787,386 pounds per year of solid waste (1,894 tons per year).[6]

[6] This rough estimate relies on a total of 2,236 residents and 180 employees generated under the proposed Project (see Section 4.11, *Population and Housing*) (2,236 [residents] x 3.9 [pounds per day] x 365 [days per year] = 3,182,946 pounds per year for residential uses and 180 x 9.2 [pounds per day] 365 [days per year] = 604,440 pounds per year for commercial uses.

Demolition and construction debris generated in Oakland is generally hauled to the Altamont Landfill and Resource Facility or the Vasco Road Landfill (approximately 35 miles east of Oakland near Livermore) for disposal or recycling. The Altamont Landfill has a maximum permitted daily throughput of 11,500 tons per day and a remaining capacity of 45 million cubic yards (CalRecycle, 2015b). The Vasco Road Landfill is undergoing a partial closure but has a remaining capacity of 7.9 million cubic yards with an expected capacity availability through 2022 (CalRecycle, 2015d).

Per the enactment of the California Integrated Waste Management Act (AB 939) in 1989, the City of Oakland prepared a Source Reduction and Recycling Element (SRRE), which requires proposed development projects to maintain the City's ability to achieve a mandated 50 percent waste diversion rate. In addition, the 1990 Voter Initiative Measure D (Alameda County Waste Reduction and Recycling Initiative) mandates all cities in Alameda County to divert 75 percent of their solid waste from landfills by the year 2010. To further the goals of AB 939 and Alameda County's Measure D, the City has adopted construction and demolition (C&D) debris waste reduction and recycling requirements (Ordinance No. 12253 C.M.S.) that require development projects to prepare and submit a Construction and Demolition Debris Waste Reduction and Recycling Plan (WRRP) to divert at least 50 percent of all C&D debris generated by project development from landfill disposal. The City of Oakland

In summary, the 1998 EIS/EIR identified a potentially significant cumulative impact regarding sufficient land fill capacity. Under current conditions, this impact would be less than significant since, as indicated by CalRecycle, sufficient capacity exists in area landfills. Additionally, the City of Oakland is currently implementing a SRRE in compliance with AB 939 (subsequent to, and in conformance with, the 1998 EIS/EIR mitigation identified to reduce the cumulative impact to less than significant). The cumulative impact is also reduced to less than significant with ongoing comprehensive implementation of City and County waste reduction and diversion requirements and programs (i.e., Measure D - Alameda County Waste Reduction and Recycling Initiative; and Ordinance No. 12253 C.M.S., the City of Oakland's construction and demolition debris waste reduction and recycling requirements) that together would reduce the potential for exceeding existing capacities of existing landfills. Moreover, the proposed Project, as well as other major City projects, will incorporate City of Oakland **SCA UTIL-1 (Construction and Demolition Waste Reduction and Recycling)** and **SCA UTIL-3 (Recycling Collection and Storage Space),** which ensure adherence to source reduction goals, and all applicable regulatory requirements regarding solid waste and recycling. The Project would not result in significant project or cumulative impacts with respect to solid waste disposal.

Impact Conclusion: Less than Significant with SCAs

Comparison to 1998 EIS/EIR Findings: No New Significant Impact or Changes. Previous Mitigation not Required. No New Mitigation Measure Identified.

Energy

Impact UTIL-5: The proposed Project would not violate applicable federal, state and local statutes and regulations relating to energy standards nor would it result in a determination by the energy provider that it would not have adequate capacity to serve the Project's projected demand. (Criteria g and h) (*Less than Significant*)

1998 EIS/EIR.

The 1998 EIS/EIR reported that the existing 12-kilovolt electrical system on the Project site would have provided adequate capacity to serve the Maximum Capacity Alternative. Pacific Gas & Electric (PG&E) also indicated that it would have adequate capacity to serve the Maximum Capacity Alternative with natural gas service.

Proposed Project.

While the proposed Project envisions more residential units and less commercial space than the Maximum Capacity Alternative, PG&E's existing electricity and natural gas supply and distribution systems are anticipated to have enough capacity to serve the Project. The Project sponsor would be required to finance individual transmission line hook-ups to the adjacent segments of PG&E's electricity and natural gas facilities and extensions, and any improvements and extensions required to accommodate the Project would be determined in consultation with PG&E prior to installation. Like the 1998 Alternative, the proposed Project would comply with all applicable federal, state and local statutes and regulations relating to energy standards and is not anticipated to exceed PG&E's service capacity, particularly given the level of previous uses on the site. The Project would be required by the City to meet California Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24 of the California Code of Regulations), which are aimed at the incorporation of energy-conserving design and construction (see Section 4.15, *Energy*, for a more in depth discussion of the Project's energy use and energy minimization measures). City **SCA GHG-1 (Greenhouse Gas Reduction Plan)** would apply to Phase 1 (and cumulatively, Phase 2) of the Project and would include the purchase of carbon offsets to meet the reduction required under SCA GHG-1 and ultimately reduced emissions offsite. SCA GHG-2 (Green Building Requirements – Bay Friendly Landscapes) will apply and includes water conservation measures such as the use of low flow toilets and faucets, and showerheads and water meters for landscaping, which reduces energy demand associated with these activities. Reducing the Project's demand for utility services would allow existing systems to more easily accommodate the Project.

The Project also would meet the requirements of pertinent City policies as identified in the City of Oakland General Plan, helping to reduce future energy demand. Overall, as also concluded in the 1998 EIS/EIR, the impact would be less than significant.

Impact Conclusion: Less than Significant with SCAs

Comparison to 1998 EIS/EIR Findings: No New Significant Impact or Changes. No New Mitigation Measure Identified.

Cumulative

Impact UTIL-6: The Project would not have a considerable contribution to any cumulative impacts related to utilities and service systems, considering the combined effect of the Project, and past, present, approved, pending, and reasonably foreseeable future projects in the area and citywide. *(Less than Significant with SCAs)*

1998 EIS/EIR.

The 1998 EIS/EIR analysis described a potential cumulative impact related to landfill capacity. However, the significant cumulative impact identified for the Maximum Capacity Alternative regarding solid waste/landfill facilities (criteria "e" and "f") would no longer occur with the proposed Project due to substantial changes in circumstances and new information regarding projected landfill capacity, new regulatory requirements regarding diversion.

Proposed Project.

The cumulative geographic context for utilities and service systems for the Oak Knoll Project is the service area for each given utility system. The Project would not exceed the wastewater treatment requirements of the San Francisco Bay Regional Water Quality Control Board and therefore would not contribute to flows that could result in cumulative exceedances. The Project would contribute wastewater that would need to be treated, but this contribution would not result in a cumulatively considerable impact to the treatment facility. EBMUD's projections for water and wastewater demand incorporate growth pursuant to service-area-wide growth projections. As stated above, EBMUD has determined that it would meet Project water and water treatment demand, taking system-wide demand into consideration. EBMUD and the City of Oakland have also planned for system-wide growth and the resulting demand for water and wastewater capacity. The City's implementation of its Standard Conditions of Approval and adherence to the provisions of the inflow and infiltration correction program would help decrease the amount of inflow and infiltration into the existing wastewater transport system.

In addition, cumulative development would occur in already urbanized areas and primarily involve redevelopment of previously developed properties, so there would be limited change in impervious surface area and stormwater runoff. In addition, with required compliance of individual development projects with SCA 80, which require a net reduction of 25 percent in the peak stormwater runoff rate from new projects to the extent possible, and the Alameda Countywide Clean Water Program National Pollutant Discharge Elimination System (NPDES) Municipal Stormwater Permit, cumulative stormwater drainage system impacts would be less than significant.

As a result, the Project would not make a cumulatively considerable contribution to water and wastewater demand.

The Project would result in the construction of new storm water drainage facilities, but these facilities would not make a cumulative considerable contribution to environmental impacts not considered in other sections of this EIR.

The Project, together with past, present, existing, pending and reasonably foreseeable future development projects would increase demand for electricity and natural gas, but not to the extent that cumulative demand would result in a significant adverse cumulative impact. The electrical grid has capacity to meet the demand of the Project and other cumulative projects.

The Project would not result in a cumulatively considerable contribution to cumulative impacts regarding sufficient landfill capacity. Landfill capacity can accommodate the Project and system-wide demand now and into the future, as stated in the discussion of Impact 4.14-4.Thus, the Project would not combine with, or add to, any potential adverse impacts on the provision of stormwater, solid waste or energy services that may be associated with other cumulative development.

In summary, based on the information in this section and for the reasons summarized above, the development of the Project would not result in a cumulatively considerable contribution to any significant adverse cumulative impacts on utilities or service systems when considered together with past, present, existing, approved, pending and reasonably foreseeable development. The impact is less than significant.

Impact Conclusion: Less than Significant with SCAs

Comparison to 1998 EIS/EIR Findings: No New Significant Impact or Changes. Previous Mitigation not Required. No New Mitigation Measure Identified.

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4.15 Energy

4.15.1 Introduction

Section 21100(b) of the California Public Resources Code (PRC) directs all State Agencies, Boards and Commissions to assess the environmental impacts of projects for which they are a Lead Agency under CEQA to determine whether the Project could result in significant effect on the environment, including effects from the wasteful, inefficient, and unnecessary consumption of energy, and to identify mitigation measures to minimize any such significant effects. The goal of this assessment is to ensure the wise and efficient use of energy, which could be accomplished by a number of means, including:

- decreasing overall per capita energy consumption
- decreasing reliance on fossil fuels such as coals, natural gas, and oil; and
- increasing reliance on renewable energy sources

This section describes the California energy profile (i.e. mix of energy resources and consumption characteristics), describes the energy production and transmission profile of Pacific Gas & Electric (PG&E) (the regional purveyor of natural gas and electricity throughout the Bay Area and much of Northern California), identifies regulatory and policy frameworks that govern the production and consumption of energy resources and aim to increase energy efficiency while reducing reliance on fossil fuels.

This section examines the proposed Project's energy usage characteristics to determine whether that could result in any significant environmental impacts during Project construction or operation activities. The energy thresholds applied in this analysis did not exist at the time of preparation of the 1998 EIS/EIR, nor was the assessment of energy impacts a requirement under CEQA at that time. Therefore, no such assessment was conducted for the 1998 EIS/EIR and thus no comparison of impacts with that prior analysis can be provided.

4.15.2 Setting

State

Energy Profile

California had the 48th lowest per capita energy consumption rate in the country in 2013, with a yearly per capita consumption rate of 200 million British Thermal Units (BTUs). The transportation sector is the largest energy consumer in California, at nearly 37.8 percent of total energy consumption, with more registered vehicles than any other state and among the longest work commute times in the nation. Residential uses account for just over 19.3 percent, commercial uses consume about 18.5 percent, and industrial uses consume about 24.4 percent (EIA, 2015).

California relies on a regional power system composed of a diverse mix of natural gas, renewable, hydroelectric, and nuclear generation resources. Approximately 68 percent of the electrical power needed to meet California's demand is produced in the state; the balance, approximately 32 percent, is imported from the Pacific Northwest and the Southwest (CEC, 2016b). In 2014, California's in-state electricity was derived from natural gas (44.5 percent), coal (6 percent), large hydroelectric resources (5.5 percent), nuclear sources (8.5 percent), and renewable resources that include geothermal, biomass, small hydroelectric resources, wind, and solar (20.1 percent) (CEC, 2016b). In 2014, California ranked fourth in the nation in conventional hydroelectric generation, second in net electricity generation from other renewable energy resources, and first in electricity production from both solar and geothermal energy.

Transportation Fuels

The energy consumed by the transportation sector accounts for roughly 41 percent of California's petroleum demand and 38 percent of its greenhouse gas emissions. Gasoline and diesel, both derived from petroleum (also known as crude oil), are the two most common fuels used for vehicular travel. According to the California Energy Commission (CEC), the State relies on petroleum-based fuels for 96 percent of its transportation needs. The transportation sector, including on-road and rail transportation (but excluding aviation), accounts for nearly 99 percent of all motor gasoline use, at roughly 3.4 million barrels in 2014 (EIA, 2016). California is the third largest consumer of gasoline in the world, behind the U.S. (as a whole) and China (EIA, 2010). Approximately 37 percent of California's crude oil is produced within the state, about 11.8 percent is produced in Alaska, and the remaining 51.2 percent is produced in foreign lands.[1]

In 2013, approximately 14.54 billion gallons of gasoline were consumed in California, along with approximately 3.48 billion gallons of diesel fuel (CEC, 2015). Base gasoline demand dropped by about 13 percent between 2003 and 2013. Over that time, ethanol became a larger component of the gasoline supply, due to California's Renewable Fuel Standard (RFS), with an increase of 148 percent. In 2013, ethanol comprised 10 percent of each gallon of gasoline. Base diesel fuel demand remain unchanged between 2003and 2013; however, biodiesel use increased due to the RFS and the Low Carbon Fuel Standard (LCFS). Diesel now accounts for 5.3 percent of a total diesel gallon.

Northern California refineries process 45.4 percent of the state's crude oil and produce approximately 39.9 percent of the state's gasoline, and 48.7 percent of the diesel fuel, along with 34.4 percent of the jet fuel and 45.2 percent of the export fuel. Combined production capacity at the five Bay Area refinery centers was approximately 496,101 barrels per day (Western States Petroleum Association, 2008). A majority of gasoline, diesel and jet fuels produced at refineries are shipped by pipeline to over 60 distribution terminals. From there, tanker trucks transport fuels to retail and non-retail stations for direct consumer purchases. Truck deliveries to retail and non-retail stations statewide totaled 4,980 trucks/day for gasoline and 1,191 trucks/day for diesel.

[1] In-state, other domestic, and foreign crude oil source information is from the U.S. Energy Information Administration, "Company Level Imports," cited in the CEC presentation of March 26, 2015.

California experienced an approximate 5 percent decrease in production between 2007 and 2015 as a result of several factors, including declining fuel reserves and economic and regulatory factors (California State Board of Equalization, 2016a). Statewide, Californians used approximately 2.8 billion gallons of diesel and 14.9 billion gallons of gasoline in 2015 (California State Board of Equalization, 2016a and 2016b). Per capita consumption of petroleum products in transportation is expected to slow down with the increasing use of alternative fuels and improved fuel efficiency in vehicles.

Pacific Gas and Electric Company

Pacific Gas and Electric Company (PG&E) is an investor-owned utility company that provides electricity and natural gas supplies and services throughout a 70,000 square miles service area that extends from Eureka on the north, to Bakersfield in the south, and from the Pacific Ocean on the west to the Sierra Nevada on the east. The nine-county Bay Area and the entire City of Oakland is within its service area for both kinds of energy. Operating characteristics of PG&E's electricity and natural gas supply and distribution systems are provided below.

PG&E Electric Utility Operations

PG&E provides "bundled" services (i.e., electricity, transmission and distribution services) to most of the six million customers in its service territory, including residential, commercial, industrial and agricultural consumers. Customers also can obtain electricity from alternative providers such as municipalities or Customer Choice Aggregators (CCAs), as well as from self-generation resources, such as rooftop solar installations.

In recent years, PG&E continued to make improvements to its electric transmission and distribution systems to accommodate the integration of new renewable energy resources, distributed generation resources, and energy storage facilities, and to help create a platform for the development of new Smart Grid technologies. In December 2014, the CPUC issued a decision that permits the California investor-owned electric utilities to own electric vehicle (EV) retail charging equipment in their respective service territories to help meet the state's goal of reducing Greenhouse Gas (GHG) emissions by promoting cleaner transportation. On February 9, 2015, the PG&E filed an application to request that the CPUC approve their proposal to develop, maintain, and operate an EV-charging infrastructure in its service territory.

PG&E is required to maintain physical generating capacity adequate to meet its customers' demand for electricity ("load"), including peak demand and planning and operating reserves, deliverable to the locations and at times as may be necessary to provide reliable electric service. PG&E is required to dispatch or schedule all of the electricity resources within its portfolio in the most cost-effective way.

In 2014, PG&E generated and/or procured a total of 74,547 gigawatt hours (GWh) of electricity. Of this total, PG&E owns 7,684 megawatts (MW) of generating capacity, itemized below. The remaining electrical power is purchased from other sources in and outside of California. Approximately 27 percent of the electricity produced by PG&E comes from natural gas-fired sources (see **Table 4.15-1**).

TABLE 4.15-1
PG&E-OWNED ELECTRICITY GENERATING SOURCES

Source	Generating Capacity (Megawatts MW)
Nuclear (Diablo Canyon-2 reactors)	2,240
Hydroelectric	3,889
Fossil Fuel-Fired	1,400
Fuel Cell	3
Solar Photovoltaic (13 units-12 in Fresno County, 1 in Kings County)	152
Total	7,684

SOURCE: PG&E, 2014 Annual Report.

Renewable Energy Resources

California law requires load-serving entities, such as PG&E, to gradually increase the amount of renewable energy they deliver to their customers to at least 33 percent of their total annual retail sales by 2020. This program, known as the RPS program, became effective in December 2011, established three multi-year compliance periods that have gradually increasing RPS targets: 2011 through 2013, 2014 through 2016, and 2017 through 2020. After 2020, the RPS compliance periods will be annual.

Renewable generation resources, for purposes of the RPS program, include bioenergy such as biogas and biomass, certain hydroelectric facilities (30 MW or less), wind, solar, and geothermal energy. During 2014, 27 percent of PG&E's energy deliveries were from renewable energy sources, exceeding the annual RPS target of 23.3 percent, as listed below. With existing contracts in place for 2020, this rises to 31.3 percent.

TABLE 4.15-2
PG&E RENEWABLE ENERGY SOURCES

Source	Percent of Total Energy Portfolio
Biopower:	4.6
Geothermal	5.27
Wind	7.2
RPS-Eligible Hydroelectric	1.3
Solar	8.7
Total	**27**

SOURCE: PG&E, 2014 Annual Report.

Electricity Transmission

By December 31, 2014, PG&E owned approximately 18,100 circuit miles of interconnected transmission lines operating at voltages ranging from 60 kV to 500 kV. PG&E also operated 91 electric transmission substations with a capacity of approximately 63,400 MVA. PG&E's electric transmission system is interconnected with electric power systems in the Western Electricity Coordinating Council, which includes many western states, Alberta and British Columbia, and parts of Mexico. In November 2013, PG&E, MidAmerican Transmission, LLC, and Citizens Energy Corporation were selected to jointly develop a new 230-kV transmission line to address the growing power demand in Fresno, Madera and Kings Counties area. The transmission line is expected to commence operations by 2022, and could come online earlier.

Electricity Distribution

PG&E's electricity distribution network consists of approximately 141,700 circuit miles of distribution lines (of which approximately 20 percent are underground and approximately 80 percent are overhead), 55 transmission switching substations, and 603 distribution substations, with a capacity of approximately 30,200 Mega Volt Amps (MVA).

These distribution substations serve as the central hubs for PG&E's electric distribution network. Emanating from each substation are primary and secondary distribution lines connected to local transformers and switching equipment that link distribution lines and provide delivery to end-users. In October 2014, PG&E commenced operations at the first of three new electric distribution control centers. This 24,000-square foot, state-of-the-art facility, located in Fresno, California, will enhance electric reliability and resiliency for PG&E's customers throughout the Central Valley and will utilize current and future Smart Grid technologies. Additional facilities in Rocklin and Concord, California, are expected to be completed by 2016. These control centers form a key part of PG&E's efforts to create a smarter, more resilient grid.

PG&E Natural Gas Operations

PG&E provides natural gas transportation services to "core" customers and to "non-core" customers (i.e., industrial, large commercial, and natural gas-fired electric generation facilities) that are connected to its gas system in its service territory. Core customers can purchase natural gas procurement service (i.e., natural gas supply) from either PG&E or non-utility third-party gas procurement service providers (referred to as core transport agents). When core customers purchase gas supply from a core transport agent, PG&E continues to provide gas delivery, metering and billing services to customers. When PG&E provides both transportation and procurement services, PG&E refers to the combined service as "bundled" natural gas service. Currently, more than 91 percent of core customers, representing nearly 80 percent of the annual core market demand, receive bundled natural gas service from PG&E.

PG&E does not provide procurement service to non-core customers, who must purchase their gas supplies from third-party suppliers. PG&E offers backbone gas transmission, gas delivery (local transmission and distribution), and gas storage services as separate and distinct services to its non-core customers. Access to PG&E's backbone gas transmission system is available for all natural gas marketers and shippers, as well as non-core customers. PG&E also delivers gas to off-

system customers (i.e., outside of PG&E's service territory) and to third-party natural gas storage customers. In 2014, total sales of natural gas were 185,594 million cubic feet (MMcf) (PGE, 2016).

Natural Gas Supplies

PG&E can receive natural gas from all the major natural gas basins in western North America, including basins in western Canada, the Rocky Mountains, and the southwestern United States. PG&E also is supplied by natural gas fields in California. PG&E purchases natural gas to serve its core customers directly from producers and marketers in both Canada and the United States. The contract lengths and natural gas sources of PG&E's portfolio of natural gas purchase contracts have fluctuated generally based on market conditions. During 2014, PG&E purchased approximately 269,590 MMcf of natural gas (net of the sale of excess supply of gas). Nearly all this natural gas was purchased under contracts with a term of one year or less. PG&E's largest individual supplier represented approximately 17 percent of the total natural gas volume PG&E purchased during 2014 (PGE, 2016).

Natural Gas System Assets

PG&E owns and operates an integrated natural gas transmission, storage, and distribution system that includes most of northern and central California. By December 31, 2014, PG&E's natural gas system consisted of approximately 42,700 miles of distribution pipelines, over 6,400 miles of backbone and local transmission pipelines, and various storage facilities. PG&E owns and operates eight natural gas compressor stations on its backbone transmission system and one small station on its local transmission system that are used to move gas through PG&E's pipelines. PG&E's backbone transmission system is used to transport gas from PG&E's interconnection with interstate pipelines, other local distribution companies, and California gas fields to PG&E's local transmission and distribution systems (PGE, 2016).

PG&E has agreements for delivery of natural gas from western Canada to the United States-Canada border with TransCanada NOVA Gas Transmission, Ltd. and TransCanada Foothills Pipe Lines Ltd., B.C. System. These companies' pipeline systems connect at the border to the pipeline system owned by Gas Transmission Northwest, LLC, which provides natural gas transportation services to a point of interconnection with PG&E's natural gas transportation system on the Oregon-California border near Malin, Oregon.

PG&E also has firm transportation agreements with Ruby Pipeline, LLC to transport this gas from the U.S Rocky Mountains to the interconnection point with PG&E's natural gas transportation system in the area of Malin, Oregon, at the California border, and firm transportation agreements with Transwestern Pipeline Company, LLC and El Paso Natural Gas Company to transport this natural gas from supply points in the U.S. Southwest to interconnection points with PG&E's natural gas transportation system in the area of California near Topock, Arizona. PG&E also has a transportation agreement with Kern River Gas Transmission Company to transport gas from the U.S. Rocky Mountains to the interconnection point with PG&E's natural gas system in the area of Daggett, California.

PG&E owns and operates three underground natural gas storage fields and has a 25 percent interest in a fourth storage field, all of which are connected to PG&E's transmission system. PG&E owns and operates compressors and other facilities at these storage fields that are used to inject gas into the fields for storage and later withdrawal. In addition, four independent storage operators are interconnected to PG&E's northern California transmission system.

PG&E Local Energy Infrastructure

PG&E maintains underground high pressure gas mains and overhead electrical lines along Mountain Boulevard, Keller Avenue and Sequoyah Road, adjacent to the Project site.

There are existing PG&E and AT&T easements running directly from Mountain Boulevard to the adjacent outparcels (Seneca and the Credit Union). Existing and future uses that occupy the outparcels would coordinate directly with the respective utility companies to maintain existing dry utility services (electric, gas, telecom, etc.) via these existing easements (BKF, 2016b).

Regulatory Setting

National Energy Conservation Policy Act

The National Energy Conservation Policy Act (NECPA) serves as the underlying authority for federal energy management goals and requirements. Signed into law in 1978, it has been regularly updated and amended by subsequent laws and regulations. This act is the foundation of most federal energy requirements. NECPA established energy-efficiency standards for consumer projects and includes a residential program for low-income weatherization assistance, grants and loan guarantees for energy conservation in schools and hospitals, and energy-efficiency standards for new construction. Initiatives in these areas continue today.

National Energy Policy Act of 2005

The National Energy Policy Act of 2005 sets equipment energy efficiency standards and seeks to reduce reliance on nonrenewable energy resources and provide incentives to reduce current demand on these resources. For example, under the act, consumers and businesses can attain federal tax credits for purchasing fuel-efficient appliances and products, including hybrid vehicles; constructing energy-efficient buildings; and improving the energy efficiency of commercial buildings. Additionally, tax credits are available for the installation of qualified fuel cells, stationary microturbine power plants, and solar power equipment.

Executive Order 13423 (Strengthening Federal Environmental, Energy, and Transportation Management), signed in 2007, strengthens the key energy management goals for the federal government and sets more challenging goals than the Energy Policy Act of 2005. The energy reduction and environmental performance requirements of Executive Order 13423 were expanded upon in Executive Order 13514 (Federal Leadership in Environmental, Energy, and Economic Performance), signed in 2009.

Energy and Independence Security Act of 2007 and Corporate Average Fuel Economy Standards

The Energy and Independence Security Act of 2007 sets federal energy management requirements in several areas, including energy reduction goals for federal buildings, facility management and benchmarking, performance and standards for new buildings and major renovations, high-performance buildings, energy savings performance contracts, metering, energy-efficient product procurement, and reduction in petroleum use, including by setting automobile efficiency standards,and increase in alternative fuel use. This act also amends portions of the National Energy Policy Conservation Act.

State Regulations

Warren-Alquist Act

The 1975 Warren-Alquist Act established the California Energy Resources Conservation and Development Commission, now known as the California Energy Commission (CEC). The Act established a State policy to reduce wasteful, uneconomical and unnecessary uses of energy by employing a range of measures.

California Energy Action Plan

California's *2008 Energy Action Plan Update* updates the *2005 Energy Action Plan II*, which is the State's principal energy planning and policy document. The plan maintains the goals of the original *Energy Action Plan*, describes a coordinated implementation plan for state energy policies, and identifies specific action areas to ensure that California's energy is adequate, affordable, technologically advanced, and environmentally sound. First-priority actions to address California's increasing energy demands are to promote energy efficiency, demand response (i.e., reducing customer energy usage during peak periods to address power system reliability and support the best use of energy infrastructure), and use of renewable power sources. To the extent that these strategies are unable to satisfy increasing energy and capacity needs, the plan supports clean and efficient fossil-fuel fired generation.

State of California Integrated Energy Policy

In 2002, the Legislature passed Senate Bill 1389, which required the CEC to develop an integrated energy plan biannually for electricity, natural gas, and transportation fuels, for the California Energy Report. The plan calls for the state to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies a number of strategies, including assistance to public agencies and fleet operators in implementing incentive programs for Zero Emission Vehicles and their infrastructure needs, and encouragement of urban designs that reduce vehicle miles traveled and accommodate pedestrian and bicycle access.

An overarching goal of the IEPR is to achieve the statewide greenhouse gas reduction targets, while improving overall energy efficiency is the main focus. The IEPR has replaced the Energy

Action Plan as the chief program intended to provide a comprehensive statewide energy strategy to guide energy investments, energy-related regulatory efforts and greenhouse gas reduction measures. Strategies identified in the most recent, 2015 IEPR Update are summarized below.

Energy Efficiency

Existing Buildings Energy Efficiency

California needs to significantly increase energy efficiency in existing buildings to meets its greenhouse gas reduction goals. Commercial and residential buildings account for nearly 70% of California's electricity consumption and 55 percent of the state's natural gas consumption. New efforts are needed to activate efficiency markets that compete with other energy supplies. Assembly Bill 758 (Skinner, Chapter 470, Statutes of 2009) recognized the importance of reducing existing building energy demands to achieve state climate change concerns. Senate Bill 350 (De Leon, Chapter 547, Statues of 2015) established a goal to double energy savings in existing buildings by 2030 and to conduct regular monitoring and reporting to assure continued progress in meeting that goal. This bill also requires the Energy Commission to update its Existing Building Energy Efficiency Action Plan every three years. In its Final AB 758 Action Plan, the Energy Commission emphasized actions involving energy benchmarking, improved data access, local government leadership, zero net energy buildings, plug load efficiency, increased access to efficiency financing, appliance efficiency standards, and application of building efficiency standards to retrofits of existing buildings. Doubling the rate of energy savings from existing building efficiency improvement projects would result in lower total building energy use in 2030 than in 2014, even with significant population and economic growth, and is equivalent to a 20% reduction in usage compared to projected 2030 levels.

Utility Energy Efficiency Procurement

For many years, the state's Investor-Owned-Utilities and Publicly-Owned-Utilities have funded a variety of programs to facilitate purchase and installation of energy efficiency improvements within existing homes and commercial buildings. These programs will continue to play an important role in the statewide effort to expand the level of energy efficiency improvements within existing buildings.

California Clean Energy Jobs Program

California voters passed the California Clean Energy Jobs Act (Proposition 39) in November 2012, which changed the California corporate tax code and allocates projected revenue to the General Fund and the Clean Energy Job Creation Fund for five fiscal years, beginning in 2013/2014. The goal was to create jobs and promote and provide funding for eligible energy projects, such as equipment upgrades, other efficiency improvements, and clean energy generation. The Proposition 39 program is authorized to continue for eight years, including five years of disbursements and three years for completion of projects and reporting from recipients to the Energy Commission. Senate Bill 73 focused the program efforts in K-12 schools and community colleges. As of the beginning of the third fiscal year (2015/2016), the total estimated annual energy cost savings achieved through this program are more than $25 million, along with

an estimated 1,700 job-years. These jobs include construction, installation contractors, vendors and purchasers, and school employees.

Zero Net Energy Homes

For newly constructed low-rise homes, the state is steadily moving toward implementing zero-net energy buildings, in which energy efficiency is part of an integrated solution to developing homes that generate as much energy as they consume. The CPUC has set a goal of achieving ZNE performance for all new low-rise homes constructed in or after 2020, and for all new commercial buildings constructed in or after 2030. Outstanding issues remain, however, including needing to identify compliance pathways when on-site renewable generation is not feasible, and the appropriate role for natural gas in zero-net-energy buildings. The primary challenge is to build a technical and regulatory foundation for orchestration of energy efficiency and all other feasible distributed and customer-sited clean energy resources.

Decarbonizing the Electricity Sector

Another important tool in meeting climate and air quality goals is decarbonizing the electricity sector as part of an integrated approach to reducing emissions from energy use. As of 2014, the California Energy Commission estimated that about 25% of the state's electricity demand was being met through renewable sources, including solar, wind, small hydroelectric, geothermal, and biomass. In his inaugural address in January 2015, Governor Edmund G. Brown, Jr. called for increasing the portion of electricity derived from renewable sources from one-third by 2020 to one-half by 2030. This goal was codified through Senate Bill 350, the Clean Energy and Pollution Reduction Act of 2015. Potential solutions to achieving these renewable energy portfolio and GHG reduction goals include: a regional marketplace that balances time of supply and demand; time of use rates that encourage shifts when consumers use energy; demand response programs that adjust loads to generation availability; zero emission vehicle deployment that provides incentives to charge vehicles when energy generation is high; and building enhancements such as batteries and control systems to better manage energy usage. Efforts to procure renewable electricity sources should be accomplished in tandem with increased loads from an electrified transportation sector. If that does not occur, then California won't realize the full potential of the GHG reduction benefits from decarbonizing the electricity sector.

At the start of 2015, there were about 11,800 MW of new renewable capacity projects proposed that have required permits and were in pre-construction or construction phases. Photovoltaic solar projects account for nearly all of the new capacity expected to come online by 2016. The California Solar Initiative, established in 2007, has a goal of installing 3,000 MW of solar energy systems on homes and businesses by the end of 2016, plus 585 million therms of gas-displacing hot water systems by the end of 2017. The 3,000 MW goal was accomplished in 2015.

A declining reliance on coal-fired electricity, together with an expansion of renewable sources, have been and will continue to be the two major programs that will de-carbonize the state's electricity sector. Carbon capture and storage ("CCS") techniques represent another method of reducing GHG emissions from the electricity sector; successful application of such techniques could reduce emissions from large point sources by 90 percent. A number of significant

technological, regulatory and economic constraints still exist, however that are inhibiting the implementation of CCS strategies in general, and in the natural gas supply sector in particular.

Strategic Transmission Investment Planning to Support Decarbonization

Strategic transmission investments are still needed to link our extensive renewable resources to load centers throughout the grid. Transmission planning processes will need to be streamlined and coordinated to ensure the siting, permitting, and construction of the most appropriate transmission projects takes proper consideration of renewable energy potential, land-use, and environmental factors.

To plan for meeting California's 2030 climate and renewable energy goals, the California Natural Resources Agency, the Energy Commission, the California Public Utilities Commission, and the California Independent System Operator have initiated the Renewable Energy Transmission Initiative 2.0 process to consider the relative potential of various renewable energy resources and to explore the associated transmission infrastructure through an open and transparent stakeholder process.

Moving to a Low-Carbon Transportation System

California has long been a leader in transportation policy and a low-carbon transportation system is essential for meeting the state's 2030 greenhouse gas reduction goal. The transportation sector represents the state's largest source of greenhouse gas emissions, accounting for 37 percent of California's total. Furthermore, it is the largest source of criteria air pollutants that are harmful to human health, especially in the most impacted areas of the state. To help address these issues, the state has developed a portfolio of goals, policies, and strategies designed to reduce greenhouse gas emissions, improve air quality, and reduce petroleum use while meeting the transportation demands of the future.

Governor Brown called for a 50 percent reduction in petroleum used by California's cars and trucks by 2030 in his 2015 inaugural address. The Governor has released several executive orders easing the transition to a low carbon transportation future. These include calling for 1.5 million zero-emission vehicles to be on California roadways by 2025 and for the development of an integrated action plan that establishes targets to improve freight efficiency, increases adoption of zero-emission technologies, and increases competitiveness of California's freight system. California was also one of the 14 members of the International Zero-Emission Vehicle Alliance to pledge at the United Nations climate-change conference in December 2015 that all new cars sold within their jurisdictions would be emissions-free by 2050.

The Energy Commission staff has also developed a draft transportation energy demand forecast through 2026 to help inform policy makers. The draft results show that given the information available today, gasoline and diesel will continue to be the primary sources of transportation fuel through 2026. Long-term transformation of the transportation system is achievable and will require efforts on many fronts with a diverse range of actors and partnerships.

Electricity Demand Forecasts

The 2015 IEPR forecast results show slightly lower growth for electricity consumption compared to the forecast from the 2014 IEPR Update. Annual growth rates from 2014–2025 for baseline forecast consumption average 1.27 percent, 0.97 percent, and 0.54 percent in the high, mid, and low cases, respectively, compared to 1.21 percent in the 2014 IEPR Update mid case. Lower baseline consumption, combined with higher projections for self-generation, particularly photovoltaic systems, reduce growth in peak demand and retail sales. Annual growth rates for peak demand average 0.97 percent, 0.46 percent, and -0.28 percent in the high, mid, and low scenarios, respectively, compared to 1.08 percent in the 2014 IEPR Update mid case. For sales, annual growth averages 1.00 percent, 0.48 percent, and 0.26 percent in the high, mid, and low cases, respectively.,

Natural Gas Demand Forecasts

Similar to electricity, the Energy Commission develops a forecast of natural gas prices, production, and demand as detailed in the 2015 Natural Gas Outlook. By 2024, the final forecast for end-use natural gas demand is about 9.3 percent higher than the 2013 IEPR forecast. Staff attributes the higher growth rates to an increase in natural gas demand in the residential, commercial, and transportation sectors. Demand for natural gas used in electricity generation, however, is expected to decline over the forecast period. This is driven by increases in the share of electricity generated from renewable resources that reduce the need for power from fossil-fueled sources.

While natural gas may provide a lower carbon fuel source when compared to other fossil fuels used for electricity generation or transportation, recent studies indicate that methane leakage can reduce the climate benefits of switching to natural gas. The gas well leak at Southern California Gas' storage facility at Aliso Canyon is an example of an unexpected methane leak that is having an impact on California's short term carbon footprint while also impacting the daily lives of residents in an entire neighborhood. Other examples of leaks in the natural gas supply chain are far less obvious yet are of increasing concern. Many research efforts are aimed at better understanding the leakage rates and the associated impacts. Converting biomass to renewable natural gas for use in the transportation sector, electricity generation, and end-use consumption reduces the climate impacts of this fuel, but resource availability may be limited and costs may be high. Protecting public safety remains an important focus in managing the natural gas system.

Title 24 - California Energy Efficiency Standards

The Energy Efficiency Standards for Residential and Nonresidential Buildings specified in Title 24, Part 6 of the California Code of Regulations were established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow for consideration and possible incorporation of new energy-efficiency technologies and methods. The CEC adopted its most recent update to its standards in 2016 (CEC, 2016). These new standards are expected to be 28 percent and 5 percent more efficient than previous standards for residential construction and commercial construction, respectively, offering builders better windows, insulation, lighting, ventilation systems, and other features that reduce energy consumption in homes and businesses.

California Green Building Standards Code (CALGreen or Title 24)

CALGreen is a Statewide regulatory code for all buildings, including residential and commercial. The regulations are intended to encourage more sustainable and environmentally friendly building practices, require low-pollution emitting substances that cause less harm to the environment, conserve natural resources, and promote the use of energy-efficient materials and equipment. Title 24 standards require that all new residential and non-residential development implements various energy conservation measures, including ceiling, wall, and concrete slab insulation; vapor barriers; weather stripping on doors and windows; closeable doors on fireplaces; insulated heating and cooling ducts; water heater insulation blankets; and certified energy efficient appliances. CALGreen became mandatory on January 1, 2011, for new residential and commercial construction, and has been updated periodically since then. Please refer to the regulatory framework subsection of Section IV.F, Greenhouse Gas Emissions, for a detailed discussion of Assembly Bill 32, and other energy-related State regulations.

Senate Bills 1078 and 107 and Executive Order S-14-08 and S-21-09

Senate Bill (SB) 1078 (Chapter 516, Statutes of 2002) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. SB 107 (Chapter 464, Statutes of 2006) changed the target date to 2010. In November 2008, then-Governor Schwarzenegger signed Executive Order S-14-08, which expands the state's Renewable Portfolio Standard to 33 percent renewable power by 2020. In September 2009, then-Governor Schwarzenegger continued California's commitment to the Renewable Portfolio Standard by signing Executive Order S-21-09, which directs the California Air Resources Board under its Assembly Bill (AB) 32 authority to enact regulations to help the state meet its Renewable Portfolio Standard goal of 33 percent renewable energy by 2020.

SB 350 – Clean Energy and Pollution Reduction Act of 2015

SB 350, known as the Clean Energy and Pollution Reduction Act of 2015 was enacted on October 7, 2015 and provides a new set of objectives in clean energy, clean air, and pollution reduction by 2030. The objectives include the following:

1. To increase from 33 percent to 50 percent, the procurement of our electricity from renewable sources.

2. To double the energy efficiency savings in electricity and natural gas final end uses of retail customers through energy efficiency and conservation.

AB 1007 (Pavley)-Alternative Fuel Standards

Assembly Bill 1007, (Pavley, Chapter 371, Statutes of 2005) required the CEC to prepare a state plan to increase the use of alternative fuels in California (State Alternative Fuels Plan). The CEC prepared the State Alternative Fuels Plan in partnership with the California Air Resources Board and in consultation with other state, federal, and local agencies. The final State Alternative Fuels Plan, published in December 2007, attempts to achieve an 80-percent reduction in greenhouse gas

emissions associated with personal transportation, even as California's population increases. Measures proposed that would reduce petroleum fuel use include:

1) Lowering the energy needed for personal transportation by tripling the energy efficiency of on-road vehicles by 2050 through:

    a) Conventional gas, diesel, and flexible fuel vehicles (FFVs) averaging more than 40 miles per gallon (mpg).

    b) Hybrid gas, diesel, and FFVs averaging almost 60 mpg.

    c) All electric and plug-in hybrid electric vehicles (PHEVs) averaging well over 100 mpg (on a greenhouse gas equivalents [GGE] basis) on the electricity cycle.

    d) Fuel cell vehicles (FCVs) averaging over 80 mpg (on a GGE basis).

2) Moderating growth in per capita driving, reducing today's average per capita driving miles by about 5 percent or back to 1990 levels.

3) Changing the energy sources for transportation fuels from the current 96 percent petroleum-based to approximately:

    a) 30 percent from gasoline and diesel from traditional petroleum sources or lower GHG emission fossil fuels such as natural gas.

    b) 30 percent from transportation biofuels.

    c) 40 percent from a mix of electricity and hydrogen.

4) Producing transportation biofuels, electricity, and hydrogen from renewable or very low carbon-emitting technologies that result in, on average, at least 80 percent lower life cycle GHG emissions than conventional fuels.

5) Encouraging more efficient land uses and greater use of mass transit, public transportation, and other means of moving goods and people.

Appliance Efficiency Regulations, California Code of Regulations Title 20

California's Appliance Efficiency Regulations (20 CCR Part 160-1608) contain standards for both federally regulated appliances and non-federally regulated appliances. The regulations are updated regularly to allow consideration of new energy efficiency technologies and methods. The current regulations were adopted by the California Energy Commission on November 18, 2009. The standards outlined in the regulations apply to appliances that are sold or offered for sale in California. More than 23 different categories of appliances are regulated, including refrigerators, freezers, water heaters, washing machines, dryers, air conditioners, pool equipment, and plumbing fittings.

City of Oakland Energy Regulatory and Policy Framework

City of Oakland Energy and Climate Action Plan

Adopted on December 4, 2012, the Oakland Energy and Climate Action Plan (ECAP) established both energy efficiency and greenhouse gas reduction goals aimed at reducing the city's overall carbon footprint, and to specify a range of strategies to reduce reliance on various fossil fuel energy sources from both existing and new development.

The ECAP outlines a ten year plan including more than 150 actions that will enable Oakland to achieve a 36 percent reduction in GHG emissions with respect to the main GHG sources. Key strategies include:

- 20 percent reduction in vehicle miles traveled annually as residents, workers and visitors meet daily needs by walking, bicycling, and using transit;
- 24 million gallons of oil saved annually due to less driving and more fuel efficient vehicles on local roads
- 32 percent decrease in electricity consumption through renewable generation, conservation and energy efficiency
- 14 percent decrease in natural gas consumption through building retrofits, solar hot water projects and conservation
- 62 million kWh and 2.7 million therms annually of new renewable energy used to meet local needs
- 375,000 tons of waste diverted away from local landfills through waste reduction, reuse, recycling, and composting

For new building construction, the ECAP's main objective is for new development to be designed to exceed California Title 26, Part 6 energy efficiency standards by at least 10 percent.

City of Oakland Sustainable Green Building Requirements for Private Development

Chapter 18.02 of the Oakland Municipal Code was enacted to establish standards for the integration of environmentally sustainable strategies in building construction and landscapes in the City. They are intended to minimize the use of natural resources and the production of waste and maximize the healthfulness of enclosed environments. The primary standard related to building energy conservation is that all new construction projects must comply with the building energy efficiency standards set forth in Title 24, Part 6 of the California Code of Regulations. Another key provision is a requirement to design and build all new residential projects in accordance with one of two green building certification programs: the Build-it-Green Green Point Rating system or the U.S. Green Building Council's LEED for Homes rating system. Both systems identify frameworks for evaluating the design and performance of new homes with respect to several types of sustainability criteria, including energy efficiency.

As noted above, in the LEED rating system, for example, the credit categories are: Location and Transportation, Sustainable Sites, Water Efficiency, Materials and Resources, Energy and Atmosphere, Sustainable Sites, and Indoor Environmental Quality. Achievement of minimum levels of performance under each of these categories is required for certification. Additional credits can be achieved through efforts pertaining to Innovation and Regional Priority. In the Energy and Atmosphere category, credits are awarded for performance in a variety of areas, such as annual energy usage, homeowner education, tighter building envelopes, high efficiency appliances, water heating, space heating, space cooling and lighting systems, passive solar building orientation, use of renewable energy, and efficient windows.

Applications for City review and approval of new homes must demonstrate how they will achieve compliance with the specified green building certification system, prior to issuance of the approval. Plans submitted for issuance of building permits must contain specifications on how each of the measures identified in the approval phase are incorporated into the building construction plans, and then such measures must be demonstrated to have been properly installed and functioning during regular construction inspections.

City of Oakland General Plan Housing Element Policies

The Housing Element Update 2015-2023 of the Oakland General Plan contains the following policies that address issues related to energy, that were adopted for the purpose of avoiding or mitigating an environmental effect, and that are particularly relevant to the Oak Knoll Project:

- ***HE Policy 7.1, Sustainable Residential Development Programs:*** In conjunction with the City's adopted Energy and Climate Action Plan (ECAP), develop and promote programs to foster the incorporation of sustainable design principles, energy efficiency and smart growth principles into residential developments. Offer education and technical assistance regarding sustainable development to project applicants.
- ***HE Policy 7.2, Minimize Energy Consumption:*** Encourage the incorporation of energy conservation design features in existing and future residential development beyond minimum standards required by State building code.
- ***HE Policy 7.3, Encourage Development that Reduces Carbon Emissions:*** Continue to direct development toward existing communities and encourage infill development at densities that are higher than – but compatible with – the surrounding communities. Encourage development in close proximity to transit, and with a mix of land uses in the same zoning district, or on the same site, so as to reduce the number and frequency of trips made by automobile.

SCAs That Would Avoid Inefficient or Wasteful Use of Energy

Construction

- **SCA AIR-1 – Construction-Related Air Pollution Controls** (excerpted from *Basic Controls*) As discussed and presented fully in Section The following SCA measures decrease the amount of diesel used during construction:

During Project Construction. The project applicant shall implement all of the following applicable air pollution control measures during construction of the project:

a) Idling times on all diesel-fueled commercial vehicles over 10,000 lbs. shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes (as required by the California airborne toxics control measure Title 13, Section 2485, of the California Code of Regulations). Clear signage to this effect shall be provided for construction workers at all access points.

b) Idling times on all diesel-fueled off-road vehicles over 25 horsepower shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes and fleet operators must develop a written policy as required by Title 23, Section 2449, of the California Code of Regulations ("California Air Resources Board Off-Road Diesel Regulations").

c) All construction equipment shall be maintained and properly tuned in accordance with the manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.

d) Portable equipment shall be powered by electricity if available. If electricity is not available, propane or natural gas shall be used if feasible. Diesel engines shall only be used if electricity is not available and it is not feasible to use propane or natural gas.

- **SCA 68-Construction Traffic Control Plan:** As discussed and presented fully in Section 4.13, *Transportation and Circulation,* the Project applicant shall submit a Traffic Control Plan to the City for review and approval prior to obtaining an obstruction permit.

Operations

- **SCA TRA-4 – TDM Plan:** As discussed and presented fully in Section 4.13, *Transportation and Circulation*, the Project is required to prepare and implement a transportation demand management (TDM) Plan to reduce the project's total daily trips on the surrounding streets and highway network. A TDM Plan has been prepared that would reduce total trips by approximately 10 percent. This would also reduce fuel consumption associated with the Project's vehicular travel by the same percentage.

- **SCA GHG-1 – GHG Reduction Plan**: As discussed and presented fully in Section 4.6, *Greenhouse Gases and Climate Change*, the Project's proposed TDM Plan (with a 10 percent vehicle trip reduction) is shown as sufficient to reduce GHG emissions to below the CEQA efficiency threshold of 4.6 MT CO_2e per service population per year for the Project, although there would be temporary exceedance in for Phase 1 and cumulative for combined Phases 1 and 2), as well as achieving the GHG Reduction Plan goal of reducing GHG emissions to at least 36 percent below a 2005 baseline "business-as-usual" scenario.

- **SCA GHG-2 – Green Building Requirements – Bay Friendly Landscapes**: As discussed and presented fully in Section 4.6, *Greenhouse Gases and Climate Change*, the project applicant shall comply with the requirements of the City of Oakland Green Building Ordinance (chapter 18.02 of the Oakland Municipal Code), which require the project to comply with the requirements for Build It Green or LEED New Construction certification for residences and LEED New Construction for commercial uses.

4.15.4 Discussion of Impacts

Significance Criteria

The proposed Project would have a significant impact on the environment if it its energy use, during construction and operation would:

a) Result in the wasteful, unnecessary, or inefficient use of energy resources, or

Approach to Analysis

This impact analysis evaluates the potential for the proposed Project to result in a substantial increase in energy demand, consistent with Public Resources Code 21100(b)(3), and/or wasteful use of energy during project construction and operation. The impact analysis is informed by Appendix F of the *CEQA Guidelines*. Though the analysis provides construction and operational energy use estimates for the proposed Project, the impacts are analyzed based on an evaluation of whether this energy use would be considered excessive, wasteful or inefficient taking into account the project's energy efficiency features, as well as required compliance with applicable standards and policies aimed to reduce energy consumption including the City's Standard Conditions of Approval, the City's ECAP and the State's Title 24 Energy Efficiency Standards. Energy emissions detail supporting the Project estimates presented in this section is provided in **Appendix FF** to this Draft SEIR and has been reviewed and agreed to by the City and its consultants.

Construction Assumptions

Construction energy usage was estimated using CalEEMod (the California Emissions Inventory model), metrics applied in the California Air Resource Board's OFFROAD database and the heating value of diesel to derive fuel usage from the horsepower rating for each equipment type. All construction equipment were assumed to be powered by compression-ignition diesel engines, consistent with the assumptions in Section 4.2, *Air Quality*, and Section 4.6, *Greenhouse Gas Emissions and Climate Change*, of this EIR. Construction equipment and vehicle inputs were provided by the Project applicant based on their experience in building master plan communities and represent their best estimate of what it would take to accomplish the proposed grading plan and construct the master infrastructure and community design elements.

Total energy use is estimated for both options during the first phase of construction: one option involves crushing the non-contaminated waste materials remaining from the former naval facilities on-site and the other option is to haul those materials off-site. However, only one of these two scenarios would be chosen for implementation as part of project construction. Estimates of construction equipment for the building construction phases are based on default values contained within the CalEEMod software program. These defaults are based on data from a comprehensive set of empirical studies conducted by the South Coast Air Quality Management District of representative construction programs for various types of land uses in California.

New Information / Changed Circumstances

The 1998 EIS/EIR and its Maximum Capacity Alternative did not include a discussion of impacts related to energy use as there were no applicable significance thresholds addressing energy use and conservation at the time. Therefore, the energy impacts discussed in this section are new impacts not identified in the 1998 EIS/EIR.

Impacts and Mitigation Measures

Impact ENER-1: Construction and operation of the proposed Project would not result in the wasteful, inefficient or unnecessary use of energy resources. (Criterion 1) (*Less than Significant with SCAs*)

Construction Energy Use

Construction of the proposed Project would require the use of fuels (primarily gasoline and diesel) for the operation of construction equipment and vehicles to perform a variety of activities, including excavation, hauling, paving, and vehicle travel. Energy in the form of electricity may also be consumed by some pieces of construction equipment, such as welding machines, power tools, lighting, etc. In addition to direct construction-related energy consumption, indirect energy use would be required to make the materials and components used in construction. This includes energy used for extraction of raw materials, manufacturing, and transportation associated with manufacturing. Direct energy represents about one-quarter of the total construction-related consumption while indirect energy use typically represents about three-quarters of total construction-related energy consumption (Hannon, 1978).

Table 4.15-3 presents the project's total estimated energy consumption by energy source for all three construction phases. However, it must be noted that this energy consumption would occur incrementally during the various construction phases, rather than all at once. The level of energy usage would fluctuate depending on the type of construction activities underway during any particular time period. Energy use would be higher during the first phase of construction involving the initial site clearance and earth-moving/grading, where the largest and most powerful equipment would be required to excavate, lift, and transport large volumes of soil and demolished materials (such as concrete slabs and asphalt) from the prior naval hospital facilities. Gasoline and diesel fuels would also be the primary energy source for vehicles driven by construction crews and to power the large trucks used to deliver and retrieve construction equipment, materials, and wastes.

As shown in **Table 4.15-3**, energy delivered through combustion of fossil fuels such as gasoline and diesel would be the dominant form of energy use through all three construction phases. Electrically-powered tools and to a lesser extent, electrically powered components of machinery that are powered primarily by a diesel or gasoline engine would be a secondary form of energy usage in the construction phases. Such electrical applications would typically occur with automated hand tools and smaller types of construction machinery such as compressors for painting applications.

TABLE 4.15-3
TOTAL PROJECT CONSTRUCTION ENERGY USE

Source	Unit of Measure	Total Project Energy Use with On-site Crushing Option in Phase -1	Total Project Energy Use with Off-site Hauling Option in Phase 1
Electricity			
Water[1]	kWh	12,985	12,985
On-road vehicles[2]	kWh	79,763	79,735
Total Electricity	kWh	92,749	92,720
Diesel			
On-road vehicles[2]	gallons	653,621	683,390
Off-road equipment[3]	gallons	535,747	497,241
Total Diesel Use	gallons	1,189,368	1,180,631
Gasoline			
On-road vehicles[2]	gallons	972,797	971,849

NOTES:

1 Construction water use estimated based on acres disturbed per day per construction phase, construction days per phase, and estimated water use per acre (AWMA 1992). USEPA. 1996. AP 42. Compilation of Air Pollutant Emission Factors, Volume 1. Fifth Edition. Chapter 3.4, Large Stationary Diesel and All Stationary Dual-fuel Engines. Available online at: http://www.epa.gov/ttn/chief/ap42/ch03/final/c03s04.pdf. Accessed January 2016. DOE. 2016. Fuel Economy Guide, Model Year 2015. Electric Vehicles. Available online at: http://www.fueleconomy.gov/feg/printGuides.shtml. Accessed January 2016. AWMA. 1992. Air Pollution Engineering Manual.

2 On-road mobile source fuel use based on trip rates and trip lengths as stated in the Air Quality assessment of construction and fleet-average fuel consumption in gallons per mile from EMFAC2014 for CY 2017 through 2023 in Alameda County. Electricity demand calculated average electric vehicle fuel economy for 2015 models (in kWh per mile) from the DOE Fuel Economy Guide.

3 Off-road mobile source fuel usage based on a fuel usage rate of 0.05 gallons of diesel per horsepower (hp)-hour, consistent with diesel conversion factors given in USEPA AP-42 Table 3.4.1.

SOURCE: Ramboll/ENVIRON, 2016. (Detail provided in Appendix FF to this Draft SEIR.)

There are no viable alternatives to use of heavy-duty, medium-duty, or light-duty trucks and passenger vehicles powered by combustion engines fueled by diesel or gasoline to handle the vast majority of transportation needs throughout the construction phases. Alternatives such as construct electrified rail connections to the project site for the purposes of materials and equipment deliveries and removals, waste removals, etc., are not feasible for several reasons, including as the existing development around the site. Home builders and the builder(s) of the commercial center will need to meet the certification requirements of the LEED or Build it Green rating systems, and may rely on measures to require purchase of construction materials within a certain distance, which would reduce fuel consumption related to materials deliveries, or perhaps other measures that would reduce the total energy demand from materials shipment methods that are computed in terms of greenhouse gas equivalents, joules, or British Thermal Units (Btu's) to meet those requirements. Construction crews are likely to come from different areas, and rely on their own private automobiles for access to/from the project site. While some carpooling or vanpooling may be arranged by contractors, it is not feasible to develop a dedicated shuttle system to the BART network or to restrict access by crews to public transit or some form of electric-powered or hydrogen fuel-powered alternative vehicles that would reduce the amount of gasoline and diesel fuels consumed for work crew trips.

The Project includes several energy and fuel efficient design features that would help minimize inefficient or wasteful use of energy and increase conservation during construction. The proposed grading plan is designed to balance all earthwork on site, which would avoid truck trips that would have been required to haul-in fill materials to the site and haul-off of materials to be exported off-site. This would reduce fuel use, while also reducing temporary noise, exhaust emissions and impacts on the surrounding transportation network that would result from truck traffic associated with soil import or export.

In addition, several measures required as part of compliance with SCA AIR-1 (Construction-Related Air Pollution Controls) to reduce air pollutant emissions (such as reducing idling times, using properly tuned and maintained construction equipment, and using electrically powered equipment, when available) would also reduce fuel consumption and energy use. Pursuant to the City's SCA 68 (Construction Traffic Control Plan), project contractors would be required to prepare construction traffic management plans to specify haul routes, times of operations, and other traffic restrictions to minimize the impact of construction traffic on the operation of the surrounding streets and highways network. Traffic would be prohibited during the busiest peak hours of the day, thereby reducing the amount of idling time by construction vehicles at slow-moving intersections on streets and highway segments. To the extent the required plan includes any ride-sharing by work crews, there could be reductions in gasoline consumption for commute trips. The result of the construction traffic management measures would be a more efficient deployment of construction traffic that would also reduce total fuel consumption. Pursuant to SCA GHG-2 (Green Building Requirements – Bay Friendly Landscapes), the residences and commercial buildings proposed as part of the Project would be required to comply with the certification requirements of LEED or Build it Green rating systems, and may rely on measures to require purchase of construction materials within a certain distance, which would reduce fuel consumption related to materials deliveries.

Pursuant to SCA 19, the project applicant would procure electrically-powered construction machinery instead of diesel or gasoline powered machinery, when there are electrical alternatives available, and this would reduce the amount of fossil-fuels consumed during construction from what would be consumed by diesel-powered machinery. One example of this would be to use electrically powered generators, rather than diesel generators, where feasible. Another example would be to use electrically powered compressors for painting applications where feasible.

As such, the demand for gasoline and diesel fuels to support Project construction activities is not expected to have a significant impact on the availability of these fuels in Oakland, Alameda County or the Bay Area. Though this usage would represent an irreversible consumption of finite fossil fuel energy resources, the energy consumption associated with construction would not be permanent and would not result in the long-term depletion of local or regional energy resources. Further, the project's construction equipment fleet and mobilization thereof would not result in wasteful or inefficient energy consumption; rather, it would be designed to be energy efficient with respect to the types of machinery and tools that are commercially available and effective for the types of construction involved in this project.

The amount of electrical energy or natural gas that would be consumed by construction machinery is estimated to be a relatively minor volume, compared to the consumption of diesel

and gasoline fuels, and typical for construction of a Project of this size in the City that must comply with the City's large-project SCAs. Further, the construction-related demand for electricity and natural gas would not result in a significant impact on regional supplies or delivery systems operated by PG&E, which is anticipating growth in demand for both energy sources through 2024 and beyond. As Project construction activities would comply with all energy related City SCAs that are developed to encourage energy conservation, Project construction would not result in wasteful, inefficient, or unnecessary forms of energy consumption; therefore, there would be a *less than significant impact.* No mitigation measures are required.

Operational Energy Use

Table 4.15-4 presents the estimated annual energy use, by energy type, for the fully built/occupied Project over its long-term operating lifetime. The electricity and natural gas consumption estimates presented represent annual total energy usage by buildings and for water supply, assuming the year 2016 California Title 24, Part 6 building energy efficiency standards, results of surveys of appliance usage by California residential and commercial consumers, the latest in energy-efficient appliance standards, use of energy-efficient LED street lighting, and the electrical energy intensity of California water supply system as calculated by the CalEEMod model. Energy used by mobile sources is based on EMFAC2014 vehicle fleet mix forecasts for 2024.

TABLE 4.15-4
PROJECT ANNUAL OPERATIONAL ENERGY USE

Energy Type	Project Annual Energy Usage
Electricity	Kilowatt hours per year
Buildings[1]	8,089,623
Water[1]	408,828
Mobile sources[2]	319,619
Total	8,818,070[2]
Natural Gas	Million BTU per year
Buildings[1]	26,778.6
Diesel	Gallons per year
Mobile sources[3]	298,967
Gasoline	Gallons per year
Mobile sources[3]	824,259

NOTES:
1 Electricity, natural gas, and water usage are based on Project specific estimates, 2016 Title 24, Part 6 building energy efficiency standards, and CalEEMod® defaults. This estimate does not assume any renewable electricity is generated on-site.
2 Pursuant to the Greenhouse Gas Reduction Plan, City street lights in Project area to be constructed by the Project applicant would be LED fixtures, with an energy consumption of 66,817 kWh/yr. With the energy from streetlights, the total energy usage would be 8,884,888 kWh/yr. However, electricity use from street lights at the Project is a municipal use of electricity that would be included in a City inventory, and therefore is not included in the Project inventory.
3 Mobile source fuel use calculated based on vehicle miles traveled (VMT) and the fleet average fuel consumption (in gallons per mile) from EMFAC2014 for 2024. Electricity demand based on Project VMT and calculated average electric vehicle fuel economy for 2015 models (in kWh per mile) from the DOE Fuel Economy Guide, and ARB's EMFAC 2014 forecast EV penetration in total vehicle fleet for Alameda County in 2024.

SOURCE: Ramboll/ENVIRON, 2016. (Detail provided in Appendix FF to this Draft SEIR.)

All Project buildings would be designed in accordance with most current California Title 24, Part 6 building energy efficiency standards. The 2016 building energy efficiency standards (assumed in estimates shown in Table 4.15-4) are 28 percent more energy efficient than the 2013 standards for new residential structures, and 5 percent more efficient for commercial structures. All electric and natural gas-powered appliances, heating, cooling, and lighting systems would comply with the latest federal and California energy efficient appliance standards.

In addition, required compliance with several City SCAs discussed below would help avoid inefficient or wasteful use of energy and increase conservation during Project operation. With a compact community structure that includes a local commercial center on-site, and a complete street network designed to facilitate walking and bicycling, as well as transit modes of travel, the proposed Project is designed to reduce total energy consumption involving vehicular travel. Implementation of SCA TRA-4 (Travel Demand Management [TDM]) Plan) would further reduce the total daily trips by approximately 10 percent, further reducing consumption of gasoline and diesel fuels for vehicle travel by the same amount.

The Greenhouse Gas Reduction Plan (GGRP) for the proposed Project prepared in compliance with SCA GHG-1 (GGRP) identifies that the Project sponsor would purchase sufficient offset credits to reduce the overall GHG footprint of the proposed Project to a level that achieves the City's ECAP target (specifically to address to the Project's temporary exceedance of the efficiency threshold for Phase 1, and the combined Phase 1 and Phase 2). In addition to mandatory compliance with building energy efficient design standards, water conservation measures, and the TDM Plan (SCA TRA-4).

Pursuant to SCA GHG-2, the proposed Project would comply with the requirements of the California Green Building Standards (CALGreen) mandatory measures and the applicable requirements of the City of Oakland Green Building Ordinance (chapter 18.02 of the Oakland Municipal Code), which require the Project to comply with the requirements for Build It Green or LEED New Construction certification (but not obtain certification) for residences and LEED New Construction for commercial uses. Both Build It Green and LEED measures are designed to increase water and energy efficiency in buildings, which will reduce the energy needed to extract, pump, and treat water, reduces thermal loads, decreases the energy needed to cool and light a building, and increases thermal resistance, thereby decreasing the energy needed to heat a building.

As the residences and other Project buildings would be built with the most modern building design and construction techniques that are typical of building technologies throughout California and the West, there would be no inherently wasteful or inefficient use of electricity or natural gas in terms of the design and long-term energy efficiency of the proposed Project. If on-site renewable energy in the form of solar photovoltaic arrays are installed in homes or within the commercial center, the Project's electricity demand served by the PG&E network would be replaced to some degree, with clean, renewable energy rather than the mixed energy sources that include fossil fuel combustion sources within the PG&E supply network.

PG&E is projecting continued growth in electricity and natural gas demand, throughout its service territory, from all sectors, and is obligated to meet those demands. PG&E already maintains natural gas mains and electrical transmission facilities in the adjacent segments of Mountain Boulevard, Sequoyah Road and Keller Avenue and this Project would connect directly to those adjacent energy infrastructure systems. No new sources of electricity or natural gas and no new transmission systems for either energy system would be needed to meet the Project's energy needs. Given these forecasts for continued increases in statewide gasoline and diesel fuel consumption, and an expected expansion in the proportion of electric hybrids, fully-electric vehicles, natural gas-powered vehicles, and light-duty diesels within the vehicle fleet for on-road transportation, the Project's vehicular energy consumption for transportation related purposes would be consistent with this trend and would not represent a significant increase in and of itself. Overall, Project operation would not involve wasteful, inefficient or unnecessary uses of energy and the impact would be less than significant. No mitigation measures are required.

Project Construction

As discussed above, construction of the proposed Project would result in both direct and indirect energy use. Direct energy represents fuel use associated with Project construction activities whereas indirect energy use would be the energy required to make the materials and components used in construction.

Construction fuel use would be consistent with typical construction and manufacturing practices, and comply with all applicable energy efficiency standards that regulate vehicles and gasoline (which are applied at the time of vehicle and gasoline manufacture). In addition, construction would be consistent with the ECAP, which encourages the use of energy-efficient construction materials. The Project would not conflict with any applicable plans, policies, or regulations adopted for the purpose of energy conservation during construction.

Project Operation

Implementation of the Project's proposed TDM Plan pursuant to SCA TRA-4, as discussed in Section 4.13, *Transportation and Circulation*, would reduce the Project's total daily trips by about 10 percent, with a corresponding reduction in consumption of gasoline and diesel fuels associated with vehicular travel. A key element of the TDM Plan is a dedicated on-site shuttle service to transport residents and commercial center employees to/from the regional BART system. This is consistent with the City's ECAP, which specifically identifies trip reduction as a means of reducing both energy consumption and greenhouse gas emissions resulting from vehicular travel.

Since all proposed residences and commercial buildings would be designed and built in accordance with the most current California Building Energy Efficiency Standards pursuant to SCA GHG-2, the energy intensity associated with the new homes and businesses would be much lower than the intensity associated with the City's existing housing and commercial building stock. As noted earlier, each update of these standards results in higher performance in terms of building energy efficiency and this is consistent with a key objective in the City's ECAP, which is to increase the energy efficiency of new buildings over time. Over time, PG&E will expand its

portfolio of renewable energy sources to comply with state legislative mandates, and this will indirectly reduce the Project's dependence on both fossil fuels and imported energy sources such as natural gas that is used to produce electricity at distant power plants. The Project would therefore be consistent with all applicable energy related plans, policies and regulations. Therefore, this would be a less than significant impact. No mitigation measures are required.

Impact Conclusion: Less than Significant with SCAs.

Comparison to 1998 EIS/EIR Findings: Topic Not Previously Required to be Addressed.

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CHAPTER 5
Alternatives

5.1 CEQA Requirements

CEQA requires an evaluation of the comparative effects of a "reasonable range" of alternatives to a project (CEQA Guidelines Section 15126.6[a]). The alternatives considered should feasibly attain most of the basic objectives of the project, even if such alternatives would impede, to some degree, the attainment of the project objectives. The alternatives should consider variations to the project or its location that would avoid or substantially lessen one or more of the significant effects of the project.

This chapter presents a meaningful comparative analysis of the Oak Knoll Project impacts, as identified in Chapter 4 (Environmental Setting, Impacts, Standard Conditions of Approval and Mitigation Measures) of this Draft SEIR, and a range of alternatives to the Project, including a "no project" alternative required by CEQA. This chapter also summarizes alternatives considered in the 1996 EIS/EIR with the Maximum Capacity Alternative, as well as discusses alternatives that were considered by the Lead Agency (City of Oakland), but rejected from detailed analysis in this Draft SEIR. (CEQA Guidelines Sections 15126.6[a],15126.6[b], 15126.6[c], 15126.6[d] and 15126.6[e]).)

5.2 Factors Considered in Selection of Alternatives

The CEQA Guidelines recommend that an EIR briefly describe the rationale for selecting the alternatives to be discussed (CEQA Guidelines Section 15126.6[c]). The nature and scope of the "reasonable range of alternatives" to be discussed is governed by the "rule of reason."

5.2.1 Reconsideration of the Alternatives Analyzed in the 1998 EIS/EIR

The 1998 *Environmental Impact Statement / Environmental Impact Report for the Disposal and Reuse of the Oak Knoll Naval Medical Center Oakland* (1998 EIS/EIR) analyzed four conceptual redevelopment plan alternatives for reuse of the NMCO property, including the "preferred" Maximum Capacity Alternative that is summarized throughout Chapter 4 of this Draft EIR. In addition, the 1998 EIS/EIR analyzed a No Action Alternative, as required by CEQA (as well as the National Environmental Policy Act [NEPA] which applied to the project as analyzed in 1998.) As required by NEPA, the reuse alternatives were evaluated at the same level of detail as the proposed action (the Maximum Capacity Alternative). The criteria used to select the reuse

alternatives addressed in the 1998 EIS/EIR considered but were not limited to "physical site opportunities and limitations, future land uses on and off the site, transportation corridors, real estate market demand, and open space and recreation needs." (1998 EIS/EIR, p.2-3).

5.2.2 Selection of Alternatives to the Oak Knoll Project for Analysis in this SEIR

The proposed Oak Knoll Project is the specific development plan proposal for reuse of the NCMO property, therefore, further environmental review for the proposed Project is required only as specified in Section 21166 of the State Public Resources Code (PRC) and CEQA Guidelines Section 15162.

A comparison of the potential environmental effects that may result with the Oak Knoll Project and those previously identified for the Maximum Capacity Alternative analyzed in the 1998 EIS/EIR is presented in Chapter 4 of this SEIR, pursuant to Section 21166 of the State Public Resources Code (PRC) and CEQA Guidelines Section 15162. The City assessed the remaining three 1998 EIS/EIR reuse alternatives to determine their suitability for further analysis in this SEIR, and also considered additional alternatives to the current Oak Knoll Project, based on the following factors:

1. The extent to which the alternative would accomplish most of the basic objectives of the Oak Knoll Project (which are restated below from Chapter III [Project Description]);

2. The extent to which the alternative would avoid or lessen any of the identified significant environmental effects of the project;

3. The feasibility of the alternative, taking into account site suitability, availability of infrastructure, and consistency with applicable plans and regulatory limitations;

4. The extent to which an alternative contributes to a "reasonable range" of alternatives necessary to permit a reasoned choice;

5. The requirement of the CEQA Guidelines to consider a no project alternative and to identify an environmentally superior alternative in addition to the no-project alternative (CEQA Guidelines, Section 15126.6(e)).

The City also considered comments received in response to the Notice of Preparation (NOP) for this Draft SEIR in its evaluation to identify appropriate alternatives to be analyzed here. This chapter summarizes each of the 1998 EIS/EIR alternatives and assesses the appropriateness of further analyzing each one as an alternative to the current Oak Knoll Project, based on the aforementioned factors or requirements under CEQA.

5.2.3 Project Objectives

As stated in the first factor bulleted above, the selection of alternatives shall consider the basic goals and objectives of the project. The following Project Objectives are stated in Section 3.3 in Chapter 3 (Project Description):

1. Transform a closed and abandoned, blighted former military hospital complex into a new community compatible with surrounding development.

2. Develop sufficient housing to support and sustain a community village retail center for Oak Knoll and surrounding residential neighborhoods.

3. Alleviate the need of most South Hills residents to travel outside their neighborhoods for shopping and services by developing a village center for the underserved South Hills area that will provide local residents with neighborhood commercial shopping opportunities, in fulfillment of LUTE objectives, policies and strategies.

4. Fulfill the General Plan Open Space, Conservation, and Recreation (OSCAR) Element goals of restoring Rifle Range Creek and planting native habitat in appropriate open space areas; replacing native oak woodlands, restoring riparian habitat and landscaping developed areas.

5. Develop trail connections through Oak Knoll and between Leona Canyon Open Space and Knowland Park via Mountain Boulevard.

6. Develop a diversity of housing types and sizes, including single family homes and townhomes and apartments that can accommodate a variety of household types and incomes.

7. Generate tax revenues for the City of Oakland and employment opportunities for the City of Oakland community.

8. Develop an economically viable project that can support and attract commercial financing.

9. Reduce fire risk on site and for neighboring properties.

10. In conjunction with new development, develop open space and recreational opportunities and provide pedestrian linkages from on-site open space to new residential and commercial areas as well as to existing surrounding neighborhoods and regional open space in fulfillment of goals and policies in the OSCAR Element of the Oakland General Plan.

11. Provide a centrally located community center for classes, gatherings, and events by relocating and rehabilitating the central portion and two wings of Club Knoll.

5.2.4 Significant and Unavoidable Impacts

As stated in the second factor considered in the selection of alternatives (see Section 5.2, above), the selection of alternatives shall consider the ability of each alternative to avoid or lessen the significant environmental impacts of the project. The significant impacts of the Project, both as identified throughout the analysis in Chapter 4 and summarized in Chapter 6 (Impact Overview and Growth Inducement), are listed below and are the primary focus of this alternatives analysis.

Air Quality

The significant, unavoidable air quality impact identified below is classified as such because implementation of the identified mitigation measure would reduce the impact, but not to a less-than-significant level.

- **Impact AIR-2:** Operation of the Project would result in operational average daily emissions of more than 54 pounds per day of ROG, NOX, or PM2.5 or 82 pounds per day

of PM10; or result in maximum annual emissions of 10 tons per year of ROG, NOX, or PM2.5 or 15 tons per year of PM10 (Criterion b).

Transportation and Circulation

The significant, unavoidable transportation impacts identified below are classified as such because Caltrans' approval is required to implement the identified mitigation measures (see Section 4.13), and the City of Oakland cannot guarantee such approvals. The respective mitigation measures identified for each of these impacts would reduce the impact to less than significant.

- **Impact TRANS-1:** Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized I-580 Eastbound On Ramp/Seminary Avenue/Kuhnle Avenue (intersection #2) and after project completion, this intersection would continue to satisfy the MUTCD peak hour volume traffic signal warrant during the PM peak hour (Criterion f). This intersection operates at LOS E during the AM and PM peak hours, and meets the peak hour signal warrant during the PM peak hour under Existing conditions. (Significant and Unavoidable)

- **Impact TRANS-2:** Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized *I-580 Westbound Off-Ramp/Mountain Boulevard/Kuhnle Avenue (intersection #3)* and after project completion, this intersection would continue to satisfy the MUTCD peak hour volume traffic signal warrant during the PM peak hour (Criterion f).This intersection operates at LOS F during the AM and PM peaks, and meets the peak hour signal warrant during the PM peak hour under Existing conditions. (*Significant and Unavoidable*)

- **Impact TRANS-3:** Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized *I-580 Eastbound Off-Ramp/Fontaine Street /Keller Avenue (intersection #12)* which would meet the peak hour signal warrant (Criterion f) during the AM and PM peak hours under Existing Plus Project conditions. (*Significant and Unavoidable*)

- **Impact TRANS-5:** Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized *I-580 Westbound Off-Ramp/Mountain Boulevard/Shone Avenue (intersection #16)* which would meet the peak hour signal warrant (Criterion f) during the AM and PM peak hours under Existing Plus Project conditions. (*Significant and Unavoidable*)

- **Impact TRANS-6:** Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized *Mountain Boulevard/Golf Links Road (intersection #40)* which would meet the peak hour signal warrant (Criterion f) during the AM peak hour under Existing Plus Project conditions. (*Significant and Unavoidable*)

- **Impact TRANS-8:** Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized *I-580 Eastbound On-Ramp/Seminary Avenue/Kuhnle Avenue (intersection #2)* and after project completion this intersection would continue to satisfy the MUTCD peak hour volume traffic signal warrant during the AM and PM peak hours (Criterion f) under 2040 Plus Project conditions. (*Significant and Unavoidable*)

- **Impact TRANS-9:** Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized *I-580 Westbound Off-Ramp/Mountain Boulevard/Kuhnle Avenue (intersection #3)* and after project completion, this intersection would continue to satisfy the MUTCD peak hour volume traffic signal warrant during the AM and PM peak hours (Criterion f) under 2040 Plus Project conditions. (*Significant and Unavoidable*)

- **Impact TRANS-10:** Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized *I-580 Eastbound Off-Ramp/Fontaine Street /Keller Avenue (intersection #12)* which would meet the peak hour signal warrant (Criterion f) during the AM and PM peak hours under 2040 Plus Project conditions. (*Significant and Unavoidable*)

- **Impact TRANS-12:** Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized *I-580 Westbound Off-Ramp/Mountain Boulevard/Shone Avenue (intersection #16)* which would meet the peak hour signal warrant (Criterion f) during the AM and PM peak hours under 2040 Plus Project conditions. (*Significant and Unavoidable*)

- **Impact TRANS-14:** Traffic generated by the Oak Knoll Project would increase the average intersection delay and degrade the LOS from LOS C to LOS E (Criterion a) at the signalized *Golf Links Road/I-580 Eastbound Off-Ramp/98th Avenue (Intersection #38)*, during the PM peak hour. (*Significant and Unavoidable*)

  The significant, unavoidable transportation impact identified below is classified as such because Caltrans' approval is required to implement the identified mitigation measure (see Section 4.13). Further, the mitigation measure identified would not reduce the impact to less than significant.

- **Impact TRANS-15:** Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized *Mountain Boulevard/Golf Links Road (intersection #40)* which would meet the peak hour signal warrant (Criterion f) during the AM and PM peak hours under 2040 Plus Project conditions. (*Significant and Unavoidable*)

  The significant, unavoidable transportation impact identified below is classified as such because the mitigation measured identified for this impact may result in secondary impacts on pedestrian circulation and/or bus operations.

- **Impact TRANS-13:** Traffic generated by the Oak Knoll Project would increase the average intersection delay by more than four seconds at the signalized *International Boulevard/98th Avenue (Intersection #27)*, which would operate at LOS E (Criterion c) during the PM peak hour under 2040 No Project conditions. (*Significant and Unavoidable*)

  The significant, unavoidable transportation impacts identified below are classified as such because no feasible mitigation measures are available that would reduce the impacts to less than significant.

- **Impact TRANS-7:** Traffic generated by the Oak Knoll Project would increase the volume-to-capacity ratio by 0.03 or more along the following freeway segments which would operate at LOS F (Significance Threshold G) under Existing Plus Project conditions (*Significant prior to Mitigation*)

- **Impact TRANS-16:** Traffic generated by the Oak Knoll Project would increase the volume-to-capacity ratio by 0.03 or more along the following freeway segments which would operate at LOS F (Criterion g) under 2040 Plus Project conditions (*Significant prior to Mitigation*)

5.3 Alternatives Considered for the SEIR

5.3.1 Alternatives Considered

With consideration given to the factors for alternatives selection discussed in Section 5.2, the Lead Agency considered several possible alternatives to be addressed in this Draft SEIR. A comparative summary of each Oak Knoll Project alternative considered and analyzed in this document and the redevelopment plan reuse alternatives considered in the 1998 EIS/EIR follow in **Table 5-1**. (The City also considered possible alternatives for consideration in this Draft SEIR, but that were not selected. Those are each described in Section 5.6 of this Chapter. The City also presents discussion of alternative approaches to Club Knoll as non-CEQA alternatives in Section 5.7 of this Chapter.)

5.3.2 Selected Oak Knoll Project CEQA Alternatives

The following describes the alternatives selected for full analysis in this Draft SEIR, the City having determined that they represent a reasonable range. **Table 5-2** provides a detailed comparison of the development program of each, and narrative descriptions and land use plans follow.

Alternative A—Reduced Footprint Residential Mix

Alternative A is summarized in illustrated in **Figure 5-1**. It would reduce the total number of residential units from 935 to 601 (334 units) and would cluster all residential development, roads and infrastructure in the flatter areas of the site, preserving the steeper and ridgeline areas in open space. Alternative A would also consist of only townhouse units and small lot (e.g. 2,000-3,000 sq. ft.) single family detached units; no large lot residential (as is proposed by the Project) would be developed. This alternative would also be slightly less dense than the proposed Project in the areas to be developed because it would provide more single family homes than the proposed Project, which proposes more townhomes.

Alternative A would also reduce the commercial/retail component of the project from approximately 82,000 square feet (including 10,000 square feet in the relocated Club Knoll community center proposed with the Project) to approximately 36,000 square feet. This alternative proposes leaving Club Knoll in its current location and reusing it for 15 multi-family residential units.

TABLE 5-1
SUMMARY OF CEQA ALTERNATIVES CONSIDERED AND SELECTED FOR COMPARISON TO THE OAK KNOLL PROJECT AND THE ALTERNATIVES CONSIDERED IN THE 1998 EIS/EIR

Alternative	Residential Units	Commercial Uses	Other Uses/Activities	Parks and Publicly-Accessible Open Space	Key Differences Compared to Project
PROPOSED OAK KNOLL PROJECT					
Proposed Development (See Figure 3-7 in Chapter 3)	935 units: (188 Single Family; 175 Small-lot Single Family; 572 Townhomes)	Mixed Use Village Center: 72,000 sf (5.6 acres)	Rifle Range Creek Restoration (16.7 acres)	62.0 acres undisturbed open space and revegetated slopes 3.5 miles Pedestrian trails and bicycle paths Parks and 4,000-sf Community Center in relocated and rehabilitated historic Club Knoll with 10,000 sf Community Retail (5.6 acres)	
I. NO PROJECT ALTERNATIVE					
No Development / Existing Conditions (See Figure 3-2 in Chapter 3)	No uses on the Oak Knoll Project site.	No uses on the Oak Knoll Project site.	No uses on the Oak Knoll Project site.	No publicly-accessible areas on the Oak Knoll Project site.	• No development or site improvements
III. SELECTED CEQA ALTERNATIVES TO THE OAK KNOLL PROJECT					
A. Reduced Footprint - Residential Mix (See Figure 5-1)	616 units: (344 Small-lot Single Family; 257 Townhomes, 15 flats)	Mixed Use Village Center: 36,000 sf (4.1 acres)	Rifle Range Creek Restoration (16.7 acres)	90.7 acres undisturbed open space Parks and new 4,000-sf Community Center (4.4 acres)	• 319 fewer residential units • 46,000 sf less commercial • 28.7 acres less open space • Club Knoll reuse in place as residential
B. Reduced Footprint - Low Density Small Lot (See Figure 5-2)	566 units: (551 Small-lot Single Family; 15 flats)	None	Rifle Range Creek Restoration (16.7 acres)	90.7 acres undisturbed open space and revegetated slopes Parks and new 4,000-sf Community Center (4.4 acres)	• 369 fewer residential units • No commercial • 28.7 acres less open space • Club Knoll reuse in place as residential
C. Hillside Low Density – Large Lot (See Figure 5-3)	364 units: (249 Large-lot Single Family; 5 flats, 100 unit)	None	Rifle Range Creek Restoration (16.7 acres)	58.8 acres undisturbed open space Parks and new 4,000-sf Community Center (4.4 acres)	• 571 fewer residential units • No commercial • 3.2 acres less open space • Club Knoll reuse in place as residential

TABLE 5-1 (Continued)
SUMMARY OF CEQA ALTERNATIVES CONSIDERED AND SELECTED FOR COMPARISON TO THE OAK KNOLL PROJECT AND THE ALTERNATIVES CONSIDERED IN THE 1998 EIS/EIR

Alternative	Residential Units	Commercial Uses	Other Uses/Activities	Parks and Publicly-Accessible Open Space	Key Differences Compared to Project
III. 1998 EIS/EIR REUSE ALTERNATIVES PREVIOUSLY ANALYZED – NOT ANALYZED IN THIS DRAFT SEIR					
Maximum Capacity Alternative (Preferred Alternative)[1] (See Figure 5-4 and 4-1in Chapter 4)	584 units: (284 Single Family Units; 300 Multifamily)	Mixed Use Zone: 400,000 sf (includes 8.25 acres Civic Use, including Seneca)	Creek Improvements: habitat restoration and buffer zone [2] Club Knoll reuse; garage demolition	32 acres 54-acre golf course (includes 250 of Single Family total) Programmed Recreation: 44,000 sf using existing facilities	• 351 fewer residential units • 318,000 sf more commercial • 11.5 acres less open space (excluding golf course) • 54-acre golf course and integrated housing • No in-creek improvements • Club Knoll reuse in place as community use
Mixed Use Village (See Figure 5-4)	90 Multifamily units: 20 dwelling units per acre (part of Mixed Use Zone)	Mixed Use Zone: 300,000 sf (includes 90 Multifamily units) Neighborhood Retail: 65,000 sf	Research and Development (R&D): 261,000 sf Cultural / Meeting Facilities: 59,000 sf Creek Improvements: habitat restoration and buffer zone [2] Club Knoll reuse; garage demolition	86 acres 8 acres Programmed Recreation: 44,000 sf using existing facilities	• 845 fewer residential units (no Single Family) • 17,000 sf less commercial/retail • 320,000 sf R&D and cultural uses • 42.5 acres more open space • No in-creek improvements • Club Knoll reuse in place as community use
SFD Residential with Retail (See Figure 5-4)	600 Single Family Units: 6,000 sf lots on 82 acres	Neighborhood Retail: 39,000 sf	Creek Improvements: habitat restoration and buffer zone Club Knoll reuse; garage demolition	46 acres 14 acres Programmed Recreation: 44,000 sf using existing facilities (39 acres set aside for unbuildable slopes/ roads within developable sites)	• 335 fewer residential units • 43,000 sf less commercial/retail • 2.5 acres fewer open space • No in-creek improvements • Club Knoll reuse in place as community use
SFD Residential - No Retail (See Figure 5-4)	357 Single Family Units: 10,000 sf lots on 82 acres	None	Creek Improvements: habitat restoration and buffer zone [2] No demolition or restoration of Club Knoll; Club Knoll becomes a separate parcel	46 acres 14 acres Programmed Recreation: 44,000 sf using existing facilities (39 acres set aside for unbuildable slopes/ roads within developable sites)	• 578 fewer residential units • No commercial/retail • 24.9 acres fewer open space • No in-creek improvements • Club Knoll reuse in place as community use

TABLE 5-1 (Continued)
SUMMARY OF CEQA ALTERNATIVES CONSIDERED AND SELECTED FOR COMPARISON TO THE OAK KNOLL PROJECT AND THE ALTERNATIVES CONSIDERED IN THE 1998 EIS/EIR

Alternative	Residential Units	Commercial Uses	Other Uses/Activities	Parks and Publicly-Accessible Open Space	Key Differences Compared to Project
III. 1998 EIS/EIR REUSE ALTERNATIVES PREVIOUSLY ANALYZED – NOT ANALYZED IN THIS DRAFT SEIR (cont.)					
1998 EIS/EIR Single Use / Educational Campus (See Figure 5-4)	None	Neighborhood Retail: 22,000 sf	Educational Campus: 765,000 sf Creek Improvements: habitat restoration and buffer zone [2] Club Knoll reuse; garage demolition	101 acres 12 acres Programmed Recreation: 44,000 sf using existing facilities	• No residential use • 60,000 sf less commercial/retail • Educational Campus use • 68 acres more open space • No in-creek improvements • Club Knoll reuse in place as community use

NOTES:

1 The impacts of the Maximum Capacity Alternative are reported in Chapter 4 of this Draft SEIR and referenced for comparisons in this Alternatives Analysis chapter. All of the Maximum Capacity Alternatives'' impacts, mitigation measures, and the comparison of each to the proposed Project are presented pursuant to PRC Section 21166 and Section 15162 of the CEQA Guidelines.

2 Consistent with the analysis presented in the 1998 EIS/EIR, improvements to Rifle Range Creek for each of the 1998 EIS/EIR alternatives are limited to establishing a riparian habitat buffer zone and habitat restoration; in-creek alterations would occur only with the proposed Project.

SOURCE: 1998 EIS/EIR; OKAV 2016

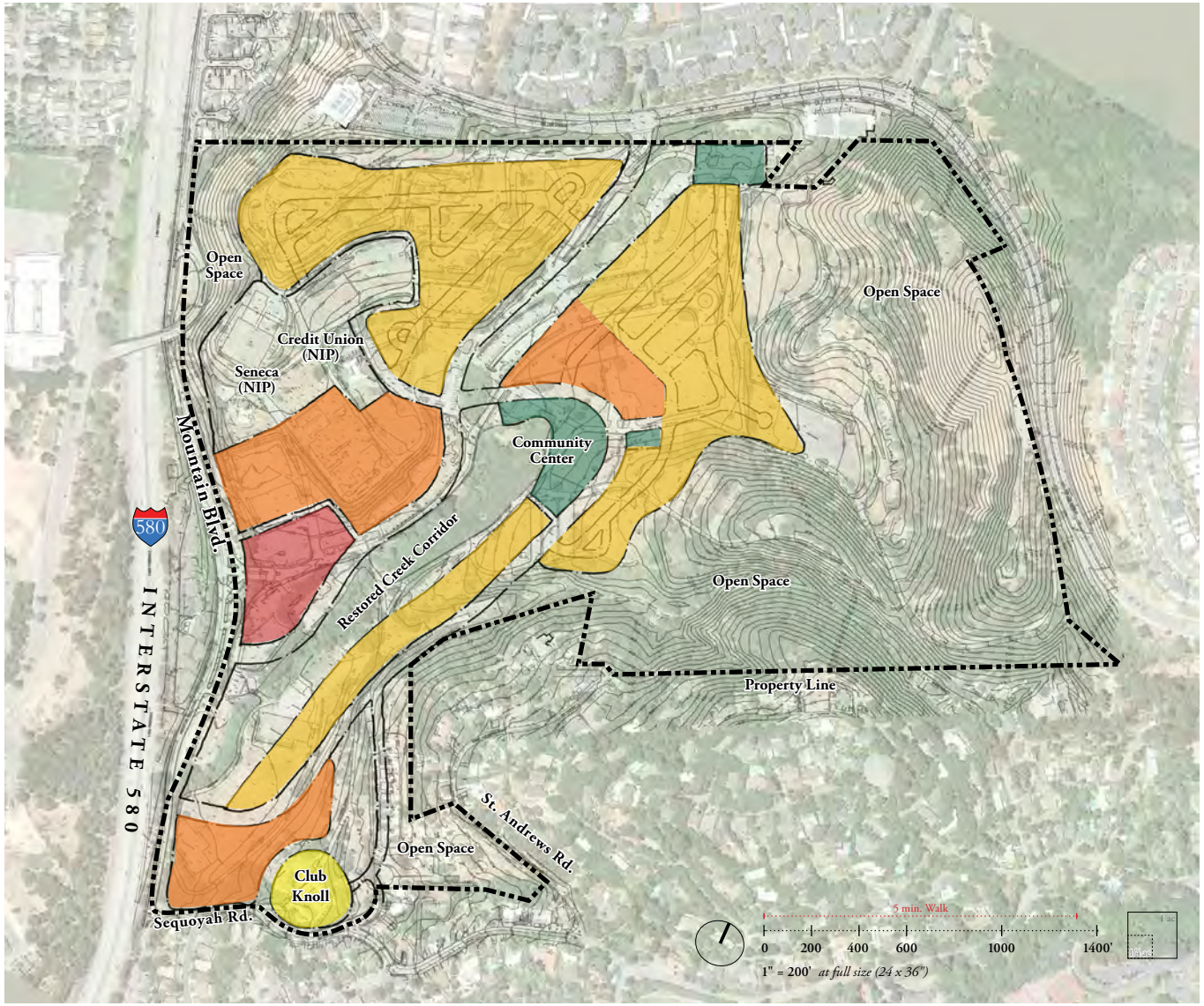
TABLE 5-2
DETAIL OF SELECTED CEQA ALTERNATIVES TO THE OAK KNOLL PROJECT AND SUMMARY OF KEY COMPARATIVE EFFECTS

	Proposed Project	No Project	Alternative A: Reduced Footprint - Residential Mix	Alternative B: Reduced Footprint - Low Density Small Lot	Alternative C: Hillside Low Density – Large Lot
Residential Units	935	-	616	566	364
Single Family Large Lot	*188*		*0*	*0*	*249*
Single Family Small Lot	*165*		*344*	*551*	*0*
Town Homes	*175*		*257*	*0*	*0*
Affordable Multifamily	*0*		*0*	*0*	*100*
Club Knoll Flats (Multifamily)	*0*		*15*	*15*	*5*
Commercial / Retail	82,000	-	36,000	0	0
Village Center	*72,000*		*36,000*	*0*	*0*
Community Commercial in Relocated/Rehabilitated Club Knoll (shown below)	*10,000*				
Undisturbed Open Space and Revegetated Hillsides (excluding creek)	62 acres	43.5 acres [1]	90.7 acres	90.7 acres	58.8 acres
Parks / Community Center	4.4 acres / 4,000 sf	0	4.4 acres / 4,000 sf	4.4 acres / 4,000 sf	4.4 acres / 4,000 sf
Rifle Range Creek Restoration	16.7 acres	No change	16.7 acres	16.7 acres	16.7 acres
Club Knoll Treatment	Relocated and Rehabilitated	No change	Reuse In place (Residential Flats)	Reuse In place (Residential Flats)	Reuse In place (Residential Flats)
Service Population	2,416	0	1,552	1,357	850
Residents	*2,236*	*0*	*1,472*	*1,357*	*850*
Employees	*180*	*0*	*80*	*0*	*0*
Developed Site Acreage [2]	108.4 acres	75.2 acres [3]	79.7 acres	79.7 acres	111.6 acres
Summary of Key Comparative Effects					
Peak-Hour Vehicle Trip Generation (AM/PM (Daily) [4]	624 / 965 (11,250)	-	434 / 649 (7,380)	408 / 543 (5,180)	234 / 304 (2,970)
Average Daily Operational Emissions (Pounds / Day)	ROG 78, NOx 42.5, PM_{10} 2.2, $PM_{2.5}$ 2.2	-	ROG 51.7, NOx 27.2, PM_{10} 1.7, $PM_{2.5}$ 1.7	ROG 47.1, NOx 21.9, PM_{10} 2.2, $PM_{2.5}$ 2.2	ROG 30.6, NOx 14 PM_{10} 1.1, $PM_{2.5}$ 1.1
GHG MT CO2e Emissions (Total / Efficiency)	10,807 / 4.47 per service population	-	6,866 / 4.42 per service population	5,735 / 4.23 per service population	3,720 / 4.38 per service population

NOTES: Overall Project assumptions applied to the alternatives are discussed in Section 5.4 of this chapter.

1 Existing open space only.
2 Total site acreage (188 acres) minus proposed Open Space/Creek acreages.
3 Existing impervious surface area (paving)
4 Prior to implementation of Transportation Demand Management Plan (TDM) (SCA TRA-4)

SOURCE: 1998 EIS/EIR; OKAV 2016



Alternative A

Reduced Footprint Residential Mix

LAND USE AND PROGRAM SUMMARY				
Key	Residential	Area (ac)	DU/ AC	Units
	Townhomes	15.4	16.7	257
	Small Lot SFD	30.7	11.2	344
	Club Knoll Multi-Family	2.4	6.3	15
	Total Residential	**48.5**	**12.7**	**616**
	Retail	Area	SF	
	Village Center	4.1	36,000	150
	Park/Open Space	Area	SF	
	Open Space/Creek	108.3	n/a	n/a
	Comm. Ctr./Parks	4.4	4,000	80

Note: 1. All acreages and unit counts are approximate.
2. Residential areas represent net area excluding projected public right-of-way.

SOURCE: OKVA, Hart Howerton, 2016

Oak Knoll Project . 120645

Figure 5-1

Alternative A - Reduced Footprint, Residential Mix

Alternative B—Reduced Footprint Low Density Small Lot

Alternative B is summarized in illustrated in **Figure 5-2**. Alternative B would reduce the total number of residential units from 935 to 551 (384 units) and, like Alternative A, would cluster all residential development, roads and infrastructure in the flatter areas of the site, preserving the steeper and ridgeline areas in open space. Alternative B would consist of only small lot single family homes and would eliminate all large lot and townhomes on the site. Alternative B also would retain Club Knoll in its existing location and reuse for 15 multi-family residential units. Unlike Alternative A and the Project, this alternative contemplates no retail/commercial component.

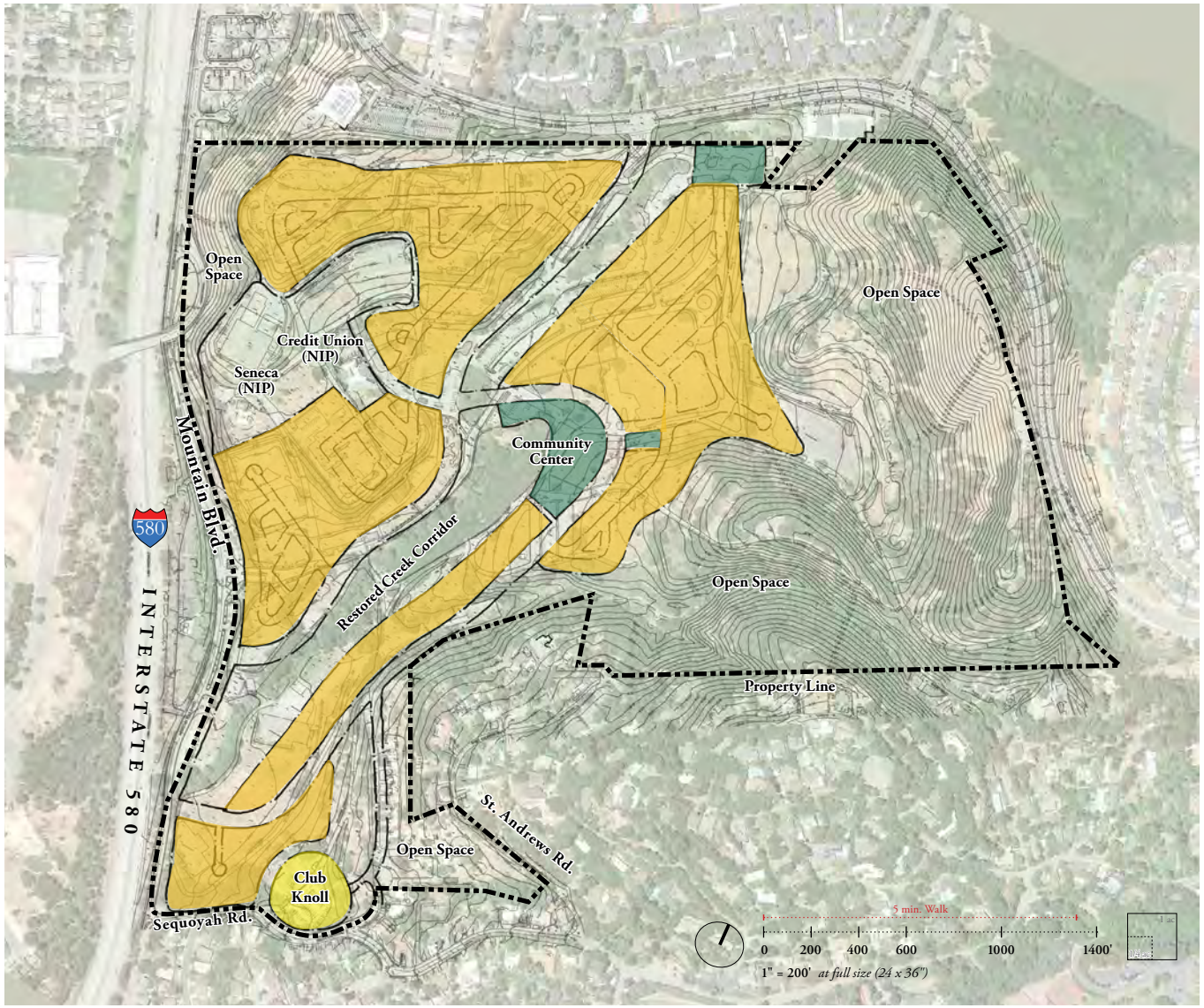
Alternative C—Hillside Low Density Large Lot

Alternative C is summarized in illustrated in **Figure 5-3**. Alternative C would cover approximately the same footprint as the current proposed Project but would reduce the total number of residential units from 935 to 349 (586 units). The majority of the residential units (249 or 71 percent) would be larger lot (e.g. minimum 8,000 sq. ft.) single family detached units. No townhome or small lot single family units would be provided, except for 100 units of low-income, affordable housing in stacked flats that would be developed on the City-owned parcel (which are not proposed by the other Alternatives or the proposed Project this alternative would contain no retail/commercial component. Club Knoll would be retained in its current location and reused for 5 multi-family residential units (as opposed to 15 units envisioned for the other Alternatives).

5.3.3 Alternatives Previously Considered in the 1998 EIS/EIR

As described above in 5.2.1, the 1998 EIS/EIR analyzed four conceptual redevelopment plan alternatives for reuse of the NMCO property. Each is summarized in Table 5-1 and illustrated in **Figure 5-4**. These alternatives are presented here for informational purposes. The City has defined and selected Alternatives A through C for consideration in the Draft SEIR, as they are designed as alternatives to the proposed Oak Knoll Project for the purposes of reducing significant impacts identified with the Project, while continuing to generally align with the Project's objectives and what the 1998 Reuse Plan and Oakland General Plan envision for the NMCO property.

The Maximum Capacity Alternative, the preferred alternative in the 1998 EIS/EIR, is introduced in Section 4.0 of this document (see Figure 4-1, enlarged and detailed from that shown in Figure 5-4). The comparison of the proposed Project to the Maximum Capacity Alternative is presented in Chapter 4 of this Draft SEIR and summarized in Table 2-1 in Chapter 2 (Summary). The remaining three redevelopment plan alternatives addressed in the 1998 EIS/EIR are not presented for detailed comparison to the proposed Project in addition to selected Alternatives A through C because they either do not align with the objectives of the proposed Project, propose greater intensity of development compared to the proposed Project, or are similar to one of the selected alternatives that more closely aligns with the proposed Project and thereby offers a more meaningful comparison.



Alternative B

Reduced Footprint Low Density Small Lot

LAND USE AND PROGRAM SUMMARY

Key	Residential	Area (ac)	DU/ AC	Units
	Small Lot SFD	49.2	11.2	551
	Club Knoll Multi-Family	2.4	6.3	15
	Total Residential	**51.6**	**11.0**	**566**
	Park/Open Space	Area	SF	
	Open Space/Creek	108.3	n/a	n/a
	Comm. Ctr./Parks	4.4	4,000	80

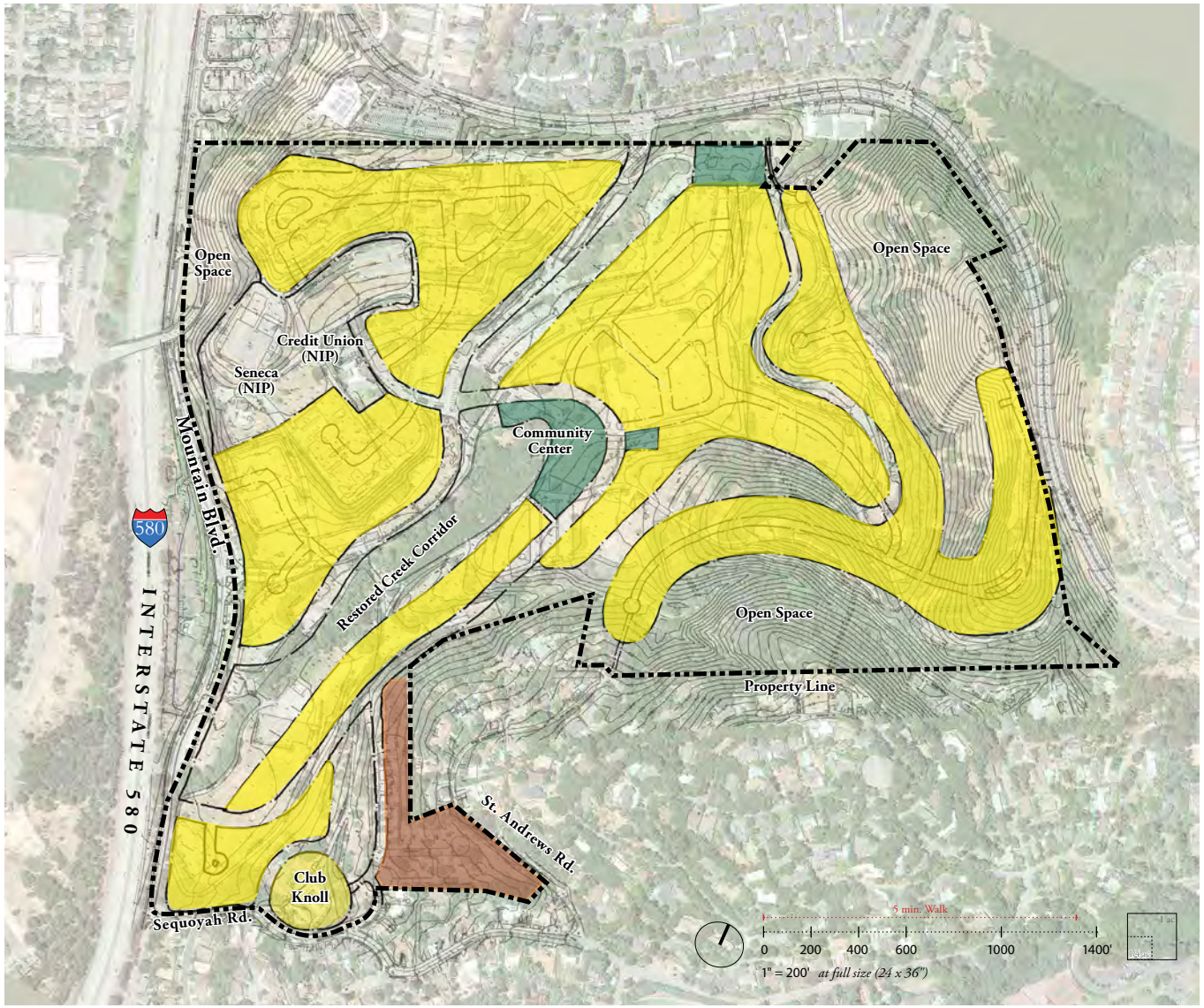
Note: 1. All acreages and unit counts are approximate.
2. Residential areas represent net area excluding projected public right-of-way.

SOURCE: OKVA, Hart Howerton, 2016

Oak Knoll Project . 120645

Figure 5-2

Alternative B - Reduced Footprint, Low Density Small Lot



Alternative C

Hillside Low Density Large Lot

LAND USE AND PROGRAM SUMMARY				
Key	Residential	Area (ac)	DU/ AC	Units
	Large Lot SFD	71.1	3.5	249
	Club Knoll Multi-Family	2.4	2.1	5
	Affordable Housing	5.5	18.0	100
	Total Residential	**79.0**	**4.6**	**364**
	Park/Open Space	Area	SF	
	Open Space/Creek	76.4	n/a	n/a
	Comm. Ctr./Parks	4.4	4,000	80

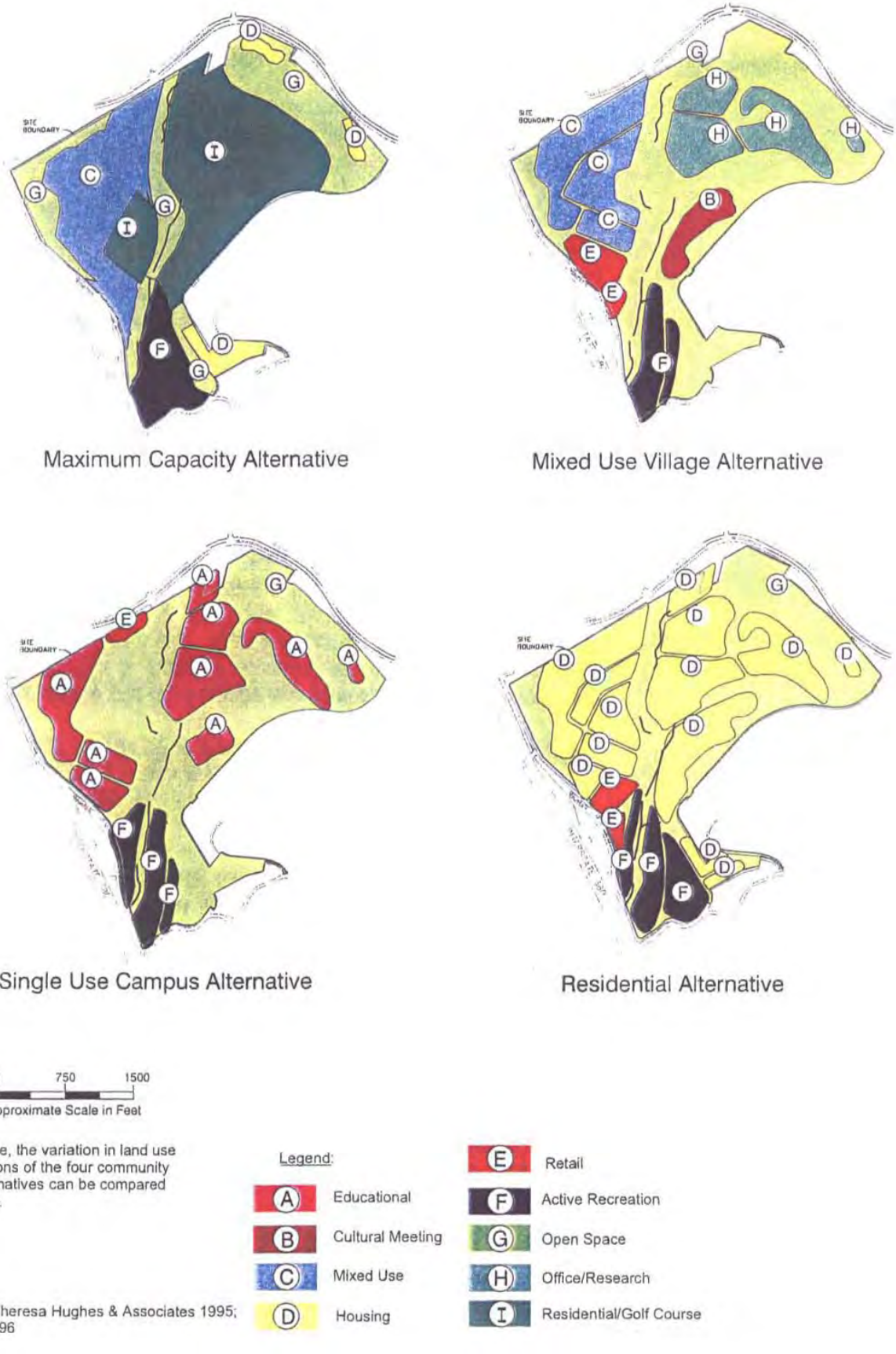
Note: 1. All acreages and unit counts are approximate.
2. Residential areas represent net area excluding projected public right-of-way.

SOURCE: OKVA, Hart Howerton, 2016

Oak Knoll Project . 120645

Figure 5-3

Alternative C – Hillside Low Density, Large Lot



Oak Knoll Project . 120645

SOURCE: Theresa Hughes & Associates 1995;
OBRA 1996

Figure 5-4
Comparison of 1998 EIS/EIR Reuse Alternatives

5.4 Analysis Approach and Assumptions

The following highlights certain key assumptions applied to this alternatives analysis to ensure an apples-to-apples comparison of each of the alternatives to the Project, as well as to accurately assess key variations in the alternatives compared to the Project and the other alternatives.

- **Scope of Topics.** The comparative analyses addresses each environmental topic (and the major associated criteria) under CEQA (as conducted in Chapter 4), and the potential impacts of each alternative is compared to the impact of the proposed Project, as those impacts are identified in Chapter 4. (A summary table of comparative impacts is provided in Table 5-5 at the end of this chapter.)

- **Level of Analysis Detail.** As permitted by CEQA, the effects of the alternatives are discussed in less detail than is presented in the Project analysis in Chapter 4 (CEQA Guidelines Section 15126.6[d]). However, the analyses are conducted at a sufficient level of detail to provide the public, other public agencies, and project decision-makers adequate information to fully evaluate the alternatives.

- **Consideration of SCAs and Mitigation Measures.** All impacts are stated as levels of significance *after* implementation of City Standard Conditions of Approval (SCA) and mitigation measures identified in Chapter 4, except where discussion of pre-mitigation effects is relevant to the comparison (namely the discussion of existing effects with the No Project Alternative).

- **Analysis Year.** The impacts associated with the alternatives are reported for 2024 buildout conditions, the same as the operational analysis conducted in their Draft SEIR for the Project. The exception is with the discussion of the No Project Alternative, short-term or periodic construction-related effects, and long-term cumulative traffic impacts.

- **Qualitative and Quantitative Analyses**. In most cases, the comparisons are qualitative and discussed in terms of whether the alternative would avoid a Project impact or result in a new impact not previously identified. Quantitative comparisons are presented for Air Quality emissions, Greenhouse Gas Emissions, and Traffic Intersection Operations; these comparisons are discussed in the narrative analysis that follows and are also presented in Table 5-2.

- **Stating Impact Comparisons**. If the impact *determination* (i.e., less-than-significant with no mitigation required, less-than-significant after mitigation, or significant and unavoidable) of the alternative compared to the Project is the same, the discussion address the relative *degree* of difference in the effect. A determination that an alternative's impact is the "same" as with the Project indicates the impact *determination* is the same, even though the *degree* of effect may be "greater than or increased" or "less than or reduced" between the alternative and the Project.

- **Common Characteristics Across Project and Alternatives**. Overarching components of the proposed Project also apply to the selected alternatives. These include improvements to Rifle Range Creek and corridor, infrastructure improvements (replace sewer and water, upgrade stormwater) remedial grading to stabilize landslide-prone areas, pedestrian/bicycle circulation and the proposed street network layout. On-site crushing of impervious surfaces and defunct infrastructure is assumed for each alternative, as it is more impactful than the off-haul scenario. Also, the adaptive reuse of historic Club Knoll would be conducted in compliance with all requirements to ensure no significant impact to this locally significant historic resource.

It is also assumed that development of each alternative would incorporate the same proposed Oak Knoll Design Guidelines applicable to the types of land uses, building types, and geographic areas of the property that would be developed. On the other hand, design guidelines addressing development on the Eastern Ridge would not apply to alternatives that would not develop on the Eastern Ridge (i.e., Alternatives A and B).

5.5 Comparative Analysis of Alternatives to the Project

5.5.1 No Project Alternative

The No Project Alternative is provided in this Draft SEIR to compare the impacts of approving the proposed Project to not approving the Project (CEQA Guidelines, Section 15126.6[e]). Existing conditions of the NMCO property are consistent with the site conditions that existed as of publication of the NOP for this Draft SEIR and as described in the *Setting* sections throughout Chapter 4. Also considered are any reasonably foreseeable changes that could occur on the Oak Knoll Project site.

While not a direct impact of the No Project Alternative, there are existing conditions on the Project site that would not get the benefit of improvement if the proposed Project did not occur. These include proposed activities to improve the conditions of Rifle Range Creek relevant to effects on hydrology and water quality and biological resources (habitat); geologic stability in areas of the site documented as poorly compacted and landslide-prone; traffic conditions (as certain mitigation measures would benefit area-wide circulation); as well as cultural resources (the rehabilitation of Club Knoll). Further, the site would not have existing vegetation and trees managed (e.g., removed, replaced, trimmed) to reduce the potential risk of wildfire conditions, as would occur with development of the site, as with the Project.

Regarding traffic operations, there is the ability to quantitatively assess whether existing conditions, without the Project, are operating acceptably today against the City's established thresholds, albeit without any proposed mitigation measures that could feasibly improve the conditions to acceptable (as would be done under the proposed Project). Seven intersections and freeway ramps operate unacceptably under existing conditions (see Tables 4.13-6 and 4.14-7 in Section 4.14, *Transportation and Circulation*). The proposed Oak Knoll Project would improve some of these conditions with implementation of certain mitigation measures identified in this Draft SEIR (and listed under section 5.2.4, above and notwithstanding significant impacts due solely to the need for Caltrans' approval).

The No Project Alternative would not have the environmental impacts that would result with the proposed Project and identified since no activity would occur on the Project site. In particular, the significant and unavoidable Air Quality and Traffic impacts (listed under 5.2.4 in this chapter) would not occur. The comparison of the specific impacts to these particular intersections is presented in Table 5-5 at the end of this chapter.

5.5.2 Alternative A: Reduced Footprint - Residential Mix

Alternative A is previously described in section 5.3.2 and illustrated in Figure 5-1.

Aesthetics

Alternative A would avoid the need for Mitigation Measure AES-1 to reduce to less-than-significant the potentially significant impact to scenic vistas that would occur with the Project. Alternative A would develop approximately 79.7 acres (approximately 42 percent) of the Project site and would not develop the east and southeast areas of the property where the visually prominent scenic resources exist and are visible from publically accessible offsite locations (see Figure 5-1). As a result, while not considered a significant impact with the Project, the substantial tree removal and grading in this east and southeast area would not occur with this alternative. Specifically, development would not occur on the Eastern Ridge, which was identified as significant but mitigable impact to this scenic vista. Mitigation Measure AES-1 would no longer be required.

This alternative would have the same less-than-significant impacts to light and glare and shadow, with a lesser effect given its reduced areas of development. Also, the same beneficial impact to visual character and visual quality resulting from development of the existing long-ago decommissioned and largely unmaintained NMCO property would occur with the alternative.

Overall, Alternative A would have similar but reduced aesthetics impact as the Project, and would avoid the need for mitigation measures identified for the Project.

Air Quality

Alternative A would avoid the significant and unavoidable impact of operational ROG emissions (average daily and total annually) that would occur with the Project. Alternative A would develop 334 fewer total residential units and 46,000 less square feet of commercial/retail uses and development than the Project. The result is substantially fewer vehicle trips, onsite activities, and resulting air quality emissions. As shown in Table 5-2 and Appendix GG to this document, this alternative would reduce peak hour vehicle trips by approximately 30/33 percent (AM/PM) compared to the Project, and total daily trips would be reduced by approximately 3,870 (or 34 percent). Combined, the reduction in the total number of residential units and land development affects operational emissions from vehicle trips as well as other project activities (heating, landscape maintenance, use of consumer productions). This alternative would generate 51.7 pounds per day of ROG compared to 78 pounds per day with the proposed Project; similarly, it would generate 9.4 total annual tons of ROG compared to 14.2 with the Project. As a result, with this alternative, ROG emissions would not exceed the established threshold of 54 pounds per day or 10 tons per year, and therefore would avoid the significant impacts identified with the Project for these thresholds. Mitigation Measures AIR-2.1 and AIR 2.2 identified for the Project would not be required for this alternative. Emissions for all operational air quality factors, including toxic air contaminants and health risk, would not be exceeded with this alternative (or the Project).

Referencing Table 5-2, the proposed Project would develop approximately 58 percent of the Project site. While not quantified, since Alternative A would develop approximately 42 percent of the Project site (also as shown in Table 5-2), avoiding areas of substantial grading and constructing less development over a shorter period of time, the construction period emissions would be less than with the Project, and the application of SCAs would continue to ensure a less than significant impact.

Overall, the air quality impacts with Alternative A would avoid a significant and avoidable air quality impact of the Project, and the effect would be less intensive.

Biological Resources

Alternative A would result in the same less-than-significant impacts to biological resources that would occur with the Project. Although Alternative A would develop approximately 42 percent of the Project site, avoiding the east and southeast areas of the property that include substantial numbers of trees and steep slopes and hillsides, development would impact the same range of plant and wildlife species and riparian habitat as the Project. The alternative would implement the Rifle Range Creek restoration activities proposed by the Project and in compliance with the Oakland Creek Protection Ordinance. Mitigation Measures BIO-1 and BIO-2 identified for the Project to reduce the potential effects to species and habitat would also apply to the alternative. While the number of trees that would be required to be removed for development of the site would be fewer than that required for the Project, the alternative would adhere to the commensurate tree mitigation requirements and compliance with the Oakland Tree Protection Ordinance. Overall, the biological resources impacts of Alternative A would be similar to but reduced, compared to the Project.

Cultural Resources

Alternative A would result in the same less-than-significant impact (after implementation of mitigation measures) to cultural resources that would occur with the Project. Alternative A proposes to retain the historic resource, Club Knoll, and adaptively reuse it for 15 residential flats. The Project would relocate and rehabilitate Club Knoll for reuse as a community center, and the alternative would construct a new 4,000 square-foot community center. As is presumed for each of the alternatives and required for the Project site, any alterations to Club Knoll would comply with all required findings to ensure no significant impact would occur. In particular, alterations would comply with the *Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings*, as well as local guidance and requirements in the Historic Preservation Element of the General Plan. As was identified in the analysis of the Project in Chapter 4, the alternative would reasonably require one or more mitigation measures to ensure compliant rehabilitation is applied to Club Knoll.

Aside from the remedial grading that would occur where necessary, little ground disturbance would occur on the east and southeast portion of the site. So, while the potential is reduced compared to the Project, the alternative would have similar potential for less-than-significant impacts to archaeological and paleontological resources and human remains.

Overall, the cultural resources impacts of Alternative A would be similar to the Project.

Geology and Soils

Alternative A would result in the same less-than-significant impact (after implementation of mitigation measures) to geology and soils impacts that would occur with the Project. Alternative A would develop approximately 42 percent of the Project site, avoiding areas of the site where there is existing risk of landsides, but, as assumed for all the alternatives, where the alternative will implement corrective grading. However, overall, there is no aspect of the alternative that would cause different potential effects related to seismic risk or other ground failures, erosion or expansive soils. The alternative would implement Mitigation Measure GEO-3 addressing the potential risk of unknown subsurface conditions (e.g., pit, swamp, mounds, vaults, sewer lines, landfills). Taken together, the geology and soils impacts of Alternative A would be similar to the Project.

Greenhouse Gas Emissions and Climate Change

Alternative A would result in the same less-than-significant impacts that would occur with the Project, but would generate fewer emissions and require implementation of a TDM Plan. Alternative A would develop 334 fewer total residential units and 46,000 less square feet of commercial/retail uses and development than the Project. The result is substantially less GHG emissions. Summarizing from the Alternative A discussion under *Air Quality,* this alternative would reduce the Project's daily vehicle trips by approximately 34 percent, which is relevant since mobile emissions represent the majority of the GHG emissions from all sources. The alternative would result in a total of 6,866 MT CO2e and 4.42 MT CO2e per service population, whereas the Project would generate 10,807 MT CO2e and a similar 4.47 MT CO2e per service population. Like the Project, the alternative would exceed the established threshold of 1,100 MT CO2e per day but not the 4.6 MT CO2e per service population, and therefore would not have a significant impact. Also, since this alternative would develop nearly half of the commercial/retail uses than the Project (presumably in Phase 1, like the Project), it would likely avoid the Phase 1 exceedance of the 4.6 MT CO2e efficiency threshold that would occur with the Project. The impact with the alternative would be the same as with the Project, but with a reduced effect.

Like the Project, this alternative would also align with plans adopted for the purpose of reduction GHG emissions. The alternative would employ a TDM plan, although the proposed density of the alternative may not support a shuttle service to transport residents to/from the BART The alternative would incorporate energy efficient building design and characteristics, solar photovoltaic (PV) facilities, and the use of LED streetlights. The scope of the GHG emissions impacts of Alternative A would be the same as with the Project, but the levels of emissions would be lower.

Hazards and Hazardous Materials

Alternative A would result in the same less-than-significant impact to hazards and hazardous materials that would occur with the Project. Alternative A would develop approximately 42 percent of the Project site, however the conditions that pose potential hazards and hazardous

conditions to the alternative would affect the alternative to the same extent as it would the Project. Also, there is no aspect of the alternative that would cause different potential effects related to hazards and hazardous materials. Overall, the hazards and hazardous materials impacts of Alternative A would be nearly the same as with the Project.

Hydrology and Water Quality

Alternative A would result in the same less-than-significant impact to hydrology and water quality materials that would occur with the Project. Alternative A would develop approximately 42 percent of the Project site, and would create less net new impervious surfaces than the Project since the area in the eastern portion of the site would not be developed; the alternative would reduce the percentage of impervious surfaces compared to existing conditions. As a result, the alternative would have reduced rate and runoff of stormwater, which could affect flooding, erosion, and water quality. While the development area would be less than with the Project, no other aspect of the alternative would potentially cause different potential effects related to the aforementioned factors, on or offsite. This Alternative would require similar alterations to existing surface drainage patterns, extensive reconfiguration of Rifle Range Creek, and installation of a new storm drainage network with structural and non-structural water quality management features. Overall, the scope of the hydrology and water quality impacts of Alternative A would be similar to but less than the Project,.

Land Use and Planning

Alternative A would result in the same less-than-significant impact to land use and planning that would occur with the Project. Alternative A includes the same types of land uses proposed by the Project. Further, the alternative would develop approximately 42 of the site proposed by the Project, and the arrangement of land uses within that reduced area is similar to that proposed by the Project (see Figure 5-1). Therefore, the alternative would not cause a conflict with nearby land uses or divide an established community, same as the Project. It is also reasonable to conclude that the alternative would not conflict with any existing land use plan, policies or regulations intended to address environmental effects. Given the increased area of open space that will be left undisturbed with this alternative, there are certain policies that the alternative may be more aligned with. This potential would not result in an increased impact than identified for the Project, however. The land use and planning impacts of Alternative A would be the same as with the Project.

Noise

Alternative A would result in the same less-than-significant impacts (after implementation of a mitigation measures) to noise that would occur with the Project. Alternative A would develop 334 fewer total residential units and 46,000 less square feet of commercial/retail uses and development than the Project. As shown in Table 5-2 and Appendix GG to this document, this alternative would reduce peak hour vehicle trips by approximately 30/33 percent (AM/PM) compared to the Project. As a result, the alternative would have similarly less roadway noise levels compared the Project. The impact would be less-than-significant as with the Project.

The alternative would develop 4.4 acres of park areas, but none located in the areas of the Project site closest to Mountain Boulevard and Interstate (I)-580 or that propose active play uses (see Figure 5-1). Therefore, the alternative would have the same less-than-significant impact identified for the Project regarding exposure of public parks to community noise levels not compatible with that use.

Population and Housing

Alternative A would result in the same less-than-significant impacts to population and housing that would occur with the Project. Alternative A would develop 334 fewer total residential units and 46,000 less square feet of commercial/retail uses and development than the Project. Applying the same ratios used by the Project (see Tables 4.11-4 and 4.11-5 in Section 4.11, *Population and Housing,* in Chapter 4), this alternative would generate 764 fewer residents and 100 fewer employees compared to the Project. As a result, like the Project, the alternative would not induce substantial population growth in a manner not contemplated in the General Plan. Further, like the Project, this Alternative would not displace any existing housing units or any people. The population and housing impacts of Alternative A would be the same as with the Project, and the effect would be less intensive.

Public Services and Recreation

Alternative A would result in the same less-than-significant impacts to public services and recreation that would occur with the Project. As previously described, Alternative A would develop 334 fewer total residential units and 46,000 less square feet of commercial/retail uses and development area than the Project. The result is substantially less onsite population (764 fewer residents and 100 fewer employees) and resulting demand for police services, fire and emergency services, and public parks. The alternative will also generate fewer school-aged children than the Project, reducing the demand for public schools. This alternative would develop the same 4.4 acres of new parks and a community center, same as the Project. Overall, the public services and recreation impacts of Alternative A would be the same, but to a lesser degree, as with the Project.

Transportation and Circulation

Alternative A would avoid significant and unavoidable intersection impacts that would occur with the Project. Alternative A would develop 334 fewer total residential units and 46,000 less square feet of commercial/retail uses and development than the Project. As a result, the alternative would generate two-thirds of the peak hour traffic generated by the Project. (Detailed trip generation calculations are provided in Appendix GG to this document.) Given those reduced trips, the Alternative A would eliminate the following significant impacts that are identified for the Project:

a. Impact TRANS-2 (Existing Plus Project Conditions) and TRANS-9 (2040 Plus Project Conditions) at the I-580 Westbound Off-Ramp/Mountain Boulevard/Kuhnle Avenue intersection.

b. Impact TRANS-13 (2040 Plus Project Conditions) at the International Boulevard/98th Avenue intersection.

Further, the alternative is expected to continue to cause significant and unavoidable impacts at a few intersections and freeway segments, although the magnitude of these impacts would be less than with the Project. This alternative is also expected to have similar effects on non-traffic operation topics, such as transportation safety and consistency with adopted policies, plans, or programs supporting multimodal transportation, because the alterative would continue to provide similar on-site pedestrian, bicycle, and transit facilities as the Project.

Utilities and Service Systems

Alternative A would result in the same less-than-significant impacts to utilities and service systems that would occur with the Project. As previously described, Alternative A would develop 334 fewer total residential units and 46,000 less square feet of commercial/retail uses and development area than the Project. The reduced development would therefore reduce the demand for water, sewer and storm water facilities, as well as landfill capacity. This alternative would also develop only the lower portion of the site, avoiding development in the east and southeast hillsides and steep slopes. As a result, the alternative would have less impervious surface than the Project, and therefore also a reduction from existing conditions. Overall, the utility and service systems impacts of Alternative A would be the same as with the Project, but to a lesser degree.

Energy

Alternative A would result in the same less-than-significant impacts associated with energy consumption that would occur with the Project. The substantially less development (334 fewer initial units and 46,000 less sq.ft. commercial/retail area) and associated population (864 fewer persons) that would occur with Alternative A compared to the Project would result in substantially less consumption of electricity and natural gas, and automotive fuels than the Project - both during construction and operations. Like the Project, Alternative A would apply the most current building energy efficiency design standards to reduce building-based energy consumption, and would be consistent with the City's ECAP and other pertinent plans and programs intended to reduce energy consumption and reduce reliance on fossil fuels and other non-renewable energy sources. The energy impact of Alternative A would be the same as with the Project, and the effect would be less intensive.

5.5.3 Alternative B: Reduced Footprint - Low Density Small Lot

Alternative B is previously described in section 5.3.2 and illustrated in Figure 5-2.

Aesthetics

Alternative A would avoid the need for Mitigation Measure AES-1 to reduce to less-than-significant the potentially significant impact to scenic vistas that would occur with the Project. Like Alternative A, Alternative B would develop approximately 79.7 acres (approximately 42 percent) of the Project site and would not develop the east and southeast areas of the property

where the visually prominent scenic resources exist and are visible from publically accessible offsite locations (see Figure 5-2). As a result, while not considered a significant impact with the Project, the substantial tree removal and grading in this east and southeast area would not occur, including development on the Eastern Ridge, which was identified as significant but mitigable impact to this scenic resource. Mitigation Measure AES-1 would no longer be required.

This alternative would have the same less-than-significant impacts to light and glare and shadow, with a lesser effect given its reduced areas of development. Also, the same beneficial impact to visual character and visual quality resulting from development of the existing long-ago decommissioned and largely unmaintained NMCO property would occur with the alternative.

Overall, Alternative A would have the same kinds of aesthetics impacts as the Project, and would avoid the need for mitigation measures identified for the Project.

Air Quality

Alternative B would avoid the significant and unavoidable impact of operational ROG emissions (average daily and total annually) that would occur with the Project. Alternative B would develop 369 fewer total residential units and would not have any commercial/retail uses or development compared to the Project. The result is substantially fewer vehicle trips, onsite activities, and resulting air quality emissions. As shown in Table 5-2 and Appendix GG to this document, this alternative would reduce peak hour vehicle trips by approximately 35/44 percent (AM/PM) compared to the Project, and total daily trips would be reduced by approximately 6,070 (or 54 percent). Combined, the reduction in the total number of residential units and land development affects operational emissions from vehicle trips as well as other project activities (heating, landscape maintenance, use of consumer productions). This alternative would generate 47.1 pounds per day of ROG compared to 78 pounds per day with the proposed Project; similarly, it would generate 8.6 total annual tons of ROG compared to 14.2 with the Project. As a result, with this alternative, ROG emissions would not exceed the established threshold of 54 pounds per day or 10 tons per year, and therefore would avoid the significant impacts identified with the Project for these thresholds. Mitigation Measures AIR-2.1 and AIR 2.2 identified for the Project would not be required for this alternative. Emissions for all operational air quality factors, including toxic air contaminants and health risk, would be reduced with this alternative, and less than significant.

While not quantified, since Alternative B would develop approximately 42 percent of the Project site, avoiding areas of substantial grading and constructing less development over a shorter period of time, the construction period emissions would be less than with the Project and the application of SCAs would continue to ensure a less than significant impact.

Overall, the air quality impacts with Alternative B would avoid a significant and avoidable air quality impact of the Project, and the effect would be less intensive.

Biological Resources

Alternative B would result in the same less-than-significant impacts to biological resources that would occur with the Project. Although Alternative B would develop approximately 42 percent of the Project site, avoiding the east and southeast areas of the property that include substantially trees and steep slopes and hillsides, development would impact the same plant and wildlife species and onsite riparian habitat as the Project. The alternative would implement the same Rifle Range Creek restoration activities proposed by the Project and in compliance with the Oakland Creek Protection Ordinance. While the number of trees that would be required to be removed for development of the site would be fewer than that required to develop the Project, the alternative would adhere to the commensurate tree mitigation requirements and compliance with the Oakland Tree Protection Ordinance. Overall, the biological resources impacts of Alternative B would be the same as with the Project, but to a lesser degree.

Cultural Resources

Alternative B would result in the same less-than-significant impact (after implementation of mitigation measures) to cultural resources that would occur with the Project. Alternative B proposes to retain the historic resource, Club Knoll, and adaptively reuse it for 15 residential flats. The Project would relocate and rehabilitate Club Knoll for reuse as a community center, and the alternative would construct a new 4,000 square-foot community center. As is presumed for each of the alternatives and required for the Project site, any alterations to Club Knoll would comply with all required findings to ensure no significant impact would occur. In particular, alterations would comply with the *Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings*, as well as local guidance and requirements in the Historic Preservation Element of the General Plan. As was identified in the analysis of the Project in Chapter 4, the alternative would reasonably require one or more mitigation measures to ensure compliant rehabilitation is applied to Club Knoll.

Aside from the remedial grading that would occur where necessary, little ground disturbance would occur on the east and southeast portion of the site. So, which the potential is reduced compared to the Project, the alternative would have similar potential for less-than-significant cultural resources impacts (archaeological and paleontological resources and human remains.

Overall, the cultural resources impacts of Alternative B would be the same as with the Project.

Geology and Soils

Alternative B would result in the same less-than-significant impact (after implementation of mitigation measures) to geology and soils impacts that would occur with the Project. Alternative B would develop approximately 42 percent of the Project site, avoiding areas of the site where there is existing risk of landsides, but, as assumed for all the alternatives, the alternative would implement corrective grading. However, overall, there is no aspect of the alternative that would cause different potential effects related to seismic risk or other ground failures, erosion or expansive soils. The alternative would implement Mitigation Measure GEO-3 addressing the potential risk of unknown subsurface conditions (e.g., pit, swamp, mounds, vaults,

sewer lines, landfills). Taken together, the geology and soils impacts of Alternative B would be the same as with the Project, but to a lesser degree.

Greenhouse Gas Emissions and Climate Change

Alternative B would result in the same less-than-significant impacts that would occur with the Project, but would generate fewer emissions – reduced such that a TDM Plan would not be required to avoid exceedance of the GHG efficiency threshold. Alternative B would develop 369 fewer total residential units and would not have any commercial/retail uses or development compared to the Project. The result is substantially less GHG emissions. Summarizing from the Alternative B discussion under *Air Quality,* this alternative would reduce the Project's daily vehicle trips by up to 44 percent (PM peak), which is relevant since mobile emissions represent the majority of the GHG emissions from all sources. The alternative will result in a total of 5,735 MT CO2e and 4.2 MT CO2e per service population, whereas the Project would generate 10,807 MT CO2e and a similar 4.47 MT CO2e per service population. Like the Project, the alternative would exceed the established threshold of 1,100 MT CO2e per day but not the 4.6 MT CO2e per service population, and therefore would not have a significant impact. Unlike the Project, the alternative would achieve these emissions levels prior to incorporation of a TDM Plan. The impact with the alternative would be the same as with the Project, but with reduced effect.

Like the Project, this alternative would also align with plans adopted for the purpose of reduction GHG emissions. Like Alternative A, for example, this alternative would employ a TDM plan, although the proposed density of the alternative may not support a shuttle service to transport residents to/from the BART. The alternative would incorporate energy efficient building design and characteristics, solar photovoltaic (PV) facilities, and the use of LED streetlights. The GHG emissions impacts of Alternative B would be the same as with the Project, but to a lesser degree.

Hazards and Hazardous Materials

Alternative B would result in the same less-than-significant impact to hazards and hazardous materials that would occur with the Project. Alternative B would develop approximately 42 percent of the Project site, however the conditions that pose potential hazards and hazardous conditions to the alternative would affect the alternative to the same extent as it would the Project. Also, there is no aspect of the alternative that would cause different potential effects related to hazards and hazardous materials. Overall, the hazards and hazardous materials impacts of Alternative B would be the same as with the Project.

Hydrology and Water Quality

Alternative B would result in the same less-than-significant impact to hydrology and water quality materials that would occur with the Project. Referencing Table 5-2, the proposed Project would develop approximately 58 percent of the Project site. Alternative B would develop approximately 42 percent of the Project site, and would create less net new impervious surfaces than the Project; the alternative would reduce the percentage of impervious surfaces compared to existing conditions. As a result, the alternative would have reduced rate and runoff of stormwater runoff which could affect flooding, erosion, and water quality. While the development area would

be less than with the Project, no other aspect of the alternative would potentially cause different potential effects related to the aforementioned factors, on or offsite. This Alternative would require similar alterations to existing surface drainage patterns, extensive reconfiguration of Rifle Range Creek, and installation of a new storm drainage network with structural and non-structural water quality management features. Overall, the hydrology and water quality impacts of Alternative B would be the same as with the Project, but to a lesser degree.

Land Use and Planning

Alternative B would result in the same less-than-significant impact to land use and planning that would occur with the Project. Alternative B includes the same types of land uses proposed by the Project. Further, the alternative would develop approximately 42 of the site proposed by the Project, and the arrangement of land uses within that reduced area is similar to that proposed by the Project (see Figure 5-2). Therefore, the alternative would not cause a conflict with nearby land uses or divide an established community, same as the Project. It is also reasonable to conclude that the alternative would not conflict with any existing land use plan, policies or regulations intended to address environmental effects, since it is similar in land use character. Given the increased area of open space that will be left undisturbed with this alternative, there are certain policies that the alternative may be more aligned with. This potential would not result in an increased impact than identified for the Project, however. The land use and planning impacts of Alternative B would be the same as with the Project.

Noise

Alternative B would result in the same less-than-significant impacts (after implementation of a mitigation measures) to noise that would occur with the Project. Alternative B would develop 369 fewer total residential units and no commercial/retail uses and development than the Project. As shown in Table 5-2 and Appendix GG to this document, this alternative would reduce peak hour vehicle trips by approximately 35/44 percent (AM/PM) compared to the Project. As a result, the alternative would have similarly less roadway noise levels compared the Project. The impact would be less-than-significant as with the Project.

The alternative would develop 4.4 acres of park areas, but none located in the areas of the Project site closest to Mountain Boulevard and I-580 or that propose active play uses (see Figure 5-1). Therefore, the alternative would have the same less-than-significant impact identified for the Project regarding exposure of public parks to community noise levels not compatible with that use.

Population and Housing

Alternative B would result in the same less-than-significant impacts to population and housing that would occur with the Project. Alternative A would develop 369 fewer total residential units and 46 would not have any commercial/retail uses or development compared to the Project. Applying the same ratios used by the Project (see Tables 4.11-4 and 4.11-5 in Section 4.11, *Population and Housing*, in Chapter 4), this alternative would generate 879 fewer residents and 180 fewer (zero) employees compared to the Project. As a result, like the Project, the alternative

would not induce substantial population growth in a manner not contemplated in the General Plan. Like the Project, this Alternative would not displace any existing housing or people. The population and housing impacts of Alternative B would be the same as with the Project, and the effect would be less intensive.

Public Services and Recreation

Alternative B would result in the same less-than-significant impacts to public services and recreation that would occur with the Project. As previously described, Alternative A would develop 369 fewer total residential units and no commercial/retail development area compared to the Project. The result is substantially less onsite population (879 fewer residents, and 180 fewer employees or zero) and resulting demand for police services, fire and emergency services, and public parks. The alternative would also generate fewer school-aged children than the Project, reducing the demand for public schools. This alternative would develop the same 4.4 acres of new parks and a community center as the Project. Overall, the public services and recreation impacts of Alternative B would be the same as with the Project, and the effect would be less intensive.

Transportation and Circulation

Alternative B would avoid significant and unavoidable intersection impacts that would occur with the Project. Alternative A would develop 369 fewer total residential units and no commercial/retail uses compared to the Project. As a result, the alternative would generate 55 to 65 percent of the peak hour traffic generated by the Project. (Detailed trip generation calculations are provided in Appendix GG of this document.) Given those reduced trips, the Alternative B would eliminate the following significant impacts that are identified for the Project:

a. Impact TRANS-2 (Existing Plus Project Conditions) and TRANS-9 (2040 Plus Project Conditions) at the I-580 Westbound Off-Ramp/Mountain Boulevard/Kuhnle Avenue intersection.

b. Impact TRANS-13 (2040 Plus Project Conditions) at the International Boulevard/98th Avenue intersection.

Further, the alternative is expected to continue to cause significant and unavoidable impacts at a few intersections and freeway segments, although the magnitude of these impacts would be less than with the Project. This alternative is also expected to have similar effects on non-traffic operation topics, such as transportation safety and consistency with adopted policies, plans, or programs supporting multimodal transportation, because the alterative would continue to provide similar on-site pedestrian, bicycle, and transit facilities as the Project.

Utilities and Service Systems

Alternative B would result in the same less-than-significant impacts to utilities and service systems that would occur with the Project. As previously described, Alternative B would develop 369 fewer total residential units and no commercial/retail area compared to the Project. The reduced development would therefore reduce the demand for water, sewer and storm water

facilities, as well as landfill capacity. This alternative would also develop only the lower portion of the site, avoiding development in the east and southeast hillsides and steep slopes. Overall, the utility and service systems impacts of Alternative B would be the same as with the Project, and the effect would be less intensive.

Energy

Alternative B would result in the same less-than-significant impacts associated with energy consumption that would occur with the Project. The substantially less development (369 fewer initial units) and associated population (1,059 fewer total persons) that would occur with Alternative B compared to the Project would result in substantially less consumption of electricity and natural gas and automotive fuels than the Project - both during construction and operations. Like the Project, all homes in this alternative would be built in accordance with the most current and most stringent building energy efficiency design standards and would be consistent with the City's ECAP and other pertinent plans and regulations intended to reduce energy consumption and reliance on fossil fuels and other nonrenewable energy sources. The energy impact of Alternative B would be the same as with the Project, but to a lesser degree.

5.5.4 Alternative C: Hillside Low Density - Large Lot

Alternative C is previously described in section 5.3.2 and illustrated in Figure 5-3.

Aesthetics

Alternative C would have the same less-than-significant impact (after implementation of mitigation measures) to scenic vistas that would occur with the Project. Alternative C would develop approximately 111.6 acres (approximately 60 percent) of the Project site, including development in the east and southeast areas of the property where the visually prominent scenic resources exist and are visible from publically accessible offsite locations (see Figure 5-3). However, this alternative would develop substantially fewer residences (571) and would be limited to large lot single family homes only. As a result, not only could less overall tree removal and grading occur in this area of the site, the large lot development on the Eastern Ridge in particular could be more integrated into the site landscape and be less prominent within the scenic vista, if grading footprints were restricted in that way. Nonetheless, the impact is with this alternative is still considered potentially significant, and Mitigation Measure AES-1 identified with the Project would continue to apply.

This alternative would have the same less-than-significant impacts to light and glare and shadow, with a lesser effect given its reduced density. Also, the same beneficial impact to visual character and visual quality resulting from development of the existing long-ago decommissioned and largely unmaintained NMCO property would occur with the alternative.

Overall, Alternative C would have similar aesthetics impacts as the Project.

Air Quality

Alternative C would avoid the significant and unavoidable impact of operational ROG emissions (average daily and total annually) that would occur with the Project. Alternative C would develop 571 fewer total residential units and would not have any commercial/retail uses or development compared the Project. The result is substantially fewer vehicle trips, onsite activities, and resulting air quality emissions. As shown in Table 5-2 and Appendix GG to this document, this alternative would reduce peak hour vehicle trips by approximately 63/68 percent (AM/PM) compared to the Project, and total daily trips would be reduced by approximately 2,970 (or 74 percent). Combined, the reduction in the total number of residential units and land development affects operational emissions from vehicle trips as well as other project activities (heating, landscape maintenance, use of consumer productions). This alternative would generate 30.6 pounds per day of ROG compared to 78 pounds per day with the proposed Project; similarly, it would generate 5.6 total annual tons of ROG compared to 14.2 with the Project. As a result, with this alternative, ROG emissions would not exceed the established threshold of 54 pounds per day or 10 tons per year, and therefore would avoid the significant impacts identified with the Project for these thresholds. Mitigation Measures AIR-2.1 and AIR 2.2 identified for the Project would not be required for this alternative. Emissions for all operational air quality factors, including toxic air contaminants and health risk, would be lower than for the Project, and less than significant.

While not quantified, since Alternative C would develop approximately 60 percent of the Project site, but would include areas where substantial grading would be required, albeit presumably to a lesser extent given the substantially lower number and density of development proposed with the all-large-lot single family homes. Overall duration of construction would be less. Total construction emissions, therefore, would likely be less than with the Project. The application of SCAs would continue to ensure a less than significant impact.

Overall, the air quality impacts with Alternative C would avoid a significant and avoidable air quality impact of the Project, and the effect would be less intensive.

Biological Resources

Alternative C would result in the same less-than-significant impacts to biological resources that would occur with the Project. Alternative C would develop nearly the same area of the site as the Project site, including the east and southeast areas of the property that include many trees and steep slopes and hillsides. Development would pose the same potential effects to plant and wildlife species and onsite riparian habitat as the Project. The alternative would implement the same Rifle Range Creek restoration activities proposed by the Project and in compliance with the Oakland Creek Protection Ordinance. While the number of trees that would be required to be removed for development of the site would be approximately the same as required to develop the Project, the alternative would adhere to the commensurate tree mitigation requirements and compliance with the Oakland Tree Protection Ordinance. Overall, the biological resources impacts of Alternative C would be the same as with the Project.

Cultural Resources

Alternative C would result in the same less-than-significant impact (after implementation of mitigation measures) to cultural resources that would occur with the Project. Alternative A proposes to retain the historic resource, Club Knoll, and adaptively reuse it for 5 residential flats. The Project would relocate and rehabilitate Club Knoll for reuse as a community center, and the alternative would construct a new 4,0000 square-foot community center. As is presumed for each of the alternatives and required for the Project site, any alterations to Club Knoll would comply with all required findings to ensure no significant impact would occur. In particular, alterations would comply with the *Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings*, as well as local guidance and requirements in the Historic Preservation Element of the General Plan. As was identified in the analysis of the Project in Chapter 4, the alternative would reasonably require one or more mitigation measures to ensure compliant rehabilitation is applied to Club Knoll.

Alternative C will disturb largely the same areas as the Project, although the large lot single family homes proposed could be designed to require less site disturbance. So, the potential for accidentally encountering cultural resources could be reduced compared to the Project. However, the alternative would have similar potential for less-than-significant cultural resources impacts (archaeological and paleontological resources and human remains.

Overall, the cultural resources impacts of Alternative C would be the same as with the Project.

Geology and Soils

Alternative C would result in the same less-than-significant impact (after implementation of mitigation measures) to geology and soils impacts that would occur with the Project. Alternative C would develop nearly the same site area as with the proposed Project, including areas of the site where there is existing risk of landsides, but, as assumed for all the alternatives, where the alternative will implement corrective grading. However, overall, there is no aspect of the alternative that would cause different potential effects related to seismic risk or other ground failures, erosion or expansive soils. The alternative would implement Mitigation Measure GEO-3 addressing the potential risk of unknown subsurface conditions (e.g., pit, swamp, mounds, vaults, sewer lines, landfills). Taken together, the geology and soils impacts of Alternative C would be the same as with the Project.

Greenhouse Gas Emissions and Climate Change

Alternative C would result in the same less-than-significant impacts that would occur with the Project, but would generate fewer emissions – reduced such that a TDM Plan would not be required to avoid exceedance of the GHG efficiency threshold. Alternative C would develop 571 fewer total residential units and like Alternative B would not have any commercial/retail uses or development compared to the Project. The result is substantially less GHG emissions. Summarizing from the Alternative C discussion under *Air Quality*, this alternative would reduce the Project's daily vehicle trips by up to 68 percent (PM peak), which is relevant since mobile emissions represent the majority of the GHG emissions from all sources. The alternative will

result in a total of 3,720 MT CO2e and 4.4 MT CO2e per service population, whereas the Project would generate 10,807 MT CO2e and a similar 4.47 MT CO2e per service population. Like the Project, the alternative would exceed the established threshold of 1,100 MT CO2e per day but not the 4.6 MT CO2e per service population, and therefore would not have a significant impact. Unlike the Project, the alternative would achieve these emissions levels prior to incorporation of a TDM Plan. The impact with the alternative would be the same as with the Project, but with reduced effect.

Like the Project, this alternative would also align with plans adopted for the purpose of reduction GHG emissions. Like Alternative A, for example, this alternative would employ a TDM plan, although the proposed density of the alternative may not support a shuttle service to transport residents to/from the BART. The alternative would incorporate energy efficient building design and characteristics, solar photovoltaic (PV) facilities, and the use of LED streetlights. The GHG emissions impacts of Alternative C would be the same as with the Project, but to a lesser degree.

Hazards and Hazardous Materials

Alternative C would result in the same less-than-significant impact to hazards and hazardous materials that would occur with the Project. Alternative C would develop nearly the same site area as with the Project site, and the conditions that pose potential hazards and hazardous conditions to the alternative would affect the alternative to the same extent as it would the Project. Also, there is no aspect of the alternative that would cause different potential effects related to hazards and hazardous materials. Overall, the hazards and hazardous materials impacts of Alternative C would be the same as with the Project.

Hydrology and Water Quality

Alternative C would result in the same less-than-significant impact to hydrology and water quality materials that would occur with the Project. Alternative C would develop nearly the same part of the site proposed by the Project. The alternative would create less net new impervious surfaces than the Project, primarily because of the large reduction in homes and their driveways and rooftops; less total street surface may also be required. The alternative thus would reduce the percentage of impervious surfaces compared to existing conditions. As a result, the alternative would have reduced rate and runoff of stormwater runoff which could affect flooding, erosion, and water quality. While the development area would be less than with the Project, no other aspect of the alternative would potentially cause different potential effects related to the aforementioned factors, on or offsite. Similar alterations to existing drainage patterns would be required, and a new storm drainage and water quality control system would be installed, similar to the Project. Overall, the hydrology and water quality impacts of Alternative C would be the same as with the Project.

Land Use and Planning

Alternative C would result in the same less-than-significant impact to land use and planning that would occur with the Project. Alternative C would develop large lot single family homes only and would develop them generally in the same area of the site as the proposed Project (see

Figure 5-3). Therefore, the alternative would not cause a conflict with nearby land uses or divide an established community, same as the Project. Like the Project, it is also reasonable to conclude that the alternative would not conflict with any existing land use plan, policies or regulations intended to address environmental effects. The land use and planning impacts of Alternative C would be the same as with the Project.

Noise

Alternative C would result in the same less-than-significant impacts (after implementation of a mitigation measures) to noise that would occur with the Project. Alternative C would develop 571 fewer total residential units and no commercial/retail uses and development than the Project. As shown in Table 5-2 and Appendix GG to this document, this alternative would reduce peak hour vehicle trips by approximately 63/68 percent (AM/PM) compared to the Project. As a result, the alternative would have similarly less roadway noise levels compared the Project. The impact would be less-than-significant as with the Project.

The alternative would develop 4.4 acres of park areas, but none located in the areas of the Project site closest to Mountain Boulevard and I-580 or that propose active play uses (see Figure 5-1). Therefore, the alternative would have the same less-than-significant impact identified for the Project regarding exposure of public parks to community noise levels not compatible with that use

Population and Housing

Alternative C would result in the same less-than-significant impacts to population and housing that would occur with the Project. Alternative A would develop 571 fewer total residential units and would not have any commercial/retail uses or development compared to the Project. Applying the same ratios used by the Project (see Tables 4.11-4 and 4.11-5 in Section 4.11, *Population and Housing*, in Chapter 4), this alternative would generate 1,566 fewer residents and 180 fewer (zero) employees compared to the Project. As a result, like the Project, the alternative would not induce substantial population growth in a manner not contemplated in the General Plan. Like the Project, this alternative would not displace any housing units or any people. The population and housing impacts of Alternative C would be the same as with the Project, and the effect would be less intensive.

Public Services and Recreation

Alternative C would result in the same less-than-significant impacts to public services and recreation that would occur with the Project. As previously described, Alternative C would develop 571 fewer total residential units and no commercial/retail development area compared to the Project. The result is substantially less onsite population (1,566 fewer residents, and 180 fewer employees or zero) and resulting demand for police services, fire and emergency services, and public parks. The alternative would also generate fewer school-aged children than the Project, reducing the demand for public schools. This alternative would develop the same 4.4 acres of new parks and a community center, same as the Project. Overall, the public services

and recreation impacts of Alternative C would be the same as with the Project, and the effect would be less intensive.

Transportation and Circulation

Alternative C would avoid significant and unavoidable intersection impacts that would occur with the Project. Alternative C would develop 571 fewer total residential units and no commercial/retail uses compared to the Project As a result, the alternative would generate one-third of the peak hour traffic generated by the Project. (Detailed trip generation calculations are provided in Appendix GG of this document.) Given those reduced trips, the Alternative C would eliminate the following significant impacts that are identified for the Project:

a. Impact TRANS-1 (Existing Plus Project Conditions) and TRANS-8 (2040 Plus Project Conditions) at the I-580 Eastbound On-Ramp/Seminary Avenue/Kuhnle Avenue intersection.

b. Impact TRANS-2 (Existing Plus Project Conditions) and TRANS-9 (2040 Plus Project Conditions) at the I-580 Westbound Off-Ramp/Mountain Boulevard/Kuhnle Avenue intersection.

c. Impact TRANS-5 (Existing Plus Project Conditions) and TRANS-12 (2040 Plus Project Conditions) at the I-580 Westbound Off-Ramp/Mountain Boulevard/Shone Avenue intersection.

d. Impact TRANS-13 (2040 Plus Project Conditions) at the International Boulevard/98th Avenue intersection.

Further, the alternative is expected to continue to cause significant and unavoidable impacts at a few intersections and freeway segments, although the magnitude of these impacts would be less than with the Project. This alternative is also expected to have similar effects on non-traffic operation topics, such as transportation safety and consistency with adopted policies, plans, or programs supporting multimodal transportation, because the alterative would continue to provide similar on-site pedestrian, bicycle and transit facilities as the Project.

Utilities and Service Systems

Alternative C would result in the same less-than-significant impacts to utilities and service systems that would occur with the Project. As previously described, Alternative C would develop 571 fewer residential units and no commercial/retail area compared to the Project. The reduced development would therefore reduce the demand for water, sewer and storm water facilities, as well as landfill capacity. This alternative would develop generally the same areas of the site as the Project, including areas on the east and southeast hillsides and steep slopes. The alternative might have less impervious surface area than existing conditions. Overall, the utility and service systems impacts of Alternative C would be the same as with the Project, but to a lesser degree.

Energy

Alternative C would result in the same less-than-significant impacts to energy that would occur with the Project. The substantially less development (571 fewer initial units) and associated population (1,566 fewer total persons) that would occur with Alternative C compared to the Project would result in substantially less consumption of electricity and natural gas and automotive fuels than the Project - both during construction and operations. Like the Project, all homes in this alternative would be built in accordance with the most current and most stringent building energy efficiency design standards and would be consistent with the City's ECAP and other pertinent plans and regulations intended to reduce energy consumption and reliance on fossil fuels and other nonrenewable energy sources. The energy impact of Alternative C would be the same as with the Project, and the effect would be less intensive.

5.6 Alternatives Considered but Rejected

The alternatives analysis presented in this Draft SEIR involved focused consideration of a range of alternatives to the proposed Project in order to fulfill the analysis required to satisfy PRC Section 21166 and CEQA Guidelines Sections 15162 and 15163. The range of alternatives discussed and analyzed herein to address the key significant and unavoidable impacts identified for the proposed Project. As such, the alternatives selected are scenarios involving reduced development (to affect traffic and air quality impacts). While not a significant impact, the scenarios also consider alternatives that do not develop the most visible portions of the site (from publically-accessible off-site locations) along the East and South East ridges and hillsides, and areas where existing geologic instability exists.

CEQA Guidelines section 15126.6(c) explains that alternatives may be eliminated from detailed consideration in the EIR if they fail to meet most of the basic project objectives, are infeasible, or do not avoid any significant environmental effects. CEQA Guidelines section 15126.6(f) indicates that the Lead Agency should consider site suitability, economic viability, availability of infrastructure, general plan consistency, other regulatory limitation, jurisdictional boundaries, and the proponents control over alternative sites in determining the range of alternatives to be evaluated in an EIR.

The City considered, but ultimately rejected, the following possible scenarios as viable alternatives to the Project.

5.6.1 Extension of Leona Canyon Regional Open Space

The City considered an alternative to the proposed Project that would incorporate the Project site as an extension of the existing Leona Canyon Regional Open Space Preserve (Leona Heights) located to the northeast of the Project site, across Keller Avenue. Leona Heights is 290 acres of wooded canyon and trails owned and maintained by the East Bay Regional Parks District. (EBRPD). A trail head exists at Keller Avenue, directly northeast of the Oak Knoll Project site. The proposed Project would introduce new linkages to the trail and bikeway system that provide

connections to the EBRPD trail system at this location. This scenario would involve removal of all existing paved areas of the site and largely revegetate those areas, continue the extended pedestrian and bicycle trails system that is largely that proposed by the Project. However, this scenario would not involve the same improvements and restoration of Rifle Range Creek and its adjacent riparian habitat, since there would be no adjacent development to protect from flood hazards or a need to capture storm runoff from adjacent developed areas. No rehabilitation of Club Knoll is assumed in this scenario; however it is not assumed that it would be demolished. Overall, this scenario would add approximately 188 acres of open space to the Open Space Preserve.

This scenario is not considered in detail in this analysis since, while it would align with policies and strategies in the General Plan for reuse of the NMCO, it would not align with the objectives of the proposed Project, or the vision in the approved Reuse Plan for redevelopment. The General Plan encourages "a mixture of land uses or density patterns" (General Plan Land Use Policy I/C.5.4: *Planning for Oak Knoll*) and consider the site to be "a key opportunity site for sizable new development in the South Hills" (General Plan LU Implementation Strategy: *Oak Knoll Target Area for Community and Economic Development*). Further, the approved Reuse Plan identifies "a mixture of uses includes housing, recreation, small scale commercial, and public services" in its vision for the site. This scenario is also not considered in detail because it would require the EBRPD to assume ownership and likely maintenance of the property, and they have not indicated a willingness or capability to purchase the site. While the City has not formally discussed this scenario with EBRPD, it has considered it infeasible for purposes of considering alternatives to the proposed Project.

5.6.2 Off-Site Alternative

Section 15126.6 of the CEQA Guidelines indicates that the EIR evaluation of alternatives may include alternatives to a project's proposed location. CEQA Guidelines section 15126.6(f)(2)(A) states, "[T]he key question and first step in the analysis 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 to be considered for inclusion in the EIR." (Section 5.2.4 of this chapter lists the significant and unavoidable impacts of the proposed Project.) Further, CEQA Guidelines section 15126(f)(2) indicates that alternatives that are remote or speculative, or the effects of which cannot be reasonably predicted, need not be considered. As discussed below, an alternative that locates the Oak Knoll Project at an alternative site location while attaining the basic Project objectives (listed in section 5.2.3), is largely infeasible, and thus not analyzed in detail.

As discussed in Chapter 1 of this Draft SEIR, the NMCO property was the subject of a Final Reuse Plan in 1996, pursuant to federal military base reuse procedures. The previous Oakland Base Reuse Authority (BORA) adopted the Final Reuse Plan in 1996. The Oakland General Plan Land Use Diagram adopted as part of the 1998 Land Use and Transportation Element (LUTE) adopted land use classifications on the NMCO property, consistent with the Final Oak Knoll Reuse Plan. As mentioned above, the General Plan includes policies and implementation strategy specific to the redevelopment of Oak Knoll. Taken together, adopted plans are explicit about

preparation of a redevelopment plan for the NMCO property or Oak Knoll. Therefore any alternative location would be directly in conflict with fundamental goals, vision and objectives of these plans.

A viable alternative location for the Project must be of adequate size (approximately 126 developable acres, excluding open space[1]) with adequate access, and ideally have opportunities for expansive open and active and passive parks. Further, the site would need to be available for acquisition by the Project sponsor. No such location of adequate size and general character is available within the South Hills area or citywide.

While the feasibility of development of this area at a scale comparable to the Oak Knoll Project is unlikely, theoretically, it is reasonable to consider that development of the Project there or elsewhere would result in similar effects as identified for the proposed Project. There is no characteristic of this off-site location that would suggest it would avoid or substantially reduce significant impacts of the proposed Oak Knoll Project at Oak Knoll.

For the reasons described above, the possibility of developing the Project on an alternative site that would avoid or substantially lessen potentially significant environmental impacts identified in this EIR, while attaining most of the Project's objectives, is remote and considered infeasible. Therefore, the City has not considered an off-site location alternative for further evaluation in this Draft SEIR.

5.6.3 1998 EIS/EIR Reuse Alternatives

As previously discussed in section 5.3.2, the three reuse alternatives analyzed in the 1998 EIS/EIR (other than the Maximum Capacity Alternatives summarized in Chapter 4 of this document) are not further analyzed in this Draft SEIR because either they do not align with the objectives of the proposed Project, propose greater intensity of development compared to the proposed Project, or are similar to one of the selected alternatives that more closely aligns with the proposed Project and thereby offers a more meaningful comparison.

5.6.4 Other Suggested Alternatives

The City received public comments addressing alternatives in response to the Notice of Preparation of this Draft SEIR (Appendix A to this document).Various comments identified alternatives that involve preserving hillsides and ridges (either for wildlife foraging or aesthetics considerations), retaining Club Knoll for adaptive reuse, and the inclusion of affordable housing. Each of these is addressed in the selected alternatives to the proposed Project analyzed fully in this chapter.

[1] The Project's 188 total acres minus its proposed 62 acres of undisturbed open space and revegetated hillsides.

5.7 Non-CEQA Planning Alternatives – Club Knoll

The City has considered two alternative scenarios for the treatment of Club Knoll with the proposed Project: a **Club Knoll Demolition** alternative and a **Reduced Relocation** alternative. Neither is considered a CEQA alternative, since neither would reduce environmental effects associated with the proposed Project identified in this Draft SEIR, meet certain fundamental objectives of the Project, or meet certain adopted City policies. **Table 5-3**, compares the characteristics of each of these Non-CEQA Club Knoll alternatives and the proposed Project.

TABLE 5-3
SUMMARY OF NON-CEQA CLUB KNOLL ALTERNATIVES AND THE PROPOSED PROJECT CHARACTERISTICS

	Proposed Project	Club Knoll Demolition Alternative	Reduced Club Knoll Relocation Alternative (no Wings)
Existing Club Knoll Treatment	Relocate Central Portion and Two Wings	Total Demolition	Relocate Central Portion
Finished Club Knoll Area (sq.ft.)	Relocated/Rehabilitated 14,000	New Construction 5,000	Relocated/Rehabilitated 9,900[a]
Community Center	4,000	5,000	4,000
Community Commercial	10,000	0	5,900
Employee Service Population (Club Knoll uses only)[b]	24	19	16
Daily Vehicle Trip Generation	1,892[c] 504[d]	969[c] 180[d]	1,510[c] 357[d]

NOTES:

[a] Floor area of central portion of existing Club Knoll, estimated per scaled plans in the Club Knoll *Relocation Evaluation* (Carey & Co., 2016b) in **Appendix T** to this Draft SEIR.

[b] Per service population Table 4.11-5 in Section 4.11, *Population and Housing*, of this Draft SEIR. Employment estimated by ESA, based on common density factors by use, for the types of development proposed, consistent with the Alameda Countywide Travel Demand Model and other City of Oakland certified EIRs (community center retail 2.0 employees/ksf; community center 1.0 employees/ksf).

[c] Calculated ITE Trip Generation (9th Edition) land use category 820 - Shopping Center (see Table 4.13-10 in Section 4.13, *Transportation and Circulation)*.

[d] Based on 36 daily trips per ksf: The average of several daily trip rates (per ksf) from the following limited commercial land uses that may likely occur in the 10,000 square feet of the relocated and rehabilitated Club Knoll: fitness center (land use code 492) - 32 trips; athletic center (land use code 493) - 43 trips; recreational center (land use code 495) – 33 trips; day care (land use code 565) – 27 trips; small office (land use code 720) – 36 trips; specialty retail (land use code 826) – 44 trips. (See discussion under *Trip Generation* in Section 4.13, *Transportation and Circulation)*.

SOURCE: ESA

5.7.1 Club Knoll Demolition

The Club Knoll Demolition alternative ("Demolition alternative") considers the full demolition of Club Knoll, the existing locally-designated historic resource on the Project site. For comparison, this alternative is discussed comparative to the proposed Project. The key difference under the Demolition alternative (compared to the proposed Project) is that a new, approximately 5,000, square-foot Oak Knoll Community Center would be developed rather than the introduction of 4,000 square feet of community center use and approximately 10,000 square feet of community commercial use located within the relocated portions of the rehabilitated Club Knoll structure.

The overall configuration of the Project master plan with the Demolition alternative would be the same as with the proposed Project, as shown Figure 3-7 in Chapter 3 (Project Description).

Overview of Comparative Issues

The Demolition alternative would result in certain different physical effects as well as policy considerations. Although this alternative is not intended to reduce CEQA impacts, the discussion of its comparative effects, characteristics and other non-CEQA policy considerations is organized by the environmental factors used previously in this chapter and throughout this Draft SEIR. Foremost, demolition of the locally-designated historic resource would result in a significant and unavoidable cultural resources impact that would not occur with the proposed Project, as discussed further under *Cultural Resources* below. Also of note, the Demolition alternative triggers several City policy considerations regarding historic resources as well as sustainability (discussed under *Greenhouse Gas Emissions* and *Energy*). Because the Demolition alternative is considered within the context of the proposed Project, this assessment also covers the indirect effects of the alternative (e.g., the changed development program for the Oak Knoll Community Center, described above). As described above, the Demolition alternative would result in less commercial floor area compared to the Project, thereby generating fewer vehicle trips and associated emission.

Aesthetics

The demolition of Club Knoll with this alternative would substantially damage this scenic resource (a historic resource) that is partially and intermittently visible from a state designated scenic highway, I-580. Therefore, with demolition of Club Knoll, the aesthetics impact to scenic resources visible from the highway presumably would be significant and unavoidable since Club Knoll would no longer exist. Comparatively, the Project proposes to relocate Club Knoll to a different location further from I-580, however, the new location may be more central and visually prominent within a central community park in the central area of Creekside Village.

Air Quality

Construction

Regarding construction, this alternative assumes that the additional demolition debris from the structure would be crushed onsite (for reuse as fill material onsite). The Project would crush roughly 110,000 tons of materials (asphalt, concrete, non-contaminated pipes, etc.) over approximately 120 work days. The addition of Club Knoll debris would add to this volume of material, but would not add additional off-site truck trips since the crushing would occur onsite. Under the scenario where the demolition debris would instead be off-hauled to a local recycling location, the additional material would be added to the roughly 3,800 truck loads over 90 work days during the initial phase of construction. The additional number of trucks require for the Club Knoll demolition debris would not substantially increase construction period emissions that would occur with the Project.

Operations

A substantial part of operational air quality emissions are generated by motor vehicle trips, and this Demolition alternative would have fewer daily trips compared to the Project. As shown in Table 3, this is because this alternative would have 9,000 fewer square feet of use in a new community clubhouse compared to the Project. Table 5-3 also shows that, as a result of the reduced floor area, approximately 923 fewer daily trips would occur with this alternative (see *Transportation and Circulation,* below), which would reduce the traffic-generated emissions estimated for the Project.

As discussed in detail under *Traffic and Circulation* below, applying an average ITE trip generation rate that better aligns with the types of land uses that would likely occupy Club Knoll than the "Shopping Center" land use code, approximately 180 daily trips (36 trips times 5 ksf, see Table 5-3, note "c") would occur from the new 5,000 square-foot community center with this alternative. This represents 324 fewer daily trips than the 504 (36 trips times 14 ksf) that would be generated from Club Knoll under the Project, applying the same reduced average ITE trip generation rate. This would further reduce the total trips and the resulting operational air quality emissions compared to the Project. The demolition of Club Knoll would not result in any another changes that could noticeably affect operational air quality emissions.

Biological Resources

There would be no difference in any impacts to biological resources resulting from the Demolition alternative versus the proposed relocation/rehabilitation of Club Knoll, since the same footprint area is involved and the same fully disturbed/ruderal landscape would be affected.

Cultural Resources

Direct Impact to Historic Structure

This alternative would involve the complete demolition of a historic resource, Club Knoll, rather than its relocation and rehabilitation. As a result, this alternative would cause an adverse change in the significance of a historical resource because it would materially alter in an adverse manner those physical characteristics that convey the resource's significance and justify its inclusion in the local register of historic resources (LRHR). These physical characteristics include the structure's Spanish Colonial/Mission Revival and Mediterranean Revival architectural style. The result would be a significant impact not identified with the Project. This effect would be significant and unavoidable.

Under this alternative, SCA CUL-1 (Property Relocation) would apply since a historic resource would be demolished. SCA CUL-1 requires that the Project applicant make a reasonable and good faith effort to relocate the property to a location acceptable to the City (other than that proposed by the Project and which would presumably be offsite). In addition, mitigation measures would be required to address the loss of the historic resource to the extent feasible; however, no mitigation could reduce the impact of the loss of Club Knoll to a less-than-significant level. Mitigations would include Historic American Building Survey (HABS) documentation of the historic resource, which is New Mitigation Measures CUL-1.1 identified for

the proposed Project; documentation of the history and significance of the structures for the general public; in addition to compliance with the HPE Policy 3.5 (see *Policies,* below). Mitigation could also include monetary compensation to ensure the protection of other historic resources in the area. This alternative would result in the same effects to other cultural resources topics (archaeological and paleontological resources and human remains), since the same footprint area where subsurface activity could occur. The same SCAs pertaining to these topics would apply with this alternative (SCAs CUL-2 and CUL-3).

Impact to WWII Period of Historical Significance

The effects of the Demolition alternative is also considered within the context of other previous World War II-era military sites with structures within the same period of significance as Club Knoll and the former Navy Medical Center Oakland (NMCO). As discussed in Section 4.4, *Cultural and Paleontological Resources,* in Chapter 4 of this Draft SEIR, the NMCO/Oak Knoll site is not a potential historic district or eligible as a potential cultural landscape. However, Club Knoll represents one of the last military use buildings at Oak Knoll, in addition to the former NMCO Barracks Building 69 A and B, which currently house the Seneca Center for Children and Families but that have not been determined to be historic resources (and which are not part of the proposed Oak Knoll Project or the Demolition alternative). Club Knoll has periods of historical significance as the former residential clubhouse/officer's club, as well as the only surviving part of the former golf course use on the Oak Knoll site.

The City has approved redevelopment plans and project for the previous Oakland Army Base (OARB); in the broader vicinity, previous similar resources that have been, or are planned for, redevelopment and that have had much of their military-use buildings removed, include Alameda Point and Alameda Landing Naval Air Station in the City of Alameda, as well as Naval Station Treasure Island. Therefore, for consideration of the potential effects of the Demolition alternative in this non-CEQA assessment, it could be considered a potentially significant cumulative effect to the WWII period of significance given this context of former military bases near Oakland.

The 2006 update to the 1994 Historic Resources Inventory survey found that the former NMCO/Oak Knoll site does not retain sufficient historical integrity to convey its history as a potential historic district or be to be eligible as a potential cultural landscape.

While the proposed Project would alter Club Knoll, the proposed relocation would comply with the *Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings.* Specifically, its character-defining features will not be adversely affected, its public use will be maintained, as will its context and orientation to open space.

Policy Compliance and Code Requirements

The Demolition alternative triggers specific policies in elements of the General Plan. The alternative would conflict with the following LUTE policy that is directly relevant to historic resources under CEQA; the alternative does not reuse any part of the building:

- ***Policy 1/C2.2:*** **Reusing Abandoned Buildings:** The reuse of abandoned buildings by non-traditional activities should be encouraged where the uses are consistent with, and will assist in the attainment of, the goals and objectives of all elements of the Plan.

The Demolition alternative would also conflict with the following HPE policies that are directly relevant to historic resources under CEQA:

- ***Policy 3.1:*** **Avoid or minimize adverse historic preservation impacts related to discretionary city actions.** The City will make all reasonable efforts to avoid or minimize adverse effects on the Character-Defining Elements of existing or Potential Designated Historic Properties which could result from private or public projects requiring discretionary City actions.

- ***Policy 3.5:*** **Historic preservation and discretionary permit approvals.** For any project involving complete demolition of Heritage Properties or Potential Designated Historic Properties requiring discretionary City permits, the City will make a finding that: (1) the design quality of the proposed project is at least equal to that of the original structure and is compatible with the character of the neighborhood; or (2) the public benefits of the proposed project outweigh the benefit of retaining the original structure; or (3) the existing design is undistinguished and does not warrant retention and the proposed design is compatible with the character of the neighborhood.

- ***Policy 3.7:*** **Property relocation rather than demolition as part of discretionary projects.** As a condition of approval for all discretionary projects involving demolition of existing or Potential Designated Historic Properties, the City will normally require that reasonable efforts be made to relocate the properties to an acceptable site.

    - ***Policy 3.8:*** **Definition of "Local Register of Historical Resources" and historic preservation "Significant Effects" for environmental review purposes.** For purposes of environmental review under the California Environmental Quality Act, the following properties will constitute the City of Oakland's Local Register of Historic Resources:

        1) All Designated Historic Properties [Landmarks, Heritage Properties, Study List Properties, Preservation Districts, and S-7 and S-20 Preservation Combining Zone Properties]; and

        2) Those Potential Designated Historic Properties that have an existing rating of "A" or "B" or are located within an Area of Primary Importance.

        Until complete implementation of Action 2.1.2 (Redesignation), the Local Register of Historical Resources will also include the following designated properties: Oakland Landmarks, S-7 Preservation Combining Zone properties, and Preservation Study List properties.

        Complete demolition of a Historical Resource will normally be considered a significant effect that cannot be mitigated to a level less than significant and will, in most cases, require preparation of an Environmental Impact Report.

        A proposed addition or alteration to a Historical Resource that has the potential to disqualify a property from Landmark or Preservation District eligibility or may have substantial adverse effects on the property's Character-Defining Elements will normally, unless adequately mitigated, be considered to have a significant effect. Possible mitigation measures are suggested in Action 3.8.1.

The Demolition alternative would require mitigation measures in addition to the findings and requirements specified above. Certain mitigation measures for the Demolition alternative would include the following, which tie directly to the applicable HPE policies identified above:

Mitigations: The Project sponsor shall comply with the following measures:

- ***HABS Documentation***. Club Knoll shall be documented according to the Historic American Building Survey (HABS) standards level II, which requires; 1) photographs with large-format (4x5) black and white negatives, or high-resolution digital photographs, of each exterior facades of this building, as well as detail shots of all exterior character-defining features; 2) a written history and description of the building in HBS outline format; 3) reproduction of any original building plans (if available); and 4) archiving of the HABS package with the Northwest Information Center at Sonoma State University, the City of Oakland, and the Oakland Public Library.

- ***CUL-1b: Public Interpretation***. The history and significance of Club Knoll shall be interpreted for the general public in the form of an on-site plaque or informational kiosk or other display in a publicly-accessible portion of the replacement building. Information developed for the HABS documentation can be appropriated for use as necessary in this measure.

- ***CUL-1c: Implement Policy 3.5: Historic preservation and discretionary permit approvals.*** For any project involving complete demolition of Heritage Properties or Potential Designated Historic Properties requiring discretionary City permits, the City will make a finding that: (1) the design quality of the proposed project is at least equal to that of the original structure and is compatible with the character of the neighborhood; or (2) the public benefits of the proposed project outweigh the benefit of retaining the original structure; or (3) the existing design is undistinguished and does not warrant retention and the proposed design is compatible with the character of the neighborhood.

- ***CUL-1d: Implement HPE Policy 3.7: Property relocation rather than demolition as part of discretionary projects.*** As a condition of approval for all discretionary projects involving demolition of existing or Potential Designated Historic Properties, the City will normally require that reasonable efforts be made to relocate the properties to an acceptable site.

In addition, the Demolition alternative would be required to meet the following findings and regulations for the demolition of historic properties. Pursuant to Oakland Planning Code Section 17.136.075 *(Regulations for demolition or removal of CIX-1A zoned properties, Designated Historic Properties, and Potentially Designated Historic Properties*).

- Regular Design Review approval for the *demolition* or removal of any Landmark, Heritage Property, structure rated "A" or "B" by the Oakland Cultural Heritage Survey, and structure on the City's Preservation Study List that are not in an S-7 or S-20 Zone, or Area of Primary Importance (API) as determined by the Oakland Cultural Heritage Survey may be granted only if the proposal conforms to the Regular design review criteria, all other applicable design review criteria, and the following additional criteria:

1) The applicant demonstrates that: a) the existing property has no reasonable use or cannot generate a reasonable economic return and that the development replacing it will provide such use or generate such return, or b) the applicant demonstrates that the structure constitutes a hazard and is economically infeasible to rehabilitate on its present site. For this finding, a hazard constitutes a threat to health and safety that is not immediate;

2) If a replacement facility is required by Subsection 17.136.075.A., the design quality of the replacement facility is equal or superior to that of the existing facility; and

3) It is economically, functionally architecturally, or structurally infeasible to incorporate the historic structure into the proposed development.

Summary

In summary, the Demolition alternative would result in a significant and unavoidable impact that would not occur with the proposed Project. Demolition of the historic resource is not consistent with numerous key City policies intended for the preservation and/or appropriate documentation of such resources when preservation is not viable.

Geology and Soils

There would be no difference in any impacts to geology and soils resulting from the Demolition alternative versus the proposed relocation/rehabilitation of Club Knoll, since the same footprint area is involved, therefore affecting the same geologic and soil conditions and being subject to the same seismic hazards as the Project.

Greenhouse Gas Emissions and Climate Change

Construction

As discussed under *Air Quality*, whether the demolition debris from the structure is crushed onsite or off-hauled for recycling, the number of additional truck trips required would be relatively minimal and not substantially increase construction GHG emissions compared to the Projects. The Project would utilize supplemental materials for the rehabilitation work, including the extraction of raw materials, manufacturing, and transportation associated with manufacturing (rather than whole, in-place reuse), however, it would also align with the City's goals to reuse existing construction and reduce demolition waste materials that reduce upstream fossil-based energy GHG emission (required for the acquisition and fabrication of manufacturing virgin building materials). On the other hand, if the demolition debris from the Demolition alternative is crushed and reused onsite, it too aligns with this goal established in the City's adopted Construction and Demolition Recycling Program, as well as the City's adopted Zero Waste Goal by 2020 Resolution (Resolution 79774 C.M.S.) toward reducing the dependence on the fossil-based energy required to manufacture virgin materials. (Also see *Energy*, below).

A key Historic Preservation Element policy relevant to climate change encourages the reuse of existing building (and building materials) resources, which could reduce landfill material (a source of methane, a GHG), avoid the incineration of materials (which produces CO_2 as a by-

product), avoid the need to transport materials to disposal sites (which produces GHG emissions), and eliminate the need for materials to be replaced by new product (which often requires the use of fossil fuels to obtain raw and manufacture new material). Further, the demolition of Club Knoll would require new construction of a clubhouse to obtain a higher level of Green Building requirements to offset the sustainability impacts and life-cycle costs.

Operations

Vehicle trips are the substantial generator of GHG emissions for the Project, and this Demolition alternative would have fewer daily trips compared to the Project. As shown in Table 3, this is because this alternative would have 9,000 fewer square feet of use in a new community clubhouse compared to the Project. Table 5-3 also shows that, as a result of the reduced floor area, approximately 923 fewer daily trips would occur with this alternative (see *Transportation and Circulation*, below), which would thereby reduce the mobile GHG emissions from those estimated for the Project.

As discussed in detail under *Traffic and Circulation* below, applying an ITE trip generation rate that better aligns with the types of land uses that would likely occupy Club Knoll than is the "Shopping Center" land use code), approximately 180 daily trips (36 trips times 5 ksf, see Table 5-3, note "c") would occur from the new 5,000 square-foot community center with this alternative. This represents 324 fewer daily trips than the 504 (36 trips times 14 ksf) that would be generated from Club Knoll under the Project, applying the same reduced average ITE trip generation rate. This would further reduce the GHG emissions from those estimated for the Club Knoll development with the Project.

Hazards and Hazardous Materials

There would be no difference in any impacts to hazards and hazardous materials resulting from the Demolition alternative versus the proposed relocation/rehabilitation of Club Knoll, since the same footprint area is involved, therefore affecting the same site conditions as the Project.

Hydrology and Water Quality

There would be no difference in any impacts to hydrology and water quality resulting from demolition versus the proposed relocation/rehabilitation of Club Knoll, since the same footprint area is involved as with the Project.

Land Use and Planning

This alternative would involve the same land uses as the Project. Demolition of a historic resource under this alternative does address additional City policies pertaining to historic resources and sustainability, and that do not directly pertain to the Project. These are addressed above under *Cultural Resources and Paleontological Resources* and *Energy*, respectively.

Noise and Vibration

Construction

There would be no difference in any impacts to noise and vibration resulting from the Demolition alternative versus the proposed relocation/rehabilitation of Club Knoll. It is possible that, depending on the method of demolition employed, the short-term noise level generated may be greater than the actions involved with dismantling and relocating the structure as proposed by the Project.

Operations

Roadway noise with this alternative would be reduced compared to the Project. As shown in Table 5-3, this is because the Demolition alternative would generate fewer daily trips. This alternative would have 9,000 fewer square feet of use in Club Knoll compared to the Project. Table 5-3 also shows that, as a result of the reduced floor area, approximately 923 fewer daily trips would occur with this alternative compared to the Project, which would reduce roadway noise from that estimated for the Project. The demolition of Club Knoll would not result in any another changes to the Project that could noticeably affect operational noise levels.

As discussed in detail under *Traffic and Circulation* below, applying an average ITE trip generation rate better aligns with the types of land uses that would likely occupy Club Knoll than the "Shopping Center" land use code, approximately 180 daily trips (36 trips times 5 ksf, see Table 5-3, note "c") would occur from the new 5,000 square-foot community center with this alternative. This represents 324 fewer daily trips than the 504 (36 trips times 14 ksf) that would be generated from Club Knoll under the Project, applying the same reduced average ITE trip generation rate. This would further reduce roadway noise compared to the Club Knoll trips from the Project.

Population and Housing

There would be no notable difference in any impacts to population and housing resulting from the Demolition alternative versus the proposed relocation/rehabilitation of Club Knoll. With the alternative, there would be not be any commercial uses in the newly constructed community center, therefore the service employee population associated with the proposed 10,000 square feet of community commercial (20 employees) would not occur; however, 1.0 additional employee would be associated with the slightly larger community center under this alternative (5,000 versus 4,000 square feet), for a total of 19 fewer service populations (2,397 compared to 2,416). No substantial growth would be associated with the alternative.

Public Services and Recreation

This alternative would not change any operational aspects of the Project that would substantially affect public services and recreation resulting from demolition versus the proposed relocation/rehabilitation of Club Knoll. As mentioned above in *Population and Housing,* the alternative would reduce the total service population by 19 employees – a change that would not notably alter the demand for public parks and recreational facilities.

Transportation and Circulation

Under the Demolition alternative, a newly constructed community center would generate 969 daily vehicle trip (25 AM / 81 PM)s, or 923 fewer than the Club Knoll uses with the Project. As shown in Table 5-3, this is because this alternative would have 9,000 fewer square feet of community use in the new community clubhouse compared to the Club Knoll uses with the Project. The Project proposes 14,000 square feet of total community commercial uses in the relocated/ rehabilitated Club Knoll, which would generate approximately 1,892 daily vehicle trips (47 AM/160 PM). The reduced daily trips with this alternative represents approximately 8 percent of the Project's 11,250 total daily trips (see Table 4.13-10 in Section 4.13, *Transportation and Circulation)* and is not expected to substantially reduce significant impacts identified with the Project. The total daily trips from the new 5,000 square-foot community center would be also be approximately 9 percent of the Project's total daily trips.

As discussed under *Trip Generation* in Section 4.13, *Transportation and Circulation*, the traffic analysis for the Project is conservative (i.e., resulting in overstated effects) due to the ITE land use code selected to apply to Club Knoll uses. The ITE "Shopping Center" land use code is applied to the Club Knoll uses in the Project analysis, although the types of limited commercial uses that may likely occur in Club Knoll are more limited (such as a fitness or athletic center, recreational center, day care, a small office, or specialty retail) As described in Table 5-3, an average ITE rate for these types of uses is approximately 36 daily trips per ksf, or approximately 504 daily trips (36 trips times 14 ksf) for the entire 14,000 relocated/rehabilitated Club Knoll with the Project (or 4 percent of the Project's total trips); or, under this alternative, approximately 180 total trips for the entire new 5,000 community center (or 2 percent of the Project's total trips).

Utilities and Service Systems

This alternative would not notably change any operational aspects of the Project that would affect utilities and service systems resulting from the Demolition alternative versus the proposed relocation/rehabilitation of Club Knoll. As discussed above, the total service population would be reduced by 19 persons, the total commercial use associated with the community center would be reduced by 10,000 square feet, and the square footage of the newly constructed community center would be increased by 1,000 square feet (from 4,000 to 5,000 square feet). Thus the overall demand for utilities and services systems would also be reduced from that of the proposed Project.

Energy

Because this alternative would involve the demolition of Club Knoll (rather than its relocation and rehabilitation), additional energy (namely use of compression-ignition diesel engines and trucks for relocation) would be involved with the ultimate demolition and potential processing of the material. As discussed under *Greenhouse Gases and Climate Change*, further, indirect energy use would be required to make the supplemental materials used for extraction of raw materials, manufacturing, and transportation associated with manufacturing rather than whole, in-place reuse. Overall, this alternative would not result in substantial waste or inefficient use of energy resources. However, adding this debris into the waste stream or landfill conflicts with various City goals and policies, such as the City's Green Building goals that include minimizing the production of waste.

5.7.2 Reduced Club Knoll Relocation Alternative

The Reduced Club Knoll Relocation alternative ("Reduced Relocation alternative") considers the relocation and rehabilitation of only the approximately 9,900-square-foot central portion (main hall, dining hall, lobby/mezzanine areas) of Club Knoll to house the proposed 4,000 square feet of community center use and approximately 5,900 square feet of community commercial use (compared to the 10,000 square feet of commercial use proposed by the Project).

Table 5-3 (previously presented in Section 5.7.1) compares the characteristics of this alternative, the Demolition alternative assessed in the previous sections, and the proposed Project. The comparative effects of the Reduced Relocation alternative and the Project are similar to those described for the Demolition alternative and the Project. However, the City is specifically considering this non-CEQA alternative to explore a scenario similar to the proposed Project, but with less community commercial area in Club Knoll, and with some level of Club Knoll relocation and restoration. Therefore, the discussion here focuses on these two key objectives.

Reduced Club Knoll Community Commercial Uses

The Reduced Relocation alternative would have 9,900 square feet of Club Knoll use area compared to 14,000 square feet proposed by the Project. As shown in Table 5-3,tthe 4,000 square-foot community center would remain the same; however, the community commercial uses area is reduced from 10,000 square feet to 5,900 square feet). Therefore, a total of 1,510 daily trips would result, approximately 382 fewer than the 1,892 daily trips would occur under the Project. This alternative would also have fewer service employees (16 compared to 24) associated with Club Knoll uses. Overall, as similarly disclosed for the Demolition alternative (which would have no community commercial use), this Reduced Commercial Use alternative would have reduced traffic effects as well as levels of operational air quality emissions and criteria pollutants, GHG emissions, and roadway noise.

Applying the average ITE trip generation rate that is more aligned with the types of uses likely to occur in the relocated/rehabilitated Club Knoll under this alternative, 357 trips (36 trips times 9.9 ksf, see Table 5-3), which is 147 fewer trips than the 504 (36 trips times 14 ksf) that would be generated with the 14,000 square feet of Club Knoll uses.

Relocate/Rehabilitate Club Knoll Central Hall – No Wings

As previously introduced, the consideration of relocating less of the existing Club Knoll structure for rehabilitation and reuse is partially intended to balance the City's historic preservation goals as well as minimizing the proposed Project's effects, particular regarding increased traffic from commercial uses. This alternative meets the latter objective by having(382 fewer daily trips compared to the Project. Those reduced trips represent approximately 3 percent of the proposed Project's 11,250 total daily trips for all Project uses (as shown in Table 4.13-10 in Section 4.13, *Transportation and Circulation.* However, the increased extent of alteration to the historic resource's physical characteristics that convey its historical significance and that justify its inclusion in the CRHR (CEQA Guidelines Section 15064.5[b][2][A]) and LRHR could likely be a significant

adverse change, and thus a significant and unavoidable effect. A historical resource is materially impaired through the demolition or alteration of the resource's physical characteristics.

Summarizing from Section 4.4, *Cultural and Paleontological Resources*, of Chapter 4 in this Draft SEIR, these physical characteristics of Club Knoll include a number of exterior and interior character defining features that convey the structure's Spanish Colonial/Mission Revival and Mediterranean Revival architectural style. Among several character-defining features identified in Section 4.4 in Chapter 4, the following are most evidently relevant to the potential loss of the two (north and south) building wings: the covered arcade around courtyard; and the enclosed courtyard with fireplace and fountain.

The Project analysis in Chapter 4 of this Draft SEIR found that the physical act of relocation of Club Knoll to another location on the project site may cause the loss of historic features that characterize the building, resulting in a potentially significant adverse impact to this historic resource. Mitigation measures (New Mitigation Measures CUL-1.1 through CUL-1.5) are identified for implementation and would ensure that the proposed relocation of Club Knoll (central portion and wings) would comply with the *Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings.*

While the identified mitigation measures could also apply to the Reduced Relocation alternative (as with the proposed Project), without the existing north and south wings that create the u-shaped courtyard, the character-defining (1) covered arcade around courtyard and (2) enclosed courtyard with fireplace and fountain, could not be formed. It is reasonable to conservatively determine that the relocation of Club Knoll without the north and south wings would materially impair the significance of the historic resource and represent a significant adverse change that could not be mitigated to less-than-significant or to comply with the *Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings.* For the qualitative assessment of this non-CEQA alternatives analysis, the Reduced Relocation alternative could be a significant and unavoidable effect.

5.8 Environmentally Superior Alternative

5.8.1 Alternative C: Hillside Low Density – Large Lot

The evaluation below considers the extent to which each of the CEQA alternatives reduces or avoids the significant and unavoidable impacts identified with the Project, as shown specifically in **Table 5-4**. Following at the end of this discussion is **Table 5-5** presenting a comprehensive comparison of the impacts for the Project and each of its alternatives.

As no change to existing conditions is assumed under the No Project Alternative in this analysis, any impacts of the Project would be avoided. CEQA requires that when the "no project" alternative emerges as the Environmentally Superior Alternative, a second "build" alternative shall be identified as environmentally superior (CEQA Guidelines, Section 15126.6(e)(2)). Therefore, **Alternative C: Hillside Low Density – Large Lot** would be considered environmentally superior

TABLE 5-4
SUMMARY OF SIGNIFICANT IMPACTS AVOIDED BY THE CEQA ALTERNATIVES

Significant/Unavoidable Project Impacts	Does Alternative A Eliminate Significant Impacts?	Does Alternative B Eliminate Significant Impacts?	Does Alternative C Eliminate Significant Impacts?
AIR-2 (SU)	**Yes**	**Yes**	**Yes**
TRANS-1 (SU)	No (SU)	No (SU)	**Yes**
TRANS-2 (SU)	**Yes**	**Yes**	**Yes**
TRANS-3 (SU)	No (SU)	No (SU)	No (SU)
TRANS-5 (SU)	No (SU)	No (SU)	**Yes**
TRANS-8 (SU)	No (SU)	No (SU)	**Yes**
TRANS-9 (SU)	**Yes**	**Yes**	**Yes**
TRANS-12 (SU)	No (SU)	No (SU)	**Yes**
TRANS-13 (SU)	**Yes**	**Yes**	**Yes**

NOTE: Values in parenthesis specify impact significance after mitigation: SU = Significant and Unavoidable, LTS = Less than Significant

Only applies to the Demolish Club Knoll Scenario which is not proposed by the Project, but is analyzed in this Draft SEIR.

SOURCE: Fehr & Peers, 2016, ESA, 2016.

because when compared to the proposed Project and all other alternatives, it would avoid more of the significant impacts identified for the Project. As shown in Table 5.3, Alternative C would avoid nine of the 16 significant and unavoidable traffic intersection impacts. Alternatives A and B each would avoid six of these impacts. Further, Alternative C, and both of the other development scenarios, would avoid the significant and unavoidable air quality impact that would occur with the Project due to its exceedance of the ROG emission. Given the reduced development that would occur with each of the alternatives, this exceedance is avoided.

Alternative C would develop 357 fewer residential units than the Project, and a total of 354 large lot single family homes only. It also would not include any commercial/retail uses where the Project would include 72,000 square feet in the Village Center and 10,000 feet in the community center. (See Tables 5-1 and 5-2.) Overall, the development of Alternative C would be substantially less than the proposed Project. The alternative would not present a mix use development envisioned by the General Plan. Specifically, as discussed in Section 4.9, *Land Use and Planning*, in Chapter 4, the General Plan LUTE includes a key implementation strategy for the Oak Knoll property (*Oak Knoll Target Area for Community and Economic Development*), in which the City recognizes the NMCO property as appropriate for a sizable new development, and that that development would contain a mixture of residential, commercial, civic, recreation and open space uses and be compatible with existing surrounding development.

Moreover, Alternative C would least meet the objectives of the proposed Project, as listed in section 5.2.3. In particular, Alternative C would not fully support the following Project objectives:

- Develop sufficient housing to support and sustain a community village retail center for Oak Knoll and surrounding residential neighborhoods.

- Alleviate the need of most South Hills residents to travel outside their neighborhoods for shopping and services by developing a village center for the underserved South Hills area that will provide local residents with neighborhood commercial shopping opportunities, in fulfillment of LUTE objectives, policies and strategies.
- Develop a diversity of housing types and sizes, including single family homes and townhomes and apartments that can accommodate a variety of household types and incomes.
- Generate tax revenues for the City of Oakland and employment opportunities for the City of Oakland community.

Moreover, while Alternative C would directly generate new property tax revenue that would partially be allocated to the City of Oakland, and indirectly generate additional sales tax revenues associated with retail purchases by new residents, it would offer no new employment opportunities.

Therefore, in closing, while Alternative C is the environmentally superior alternative compared to the other alternative, although it does not fully align with the objectives of the proposed Project. The City will consider this information as it considers the merits of the Project in total prior to acting on the project.

Table 5-5 starts on the following page and is a comparison of all impacts of Project and each of the alternatives.

TABLE 5-5
COMPARISON OF THE IMPACTS OF PROJECT AND ALTERNATIVES

NOTE: Project Impacts reduced of avoided by the alternatives are highlighted.	**Proposed Project** 935 residential + 82,000 commercial; relocate Club Knoll;	**No Project** Existing Conditions	**Alternative A: Reduced Footprint - Residential Mix** 616 residential + 36,000 commercial; reuse Club Knoll; 108.3 ac. OS/creek, no East Ridge/Hillside lots	**Alternative B: Reduced Footprint - Low Density Small Lot** 566 residential; reuse Club Knoll / 108.3 acres OS/creek, East Ridge/Hillside lots	**Alternative C: Hillside Low Density – Large Lot** 364 mixed residential w/ affordable + no commercial; reuse Club Knoll; 76.4 acres OS/creek, no East Ridge/Hillside lots
4.1 Aesthetics					
Impact AES-1: The proposed Project could adversely affect an existing scenic vista or substantially damage scenic resources within a state or locally designated scenic highway. (Criteria a and b)	LTSM	⇩	LTS	LTS	LTSM⇩
Impact AES-2: The Project would not substantially degrade the existing visual character or quality of the site and its surroundings. (Criterion c) (Less than Significant with SCA / Beneficial)	LTS-C / Beneficial	⇩	LTS-C / Beneficial	LTS-C / Beneficial	LTS-C / Beneficial
Impact AES-3: The proposed Project would not create a new source of substantial light or glare which would substantially and adversely affect day or nighttime views in the area. (Criterion d) (Less than Significant with SCA)	LTS-C	⇩	LTS-C	LTS-C	LTS-C
Impact AES-4: The proposed Project would not cast shadow that substantially impairs the beneficial use of any public or quasi-public park, lawn, garden, or open space. (Criterion g) (Less than Significant)	LTS	⇩	LTS	LTS	LTS
Impact AES-5: The proposed Project would not cast shadow on a historic resource such that the shadow would materially impair the resource's historical significance. (Criterion h) (Less than Significant)	LTS	⇩	LTS	LTS	LTS
Impact AES-6: The proposed Project would not result in a significant cumulative aesthetics impact when considering the combined effect of the Project, and past, present, approved, pending, and reasonably foreseeable future projects. (Less than Significant with SCAs)	LTSC	⇩	LTSC	LTSC	LTSC

Legend:

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TABLE 5-5 (Continued)
COMPARISON OF THE IMPACTS OF PROJECT AND ALTERNATIVES

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4.2 Air Quality					
Impact AIR-1: Demolition and construction associated with the Project would not result in average daily emissions that would exceed the City's construction significance thresholds of 54 pounds per day of ROG, NOX, or $PM_{2.5}$ or 82 pounds per day of PM_{10}. (Criterion a) (Less than Significant with SCA)	LTS-C	⇧	LTS-C⇩	LTS-C⇩	LTS-C⇩
Impact AIR-2: Operation of the Project would result in operational average daily emissions of more than 54 pounds per day of ROG, NOX, or $PM_{2.5}$ or 82 pounds per day of PM_{10}; or result in maximum annual emissions of 10 tons per year of ROG, NOX, or $PM_{2.5}$ or 15 tons per year of PM_{10}. (Criterion b) (Significant and Unavoidable)	SU (ROG, w/ Mitigation and SCA)	⇩	LTS	LTS	LTS
Impact AIR-3: Traffic associated with the development of the proposed Project would not contribute to carbon monoxide (CO) concentrations exceeding the California Ambient Air Quality Standards (CAAQS) of nine parts per million (ppm) averaged over eight hours and 20 ppm for one hour. (Criterion c) (Less than Significant)	LTS	⇩	LTS⇩	LTS⇩	LTS⇩
Impact AIR-4: Construction and operation of the Project would not generate substantial levels of toxic air contaminants (TACs). (Criterion d) (Less than Significant with SCAs)	LTS-C	⇩	LTS-C⇩	LTS-C⇩	LTS-C
Impact AIR-5: Construction of the Project would not expose proposed sensitive receptors to substantial levels of toxic air contaminants (TACs). (Criterion e) (Less than Significant with SCAs)	LTS-C	⇩	LTS-C⇩	LTS-C⇩	LTS-C

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TABLE 5-5 (Continued)
COMPARISON OF THE IMPACTS OF PROJECT AND ALTERNATIVES

NOTE: Project Impacts reduced of avoided by the alternatives are highlighted.	**Proposed Project** 935 residential + 82,000 commercial; relocate Club Knoll;	**No Project** Existing Conditions	**Alternative A: Reduced Footprint - Residential Mix** 616 residential + 36,000 commercial; reuse Club Knoll; 108.3 ac. OS/creek, no East Ridge/Hillside lots	**Alternative B: Reduced Footprint - Low Density Small Lot** 566 residential; reuse Club Knoll / 108.3 acres OS/creek, East Ridge/Hillside lots	**Alternative C: Hillside Low Density – Large Lot** 364 mixed residential w/ affordable + no commercial; reuse Club Knoll; 76.4 acres OS/creek, no East Ridge/Hillside lots
4.2 Air Quality (cont.)					
Impact AIR-6: The Project would not create objectionable odors that would affect a substantial number of people. (Criterion f) (Less than Significant)	LTS	⇩	LTS	LTS	LTS
4.3 Biological Resources					
Impact BIO-1: The Project could have a substantial adverse effect, either directly or through habitat modifications, on any plant or animal species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service. (Criterion a) (Potentially Significant).	LTSM	⇩	LTSM	LTSM	LTSM
Impact BIO-2: The Project could have a substantial adverse effect on riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service. (Criterion b) (Potentially Significant)	LTSM	⇩	LTSM	LTSM	LTSM
Impact BIO-3: The Project would not have a substantial adverse effect on federally protected wetlands or other waters (as defined by section 404 of the Clean Water Act) or state protected wetlands or waters, through direct removal, filling, hydrological interruption, or other means. (Criterion c) (Less than Significant with SCAs)	LTS-C	⇩	LTS-C	LTS-C	LTS-C

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TABLE 5-5 (Continued)
COMPARISON OF THE IMPACTS OF PROJECT AND ALTERNATIVES

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4.3 Biological Resources (cont.)					
Impact BIO-4: The Project would not substantially interfere with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. (Criterion d) (Less than Significant with SCAs)	LTS-C	⇩	LTS-C	LTS-C	LTS-C
Impact BIO-6: The Project would not fundamentally conflict with the City of Oakland Creek Protection Ordinance (OMC Chapter 13.16) intended to protect biological resources. (Criterion g) (Less than Significant with SCAs)	LTS-C	⇩	LTS-C	LTS-C	LTS-C
Impact BIO-7: The Project, in combination with other past, present, existing, approved, pending, and reasonably foreseeable future projects within and around the Project area, would not have a considerable contribution to any cumulative impacts related to biological resources. (Potentially Significant)	LTSM-C	⇩	LTS-C	LTS-C	LTS-C
4.4. Cultural Resources					
Impact CUL-1: Relocation and Rehabilitation of Club Knoll could result in a substantial adverse change in the significance of a historical resource by adversely affecting the character-defining features that convey its historic significance and justify its inclusion in the City of Oakland's Local Register of Historic Resources. (Criterion a) (Potentially Significant)	LTSM	⇩	LTS-C	LTS-C	LTS-C

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4.4. Cultural Resources (cont.)					
Impact CUL-2: Demolition of the Club Knoll Garage would not result in a substantial adverse change of an historical resource. (Criterion a) (Less than Significant)	LTS-C	⇩	LTS-C	LTS-C	LTS-C
Impact CUL-3: The Project could result in significant impacts to unknown archaeological resources. (Criterion b) (*Less than Significant with SCAs*)	LTS-C	⇩	LTS-C	LTS-C	LTS-C
Impact CUL-4: The Project could directly or indirectly destroy a unique paleontological resource or site or unique geologic feature. (Criterion c) (*Less than Significant with SCAs*)	LTS-C	⇩	LTS-C	LTS-C	LTS-C
Impact CUL-5: The Project could disturb human remains, including those interred outside of formal cemeteries (Criterion d). (Less than Significant with SCAs)	LTS-C	⇩	LTS-C	LTS-C	LTS-C
Impact CUL 6: The Project, in combination with other past, present, existing, approved, pending and reasonably foreseeable future projects, would not result in a significant impact to historic or cultural resources. (Potentially Significant)	LTS-C	⇩	LTS-C	LTS-C	LTS-C
4.5 Geology and Soils					
Impact GEO-1: The Project could expose people or structures to substantial risk of loss, injury, or death involving strong seismic ground shaking. (Criterion a.2) (Less than Significant with SCAs)	LTS-C	⇩	LTS-C	LTS-C	LTS-C

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4.5 Geology and Soils (cont.)					
Impact GEO-2: The Project could expose people or structures to substantial risk of loss, injury, or death involving seismic-related ground failure, including liquefaction, lateral spreading, subsidence or collapse. (Criterion a.3) (Less than Significant with SCAs)	LTS-C	⇩	LTS-C	LTS-C	LTS-C
Impact GEO-3: The Project could expose people or structures to substantial risk of loss, injury, or death involving landslides. (Criterion a.4) (Less than Significant with SCAs)	LTS-C	⇩	LTS-C	LTS-C	LTS-C
Impact GEO-4: The Project could result in substantial soil erosion or loss of topsoil, creating substantial risks to life, property, or creeks/waterways. (Criterion b) (Less than Significant with SCAs)	LTS-C	⇩	LTS-C	LTS-C	LTS-C
Impact GEO-5: The Project could occur on expansive soils, creating substantial risks to life and property. (Criterion c) (Less than Significant with SCAs)	LTS-C	⇩	LTS-C	LTS-C	LTS-C
Impact GEO-6: The Project could be located above a well, pit, swamp, mound, tank vault, unmarked sewer line, a landfill for which there is no approved closure and post-closure plan, or unknown fill soils, creating substantial risks to life or property. (Criteria d and e) (Potentially Significant)	LTSM	⇩	LTSM	LTSM	LTSM

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4.5 Geology and Soils (cont.)					
Impact GEO-7: The Project would not have a considerable contribution to cumulative impacts related to geology and soils, considering the combined effect of the Project and past, present, approved, pending, and reasonably foreseeable future projects in the area and citywide. (Potentially Significant)	LTS-C	⇩	LTS-C	LTS-C	LTS-C
4.6 Greenhouse Gas Emissions and Climate Change					
Impact GHG-1: The proposed Project would produce greenhouse gas emissions that exceed both 1,100 metric tons of CO2e per year and 4.6 metric tons of CO2e per service population annually in Phase 1 only. (Criterion a) (Less than Significant with SCAs).	LTS-C (10,807 and 4.47 CO2e w/TDM)	⇩	LTS-C⇩ (7,405 and 4.42 CO2e w/TDM)	LTS-C⇩ (5,735 and 4.23 CO2e)	LTS-C⇩ (3,720 and 4.38 CO2e)
Impact GHG-2: The proposed Project would not conflict with an applicable plan, policy or regulation of an appropriate regulatory agency adopted for the purpose of reducing greenhouse gas emissions (Criterion b).	LTS	⇩	LTS	LTS	LTS
4.7 Hazards and Hazardous Materials					
Impact HAZ-1: The Project would include the routine transport, use and disposal of hazardous materials during construction and operation, but would not create a significant hazard to the public or the environment. (Criterion a) (Less than Significant with SCAs)	LTS-C	⇩	LTS-C	LTS-C	LTS-C

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4.7 Hazards and Hazardous Materials (cont.)					
Impact HAZ-2: The Project would not create a significant hazard to the public or environment through an upset or accident involving the release of hazardous materials. (Criterion b) (Less than Significant with SCAs)	LTS-C	⇩	LTS-C	LTS-C	LTS-C
Impact HAZ-3: The Project would not result in the new storage or use of acutely hazardous materials near sensitive receptors, and would not as a result create a significant hazard to the public. (Criterion c) (Less than Significant with SCAs)	LTS-C	⇩	LTS-C	LTS-C	LTS-C
Impact HAZ-4: The Project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. (Criterion d) (Less than Significant with SCAs)	LTS	⇩	LTS	LTS	LTS
Impact HAZ-5: The Project would be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and could, but would not, result in a safety hazard to the public or environment. (Criterion e) (Less than Significant with SCAs)	LTS-C	⇧	LTS-C	LTS-C	LTS-C
Impact HAZ-6: The Project would include more than two emergency access routes for streets exceeding 600 feet in length. (Criterion f) (Less than Significant)	LTS	⇩	LTS	LTS	LTS

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4.7 Hazards and Hazardous Materials (cont.)					
Impact HAZ-7: The Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. (Criterion i) (Less than Significant)	LTS	⇩	LTS	LTS	LTS
Impact HAZ-8: The Project would not 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. (Criterion j) (Less than Significant with SCA)	LTS-C	⇧	LTS-C	LTS-C	LTS-C
Impact HAZ-9: The Project would not have a considerable contribution to any cumulative impacts related to hazards and hazardous materials, considering the combined effect of the Project, and past, present, approved, pending, and reasonably foreseeable future projects in the area and citywide. (Less than Significant with SCAs	LTS-C	⇩	LTS-C	LTS-C	LTS-C
4.8 Hydrology and Water Quality					
Impact HYD-1: Runoff from the proposed Project would be different from existing conditions; however, the Project would not violate any water quality standards or waste discharge requirements. (Criteria a and g) (Less than Significant with SCAs)	LTS-C	⇩	LTS-C	LTS-C	LTS-C
Impact HYD-2: The Project would not substantially deplete groundwater supplies or interfere with groundwater recharge. (Criterion b) (Less than Significant with SCA)	LTS-C	⇩	LTS-C	LTS-C	LTS-C

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4.8 Hydrology and Water Quality (cont.)					
Impact HYD-3: The Project would not result in substantial erosion or siltation on- or off-site that would affect the quality of receiving waters. (Criteria c and g) (Less than Significant with SCAs)	LTS-C	⇩	LTS-C	LTS-C	LTS-C
Impact HYD-4: The Project would not result in substantial flooding on or off-site. (Criterion d) (Less than Significant with SCAs)	LTS-C	⇩	LTS-C	LTS-C	LTS-C
Impact HYD-5: The Project would not create or contribute substantial runoff which would exceed the capacity of existing or planned stormwater drainage systems or would be an additional source of polluted runoff. (Criteria e and f) (Less than Significant with SCAs)	LTS-C	⇩	LTS-C	LTS-C	LTS-C
Impact HYD-6: The Project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course, or increasing the rate or amount of flow, of a creek, river, or stream in a manner that would result in substantial erosion, siltation, or flooding, both on- or offsite. (Criterion letter "l") (Less Than Significant with SCAs)	LTS-C	⇩	LTS-C	LTS-C	LTS-C
Impact HYD-7: The Project would not fundamentally conflict with the City of Oakland Creek Protection Ordinance (OMC Chapter 13.16) intended to protect hydrologic resources. (Criterion m) (Less than Significant with SCAs)	LTS-C	⇩	LTS-C	LTS-C	LTS-C

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4.8 Hydrology and Water Quality (cont.)					
Impact HYD-8: The Project would not have a considerable contribution to any cumulative impacts related to hydrology and water quality, considering the combined effect of the Project and past, present, approved, pending, and reasonably foreseeable future projects in the relevant geographic area. (Less than Significant with SCAs)	LTS-C	⇩	LTS-C	LTS-C	LTS-C
4.9 Land Use and Planning					
Impact LU-1: The proposed Project would not divide an established community. (Criterion a) (Less than Significant)	LTS	⇩	LTS	LTS	LTS
Impact LU-2: The proposed Project would not result in a fundamental conflict between adjacent or nearby land uses. (Criterion b) (Less than Significant)	LTS	⇩	LTS	LTS	LTS
Impact LU-3: The Project would not conflict with any applicable land use plan, policy, or the regulation of an agency with jurisdiction over the Project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect. (Criterion c) (Less than Significant)	LTS	⇩	LTS	LTS	LTS
Impact LU-4: The proposed Project, in combination with other past, present, existing, approved, pending, and reasonably foreseeable future projects within and around the Project area, would not result in an adverse cumulative impact to land use and planning. (Less than Significant)	LTS	⇩	LTS	LTS	LTS

Legend:

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LTSM Less than significant impact, after mitigation
S/SU Significant or Significant and unavoidable adverse impact, after mitigation
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TABLE 5-5 (Continued)
COMPARISON OF THE IMPACTS OF PROJECT AND ALTERNATIVES

	Proposed Project	**No Project**	**Alternative A: Reduced Footprint - Residential Mix**	**Alternative B: Reduced Footprint - Low Density Small Lot**	**Alternative C: Hillside Low Density – Large Lot**
NOTE: Project Impacts reduced of avoided by the alternatives are highlighted.	935 residential + 82,000 commercial; relocate Club Knoll;	Existing Conditions	616 residential + 36,000 commercial; reuse Club Knoll; 108.3 ac. OS/creek, no East Ridge/Hillside lots	566 residential; reuse Club Knoll / 108.3 acres OS/creek, East Ridge/Hillside lots	364 mixed residential w/ affordable + no commercial; reuse Club Knoll; 76.4 acres OS/creek, no East Ridge/Hillside lots
4.10 Noise and Vibration					
Impact NOI-1: Construction of the proposed Project would not result in substantial temporary or periodic increases in ambient noise or vibration levels in the Area above existing levels or in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. (Criteria a, b, and h) (Less than Significant with SCAs)	LTS-C	⇩	LTS-C	LTS-C	LTS-C⇩
Impact NOI-2: The proposed Project would not increase operational noise levels in the project vicinity to levels in excess of standards established in the Oakland Noise Ordinance (Oakland Planning Code Section 17.120.050) regarding operational noise. (Criterion c) (Less than Significant with SCA)	LTS-C	⇩	LTS-C⇩	LTS-C⇩	LTS-C⇩
Impact NOI-3: The proposed Project would not propose land uses in conflict with the land use compatibility guidelines of the Oakland General Plans. (Criterion f) (Less than Significant with SCA)	LTSM	⇩	LTS	LTS	LTS
Impact NOI-4: The proposed Project would not expose persons to interior Ldn or CNEL greater than 45 dBA for residential dwellings to noise levels in excess of standards established in the Oakland Noise Ordinance and Planning Code or the California Noise Insulation Standards. (Criterion e) (Less than Significant with SCAs)	LTS-C	⇩	LTS-C⇩	LTS-C⇩	LTS-C⇩
Impact NOI-5: The proposed Project would not generate noise resulting in a 5 dBA permanent increase in ambient noise levels in the project vicinity, above existing levels without the Project. (Criterion d) (Less than Significant)	LTS	⇩	LTS-C⇩	LTS-C⇩	LTS-C⇩

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COMPARISON OF THE IMPACTS OF PROJECT AND ALTERNATIVES

NOTE: Project Impacts reduced of avoided by the alternatives are highlighted.	**Proposed Project** 935 residential + 82,000 commercial; relocate Club Knoll;	**No Project** Existing Conditions	**Alternative A: Reduced Footprint - Residential Mix** 616 residential + 36,000 commercial; reuse Club Knoll; 108.3 ac. OS/creek, no East Ridge/Hillside lots	**Alternative B: Reduced Footprint - Low Density Small Lot** 566 residential; reuse Club Knoll / 108.3 acres OS/creek, East Ridge/Hillside lots	**Alternative C: Hillside Low Density – Large Lot** 364 mixed residential w/ affordable + no commercial; reuse Club Knoll; 76.4 acres OS/creek, no East Ridge/Hillside lots
4.10 Noise and Vibration (cont.)					
Impact NOI-6: Traffic generated by the proposed Project, in combination with traffic from past, present, existing, approved, pending and reasonably foreseeable future projects, would not substantially increase ambient noise levels in the Project Area; and construction and operational noise levels from the Project combined with noise levels from past, present, existing, approved, pending and reasonably foreseeable future projects, could increase ambient noise, but to less than significant levels. (Less than Significant with SCAs)	LTS-C	⇩	LTS-C⇩	LTS-C⇩	LTS-C⇩
Impact NOI-7: The proposed Project would not have stationary noise sources (such as rooftop mechanical equipment and back-up generators) that, in combination with traffic generated by the proposed Project; and from past, present, existing, approved, pending and reasonably foreseeable future projects would result in a significant cumulative impact. (Criterion d, cumulative, combined sources) (Less than Significant with SCAs)	LTS-C	⇩	LTS-C⇩	LTS-C⇩	LTS-C⇩
4.11 Population and Housing					
Impact POPU-1: The Project would not induce substantial population growth in a manner not contemplated in the General Plan, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extensions of roads or other infrastructure), such that additional infrastructure is required but the impacts of such were not previously considered or analyzed. (Criterion a) (Less than Significant)	LTS (2,416)	⇩	LTS⇩ (1,552)	LTS⇩ (1,357)	LTS⇩ (850)

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TABLE 5-5 (Continued)
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4.12 Public Services and Recreation					
Impact PSR-1: The proposed Project would result in an increase in demand for fire protection and emergency medical response services that would not require new or physically altered fire protection facilities in order to maintain acceptable performance objectives. (Criterion a.1) (Less than Significant with SCAs)	LTS-C	⇩	LTS-C⇩	LTS-C⇩	LTS-C⇩
Impact PSR-2: The proposed Project would not result in an increase in demand for police services that would not require new or physically altered police facilities in order to maintain acceptable performance objectives. (Criterion a.2) (Less than Significant)	LTS	⇩	LTS⇩	LTS⇩	LTS⇩
Impact PSR-3: The proposed Project would not result in new students for local schools at a level that would require new or physically altered school facilities to maintain acceptable performance objectives. (Criterion a.3) (Less than Significant)	LTS	⇩	LTS⇩	LTS⇩	LTS⇩
Impact PSR-4: The proposed Project would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated. (Criterion b) (Less than Significant with SCAs)	LTS	⇩	LTS⇩	LTS⇩	LTS⇩
Impact PSR-5: The proposed Project would include new recreational facilities; however, the construction and long-term use of these facilities would not have an adverse physical effect on the environment. (Criterion c) (Less than Significant with SCAs)	LTS-C	⇩	LTS-C⇩	LTS-C⇩	LTS-C⇩

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TABLE 5-5 (Continued)
COMPARISON OF THE IMPACTS OF PROJECT AND ALTERNATIVES

NOTE: Project Impacts reduced of avoided by the alternatives are highlighted.	**Proposed Project** 935 residential + 82,000 commercial; relocate Club Knoll;	**No Project** Existing Conditions	**Alternative A: Reduced Footprint - Residential Mix** 616 residential + 36,000 commercial; reuse Club Knoll; 108.3 ac. OS/creek, no East Ridge/Hillside lots	**Alternative B: Reduced Footprint - Low Density Small Lot** 566 residential; reuse Club Knoll / 108.3 acres OS/creek, East Ridge/Hillside lots	**Alternative C: Hillside Low Density – Large Lot** 364 mixed residential w/ affordable + no commercial; reuse Club Knoll; 76.4 acres OS/creek, no East Ridge/Hillside lots
4.12 Public Services and Recreation					
Impact PSR-6: The proposed Project, in combination with other past, present, existing, approved, pending, and reasonably foreseeable future projects within and around the Project area, would not result in an adverse cumulative increase in demand for public services or recreational facilities. (Less than Significant with SCAs)	LTS-C	⇩	LTS-C⇩	LTS-C⇩	LTS-C⇩
4.13 Transportation and Traffic					
Impact TRANS-1: Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized I-580 Eastbound On Ramp/Seminary Avenue/Kuhnle Avenue (intersection #2) and after project completion, this intersection would continue to satisfy the MUTCD peak hour volume traffic signal warrant during the PM peak hour (Criterion f). This intersection operates at LOS E during the AM and PM peak hours, and meets the peak hour signal warrant during the PM peak hour under Existing conditions.	SU	⇩	SU⇩	SU⇩	LTS
Impact TRANS-2: Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized I-580 Westbound Off Ramp/Mountain Boulevard/Kuhnle Avenue (intersection #3) and after project completion, this intersection would continue to satisfy the MUTCD peak hour volume traffic signal warrant during the PM peak hour (Criterion f).This intersection operates at LOS F during the AM and PM peaks, and meets the peak hour signal warrant during the PM peak hour under Existing conditions. (Significant and Unavoidable)	SU	⇩	LTS	LTS	LTS

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NOTE: Project Impacts reduced of avoided by the alternatives are highlighted.	**Proposed Project** 935 residential + 82,000 commercial; relocate Club Knoll;	**No Project** Existing Conditions	**Alternative A: Reduced Footprint - Residential Mix** 616 residential + 36,000 commercial; reuse Club Knoll; 108.3 ac. OS/creek, no East Ridge/Hillside lots	**Alternative B: Reduced Footprint - Low Density Small Lot** 566 residential; reuse Club Knoll / 108.3 acres OS/creek, East Ridge/Hillside lots	**Alternative C: Hillside Low Density – Large Lot** 364 mixed residential w/ affordable + no commercial; reuse Club Knoll; 76.4 acres OS/creek, no East Ridge/Hillside lots
4.13 Transportation and Traffic (cont.)					
Impact TRANS-3: Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized I-580 Eastbound Off Ramp/Fontaine Street /Keller Avenue (intersection #12) which would meet the peak hour signal warrant (Criterion f) during the AM and PM peak hours under Existing Plus Project conditions. (Significant and Unavoidable)	SU	⇩	SU⇩	SU⇩	SU⇩
Impact TRANS-4: Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized Mountain Boulevard/Keller Avenue (intersection #13) and after project completion, this intersection would continue to satisfy the MUTCD peak hour volume traffic signal warrant during the AM and PM peak hours (Criterion f). This intersection meets the peak hour signal warrant during the AM and PM peak hours under Existing conditions. (Potentially Significant)	LTSM	⇩	LTSM⇩	LTSM⇩	LTSM⇩
Impact TRANS-5: Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized I-580 Westbound Off Ramp/Mountain Boulevard/Shone Avenue (intersection #16) which would meet the peak hour signal warrant (Criterion f) during the AM and PM peak hours under Existing Plus Project conditions. (Significant and Unavoidable)	SU	⇩	SU⇩	SU⇩	SU⇩

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COMPARISON OF THE IMPACTS OF PROJECT AND ALTERNATIVES

NOTE: Project Impacts reduced of avoided by the alternatives are highlighted.	**Proposed Project** 935 residential + 82,000 commercial; relocate Club Knoll;	**No Project** Existing Conditions	**Alternative A: Reduced Footprint - Residential Mix** 616 residential + 36,000 commercial; reuse Club Knoll; 108.3 ac. OS/creek, no East Ridge/Hillside lots	**Alternative B: Reduced Footprint - Low Density Small Lot** 566 residential; reuse Club Knoll / 108.3 acres OS/creek, East Ridge/Hillside lots	**Alternative C: Hillside Low Density – Large Lot** 364 mixed residential w/ affordable + no commercial; reuse Club Knoll; 76.4 acres OS/creek, no East Ridge/Hillside lots
4.13 Transportation and Traffic (cont.)					
Impact TRANS-6: Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized Mountain Boulevard/Golf Links Road (intersection #40) which would meet the peak hour signal warrant (Criterion f) during the AM peak hour under Existing Plus Project conditions. (Significant and Unavoidable)	SU	⇩	SU⇩	SU⇩	SU⇩
Impact TRANS-7: Traffic generated by the Oak Knoll Project would increase the volume-to-capacity ratio by 0.03 or more along the following freeway segments which would operate at LOS F (Significance Threshold G) under Existing Plus Project conditions (Significant and Unavoidable): • I-580 Eastbound/SR 13 Southbound On-Ramp Junction (segment #2) • I-580 Eastbound/Edwards Avenue Off-Ramp Junction (segment #4) • I-580 Eastbound between Edwards Avenue and Keller Avenue (segment #5) I-580 Eastbound/Keller Avenue Off-Ramp Junction (segment #6)	SU	⇩	SU⇩	SU⇩	SU⇩
Impact TRANS-8: Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized I-580 Eastbound On Ramp/Seminary Avenue/Kuhnle Avenue (intersection #2) and after project completion this intersection would continue to satisfy the MUTCD peak hour volume traffic signal warrant during the AM and PM peak hours (Criterion f) under 2040 Plus Project conditions. (Significant and Unavoidable)	SU	⇩	SU⇩	SU⇩	SU⇩

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TABLE 5-5 (Continued)
COMPARISON OF THE IMPACTS OF PROJECT AND ALTERNATIVES

NOTE: Project Impacts reduced of avoided by the alternatives are highlighted.	**Proposed Project** 935 residential + 82,000 commercial; relocate Club Knoll;	**No Project** Existing Conditions	**Alternative A: Reduced Footprint - Residential Mix** 616 residential + 36,000 commercial; reuse Club Knoll; 108.3 ac. OS/creek, no East Ridge/Hillside lots	**Alternative B: Reduced Footprint - Low Density Small Lot** 566 residential; reuse Club Knoll / 108.3 acres OS/creek, East Ridge/Hillside lots	**Alternative C: Hillside Low Density – Large Lot** 364 mixed residential w/ affordable + no commercial; reuse Club Knoll; 76.4 acres OS/creek, no East Ridge/Hillside lots
4.13 Transportation and Traffic (cont.)					
Impact TRANS-9: Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized I-580 Westbound Off Ramp/Mountain Boulevard/Kuhnle Avenue (intersection #3) and after project completion, this intersection would continue to satisfy the MUTCD peak hour volume traffic signal warrant during the AM and PM peak hours (Criterion f) under 2040 Plus Project conditions. (Significant and Unavoidable)	SU		LTS	LTS	LTS
Impact TRANS-10: Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized I-580 Eastbound Off Ramp/Fontaine Street /Keller Avenue (intersection #12) which would meet the peak hour signal warrant (Criterion f) during the AM and PM peak hours under 2040 Plus Project conditions. (Significant and Unavoidable)	SU	⇩	SU⇩	SU⇩	SU⇩
Impact TRANS-11: Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized Mountain Boulevard/Keller Avenue (intersection #13) and after project completion, this intersection would continue to satisfy the MUTCD peak hour volume traffic signal warrant during the AM and PM peak hours (Criterion f) under 2040 Plus Project conditions. (Less than Significant after Mitigation)	LTS	⇩	LTS⇩	LTS⇩	LTS⇩

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4.13 Transportation and Traffic (cont.)					
Impact TRANS-12: Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized I-580 Westbound Off Ramp/Mountain Boulevard/Shone Avenue (intersection #16) which would meet the peak hour signal warrant (Criterion f) during the AM and PM peak hours under 2040 Plus Project conditions. (Significant and Unavoidable)	SU	⇩	SU⇩	SU⇩	LTS
Impact TRANS-13: Traffic generated by the Oak Knoll Project would increase the average intersection delay by more than four seconds at the signalized International Boulevard/98th Avenue (Intersection #27), which would operate at LOS E (Criterion c) during the PM peak hour under 2040 No Project conditions. (Significant and Unavoidable)	SU	⇩	LTS	LTS	LTS
Impact TRANS-14: Traffic generated by the Oak Knoll Project would increase the average intersection delay and degrade the LOS from LOS C to LOS E (Criterion a) at the signalized Golf Links Road/I-580 Eastbound Off-Ramp/98th Avenue (Intersection #38), during the PM peak hour. (Significant and Unavoidable)	SU	⇩	SU⇩	SU⇩	SU⇩
Impact TRANS-15: Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized Mountain Boulevard/Golf Links Road (intersection #40) which would meet the peak hour signal warrant (Criterion f) during the AM and PM peak hours under 2040 Plus Project conditions. (Significant and Unavoidable)	SU	⇩	SU⇩	SU⇩	SU⇩

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4.13 Transportation and Traffic (cont.)					
Impact TRANS-16: Traffic generated by the Oak Knoll Project would increase the volume-to-capacity ratio by 0.03 or more along the following freeway segments which would operate at LOS F (Criterion g) under 2040 Plus Project conditions (Significant prior to Mitigation): • I-580 Eastbound/SR 13 Southbound On-Ramp Junction (segment #2) • I-580 Eastbound between Edwards Avenue and Keller Avenue (segment #5) • I-580 Eastbound/Keller Avenue Off-Ramp Junction (segment #6) • I-580 Westbound/Seminary Avenue Off-Ramp Junction (segment #23) I-580 Westbound/Seminary Avenue Off-Ramp Junction (segment #24)	SU	⇩	SU⇩	SU⇩	SU⇩
Consistency with Adopted Policies, Plans or Programs Supporting Alternative Transportation The proposed Project would not conflict with adopted City policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities.	LTS	⇩	LTS	LTS	LTS
Construction-Period Impacts There may be short-term temporary, adverse effects on the circulation system during construction of each project phase but these would not rise to the level of a significant impact due to their temporary nature.	LTS	⇩	LTS⇩	LTS⇩	LTS⇩

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4.14 Utilities and Service Systems					
Impact UTIL-1: Sanitary wastewater generated by construction and operation of the proposed Project would not exceed wastewater treatment requirements of the San Francisco Bay Regional Water Quality Control Board nor result in a determination by the wastewater treatment provider that it does not have adequate capacity to serve the Project's projected demand. (Criteria a and d) (Less than Significant with SCAs)	LTS-C	⇩	LTS-C⇩	LTS-C⇩	LTS-C⇩
Impact UTIL-2: Construction and operation of the proposed Project would result in construction of new storm water drainage facilities or expansion of existing facilities, but the construction of which would not cause significant environmental effects. (Criterion b) (Less than Significant with SCAs)	LTS-C	⇩	LTS-C⇩	LTS-C⇩	LTS-C⇩
Impact UTIL-3: The water demand generated by the proposed Project would not exceed water supplies available to serve the Project from existing entitlements and resources, but would result in construction of water facilities and expansion of existing facilities, construction of which would not cause significant environmental effects. (Criterion c) (Less than Significant with SCA)	LTS-C	⇩	LTS-C⇩	LTS-C⇩	LTS-C⇩
Impact UTIL-4: The Project would be served by a landfill with sufficient permitted capacity to accommodate the Project's solid waste disposal needs and would not require the construction of landfill facilities or expansion of existing facilities, construction of which could cause significant environmental effects nor would it violate	LTS-C	⇩	LTS-C⇩	LTS-C⇩	LTS-C⇩

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4.14 Utilities and Service Systems (cont.)					
applicable federal, state, and local statutes and regulations related to solid waste. (Criteria e and f) (Less than Significant with SCAs)					
Impact UTIL-5: The proposed Project would not violate applicable federal, state and local statutes and regulations relating to energy standards nor would it result in a determination by the energy provider that it would not have adequate capacity to serve the Project's projected demand. (Criteria g and h) (Less than Significant)	LTS	⇩	LTS	LTS	LTS
Impact UTIL-6: The Project would not have a considerable contribution to any cumulative impacts related to utilities and service systems, considering the combined effect of the Project, and past, present, approved, pending, and reasonably foreseeable future projects in the area and citywide. (Less than Significant with SCAs)	LTS-C	⇩	LTS-C	LTS-C	LTS-C
4.15 Energy					
Impact ENER-1: Construction and operation of the proposed Project would not result in the wasteful, inefficient or unnecessary use of energy resources (Criterion 1). (Less than Significant with SCAs)	LTS-C	⇩	LTS-C⇩	LTS-C⇩	LTS-C⇩

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CHAPTER 6
Impact Overview and Growth Inducing Impacts

Consistent with the CEQA *Guidelines* Section 15126.2, this section summarizes the growth-inducing effects, significant unavoidable environmental effects, effects found to be less than significant, and significant irreversible environmental effects associated with development under the Oak Knoll Mixed Use Community Plan Project ("Oak Knoll Project" or "Project"). Cumulative impacts are separately discussed in Chapter 4, *Environmental Setting, Impacts, and Mitigation Measures*.

6.1 Growth Inducing Impacts

A project would be considered growth-inducing if it were to directly or indirectly foster substantial economic or population growth or the construction of additional housing. According to CEQA Guidelines Section 15126.2(d), "it must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment."

Examples of projects likely to have significant growth-inducing impacts include extensions or expansions of infrastructure systems beyond what is needed to serve project-specific demand, and development of new residential subdivisions or industrial parks in areas that are currently only sparsely developed or are undeveloped. Typically, redevelopment of projects on infill sites that are surrounded by existing urban uses are not considered growth-inducing because redevelopment by itself usually does not facilitate development intensification on adjacent sites.

Growth inducement has the potential to result in an adverse impact if the growth is not consistent with or accommodated by the land use plans and growth management plans and policies for the area affected. The potential for the proposed Project to directly or indirectly induce substantial population growth was analyzed in Section 4.11, *Population and Housing*, and the effects were determined to be less than significant. The proposed Project would result in new growth consistent with that assumed in the Oakland General Plan, which anticipates reuse of the project site. Substantive redevelopment of the project site was envisioned in the Housing Element and General Plan, as well as for the Maximum Capacity Alternative analyzed in the 1998 EIS/EIR. Thus, the City has previously considered the increased housing, population, and infrastructure that would occur with the proposed Project.

New infrastructure required to serve the proposed Project would be developed solely within the Project site, except where offsite connections to main lines is necessary and would be developed

specifically to serve the needs of the Project. No off-site infrastructure improvements are proposed that would potentially induce growth not otherwise anticipated. Off-site intersection improvements required by mitigation measures to be funded in whole or in part or constructed to address project and/or cumulative effects would not induce substantial new unanticipated growth in the project area since the mitigation measures are designed to minimize only Project impacts or Project contributions to a cumulative impact. Therefore, the proposed Project is not expected to be a catalyst for other significant development or population growth in the area, directly or indirectly, requiring new infrastructure not previously considered and analyzed.

6.2 Significant, Unavoidable Environmental Effects

A significant, unavoidable impact results if the project reaches or exceeds the defined threshold of significance and no feasible mitigation measure is available to reduce the significant impact to a less-than-significant level. The proposed Project would result in significant unavoidable impacts to air quality, cultural resources, and transportation and traffic, as identified in Chapter 4 of this SEIR.

Air Quality

The significant, unavoidable air quality impact identified below is classified as such because implementation of the identified mitigation measure (see Section 4.2) would reduce impact but not to a less-than-significant level.

- **Impact AIR-2:** Operation of the Project would result in operational average daily emissions of more than 54 pounds per day of ROG, NOX, or PM2.5 or 82 pounds per day of PM10; or result in maximum annual emissions of 10 tons per year of ROG, NOX, or PM2.5 or 15 tons per year of PM10 (Criterion b).

Transportation and Circulation

The significant, unavoidable transportation impacts identified below are classified as such because Caltrans' approval is required to implement the identified mitigation measures (see Section 4.13). The City of Oakland cannot guarantee any actions by Caltrans and cannot guarantee that any actions would occur within any specific time frame. As such, even though the respective mitigation measures identified for each of these impacts would reduce the impact to less than significant, the implementation may be delayed indefinitely due to actions or non-actions by Caltrans, which are beyond the City's authority to control.

- **Impact TRANS-1:** Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized I-580 Eastbound On Ramp/Seminary Avenue/Kuhnle Avenue (intersection #2) and after project completion, this intersection would continue to satisfy the MUTCD peak hour volume traffic signal warrant during the PM peak hour (Criterion f). This intersection operates at LOS E during the AM and PM peak hours, and meets the peak hour signal warrant during the PM peak hour under Existing conditions.

- **Impact TRANS-2:** Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized *I-580 Westbound Off-Ramp/Mountain Boulevard/Kuhnle Avenue (intersection #3)* and after project completion, this intersection would continue to satisfy the MUTCD peak hour volume traffic signal warrant during the PM peak hour (Criterion f).This intersection operates at LOS F during the AM and PM peaks, and meets the peak hour signal warrant during the PM peak hour under Existing conditions.

- **Impact TRANS-3:** Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized *I-580 Eastbound Off-Ramp/Fontaine Street /Keller Avenue (intersection #12)* which would meet the peak hour signal warrant (Criterion f) during the AM and PM peak hours under Existing Plus Project conditions.

- **Impact TRANS-5:** Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized *I-580 Westbound Off-Ramp/Mountain Boulevard/Shone Avenue (intersection #16)* which would meet the peak hour signal warrant (Criterion f) during the AM and PM peak hours under Existing Plus Project conditions.

- **Impact TRANS-6:** Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized *Mountain Boulevard/Golf Links Road (intersection #40)* which would meet the peak hour signal warrant (Criterion f) during the AM peak hour under Existing Plus Project conditions.

- **Impact TRANS-8:** Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized *I-580 Eastbound On-Ramp/Seminary Avenue/Kuhnle Avenue (intersection #2)* and after project completion this intersection would continue to satisfy the MUTCD peak hour volume traffic signal warrant during the AM and PM peak hours (Criterion f) under 2040 Plus Project conditions.

- **Impact TRANS-9:** Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized *I-580 Westbound Off-Ramp/Mountain Boulevard/Kuhnle Avenue (intersection #3)* and after project completion, this intersection would continue to satisfy the MUTCD peak hour volume traffic signal warrant during the AM and PM peak hours (Criterion f) under 2040 Plus Project conditions.

- **Impact TRANS-10:** Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized *I-580 Eastbound Off-Ramp/Fontaine Street /Keller Avenue (intersection #12)* which would meet the peak hour signal warrant (Criterion f) during the AM and PM peak hours under 2040 Plus Project conditions.

- **Impact TRANS-12:** Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized *I-580 Westbound Off-Ramp/Mountain Boulevard/Shone Avenue (intersection #16)* which would meet the peak hour signal warrant (Criterion f) during the AM and PM peak hours under 2040 Plus Project conditions.

- **Impact TRANS-14:** Traffic generated by the Oak Knoll Project would increase the average intersection delay and degrade the LOS from LOS C to LOS E (Criterion a) at the

signalized *Golf Links Road/I-580 Eastbound Off-Ramp/98th Avenue (Intersection #38)*, during the PM peak hour.

The significant, unavoidable transportation impact identified below is classified as such because Caltrans' approval is required to implement the identified mitigation measure (see Section 4.13). Further, the mitigation measure identified would not reduce the impact to less than significant.

- **Impact TRANS-15:** Traffic generated by the Oak Knoll Project would add more than ten peak hour vehicle trips to a critical movement at the unsignalized *Mountain Boulevard/Golf Links Road (intersection #40)* which would meet the peak hour signal warrant (Criterion f) during the AM and PM peak hours under 2040 Plus Project conditions.

The significant, unavoidable transportation impact identified below is classified as such because the mitigation measured identified for this impact may result in secondary impacts on pedestrian circulation and/or bus operations, and the City's policy is to avoid such secondary impacts.

- **Impact TRANS-13:** Traffic generated by the Oak Knoll Project would increase the average intersection delay by more than four seconds at the signalized *International Boulevard/98th Avenue (Intersection #27)*, which would operate at LOS E (Criterion c) during the PM peak hour under 2040 No Project conditions. (*Significant and Unavoidable*)

The significant, unavoidable transportation impacts identified below are classified as such because no feasible mitigation measures are available that would reduce the impacts to less than significant. Widening of the I-580 Freeway is not currently planned and it is beyond the scope of this Project or the City's authority to undertake capacity-enhancing freeway improvements.

- **Impact TRANS-7:** Traffic generated by the Oak Knoll Project would increase the volume-to-capacity ratio by 0.03 or more along the following freeway segments which would operate at LOS F (Significance Threshold G) under Existing Plus Project conditions

- **Impact TRANS-16:** Traffic generated by the Oak Knoll Project would increase the volume-to-capacity ratio by 0.03 or more along the following freeway segments which would operate at LOS F (Criterion g) under 2040 Plus Project conditions

6.3 Effects Found to be Less than Significant

As noted in Chapter 1, Introduction, this Draft SEIR assesses whether the proposed Project would or would not have significant impacts, based on a comparison of the proposed Project to current conditions. Further, this Draft SEIR assesses whether the proposed Project would or would not have new significant impacts not previously identified for the Maximum Capacity Alternative analyzed in the 1998 EIS/EIR.

Because this SEIR did not include the preparation of an Initial Study, all environmental topics in the CEQA Environmental Checklist (Appendix G of the CEQA *Guidelines*), except for the two exceptions listed below, have been fully analyzed in this document (Chapter 4, Environmental Setting, Impacts, Standard Conditions of Approval, and Mitigation Measures). The topics that would result in less than significant impacts are summarized in **Table 2-1**, *Summary of Impacts,*

Standard Conditions of Approval, Mitigation Measures and Residual Impacts Comparison of the 2015Oak Knoll Project to the Findings of the 1998 EIR/EIS.

6.4 Significant Irreversible Environmental Effects

This SEIR must identify any significant irreversible environmental changes that could result from a proposed project (pursuant to CEQA Section 15127). These may include current or future uses of non-renewable resources, and secondary or growth-inducing impacts that commit future generations to similar uses. CEQA dictates that irretrievable commitments of resources should be evaluated to assure that such current consumption is justified (CEQA Guidelines §15126.2(c)). The CEQA Guidelines identify three distinct categories of significant irreversible changes: (1) changes in land use that would commit future generations; (2) irreversible changes from environmental actions; and (3) consumption of non-renewable resources.

Changes in Land Use Which Would Commit Future Generations

The proposed Project would result in growth and development on approximately 188-acres in the South Hills area of the City of Oakland. The Project would change the use of the land from its historic use as a naval hospital and existing non-use to mainly residential, commercial, and recreational and open space uses. The proposed Project was found to be substantially compliant with the existing General Plan, including the LUTE Land Use Diagram, and no General Plan amendments are proposed or necessary for the proposed Project. Further, the proposed Project would be developed within an urbanized area surrounded by similar or compatible uses and would not commit future generations to significant changes in land use that would be adverse or different than the majority of existing land use commitments in the area.

Irreversible Changes from Environmental Accidents

No significant irreversible environmental damage, such as what could occur as a result of an accidental spill or explosion of hazardous materials, is anticipated due to the proposed Project. Furthermore, compliance with federal, State, and local regulations associated with hazards and hazardous materials identified in Section 4.7, *Hazards and Hazardous Materials*, would reduce to a less-than-significant level the potential for the proposed Project to result in irreversible environmental damage from accidental spill or explosion.

Consumption of Non-Renewable Resources

Consumption of non-renewable resources includes conversion of agricultural lands, loss of access to mining reserves, and use of non-renewable energy sources. The proposed Project would not involve conversion of agricultural land to non-agricultural uses. The project site does not contain known mineral resources and does not serve as a mining reserve.

The proposed Project would require the use of energy, including energy produced from non-renewable resources. However, the proposed Project would incorporate energy-conserving features, as required by the all applicable City Codes and General Plan programs and policies. As

detailed in Section 4.15, *Energy*, additional automotive fuel consumption reductions would be achieved as a result of the Project Sponsor's proposed Transportation Demand Management Plan as discussed in Section 4.15, *Energy*. The Project would result in consumption of non-renewables resources in the form of building materials, fuels, and energy sources, but would be consistent with the City's land use and housing policies and objectives and is designed to meet the City's and state's sustainable building requirements.

CHAPTER 7
Report Preparation

7.1 Lead Agency

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