City of Long Beach

Riverwalk Residential Development Project

Draft Environmental Impact Report

SCH # 2014091011

May 2015

rincon

Environmental Scientists Planners Engineers

DRAFT
ENVIRONMENTAL IMPACT REPORT

RIVERWALK RESIDENTIAL DEVELOPMENT PROJECT

Prepared by:

City of Long Beach
Development Services
333 W. Ocean Boulevard, 5th Floor
Long Beach, California 90802
Contact: Mr. Craig Chalfant
(562) 570-6368

Prepared with the assistance of:

Rincon Consultants, Inc.
180 North Ashwood Avenue
Ventura, California 93003
(805) 644-4455

May 2015

This report prepared on 50% recycled paper with 50% post-consumer content.

Riverwalk Residential Development Project EIR

Table of Contents

Page

Executive Summary ES-1

1.0 Introduction
- 1.1 Environmental Impact Report Background 1-1
- 1.2 Lead, Responsible and Trustee Agencies 1-2
- 1.3 Purpose and Legal Authority 1-3
- 1.4 Scope and Content/Environmental Factors Potentially Affected 1-3
- 1.5 Environmental Review Process 1-4

2.0 Project Description
- 2.1 Project Applicant 2-1
- 2.2 Project Location 2-1
- 2.3 Current Land Use and Regulatory Setting 2-1
- 2.4 Project Characteristics 2-11
- 2.5 Project Objectives 2-16
- 2.6 Required Approvals 2-16

3.0 Environmental Setting
- 3.1 Regional Setting 3-1
- 3.2 Project Site Setting 3-1
- 3.3 Cumulative Projects Setting 3-2

4.0 Environmental Impact Analysis 4-1
- 4.1 Aesthetics 4.1-1
- 4.2 Air Quality 4.2-1
- 4.3 Biological Resources 4.3-1
- 4.4 Cultural Resources 4.4-1
- 4.5 Geology and Soils 4.5-1
- 4.6 Greenhouse Gas Emissions 4.6-1
- 4.7 Hazards and Hazardous Materials 4.7-1
- 4.8 Hydrology and Water Quality 4.8-1
- 4.9 Land Use and Planning 4.9-1
- 4.10 Noise 4.10-1
- 4.11 Population and Housing 4.11-1
- 4.12 Public Services and Recreation 4.12-1
- 4.13 Transportation and Traffic 4.13-1
- 4.14 Utilities and Service Systems 4.14-1

5.0 Other CEQA-Required Discussions 5-1
- 5.1 Growth Inducement 5-1
- 5.2 Irreversible Environmental Effects 5-2
- 5.3 Energy Effects 5-3

6.0 Alternatives 6-1
6.1 No Project 6-2
6.2 Reduced Density Alternative 6-5
6.3 Alternative Site Alternative 6-10
6.4 Revised Access Alternative 6-16
6.5 Environmentally Superior Alternative 6-21

7.0 References and Report Preparers
7.1 References 7-1
7.2 Report Preparers 7-14

List of Figures

Figure 1-1 CEQA Environmental Review Process 1-6
Figure 2-1 Regional Location 2-2
Figure 2-2 Aerial View of Project Site and Surrounding Uses 2-3
Figure 2-3a Site Photographs 2-4
Figure 2-3b Site Photographs 2-5
Figure 2-4a Site Vicinity Photographs 2-6
Figure 2-4b Site Vicinity Photographs 2-7
Figure 2-5 General Plan Land Use Designations 2-8
Figure 2-6 Zoning Designations 2-9
Figure 2-7 Project Site Plan 2-13
Figure 4.1-1 Photosimulation 1: View looking south towards project site from intersection of Daisy Avenue and West 48th Street 4.1-5
Figure 4.1-2 Photosimulation 2: View looking east towards project site from the western terminus of West 48th Street 4.1-6
Figure 4.1-3 Photosimulation 3: View looking northeast towards project site from the LA river bicycle and pedestrian path just north of the UP Railroad Bridge 4.1-7
Figure 4.1-4 Street Tree on Oregon Avenue south of West 48th Street 4.1-9
Figure 4.1-5 Entry and Recreation Center Rendering 4.1-11
Figure 4.1-6 Entry and Recreation Center Elevations 4.1-12
Figure 4.1-7 Plan 1 Front Elevations 4.1-13
Figure 4.1-8 Plan 2 Front Elevations 4.1-14
Figure 4.5-1 Regional Fault Zone Map 4.5-2
Figure 4.5-2 Alquist-Priolo Earthquake Fault Zone Map Long Beach Quadrangle 4.5-4
Figure 4.5-3 Seismic Safety Element, Plate 2 ..... 4.5-7
Figure 4.5-4 Areas of Potential Liquefaction Long Beach Quadrangle 4.5-8
Figure 4.8-1 Hydrology Watershed Map 4.8-9
Figure 4.10-1 Noise Measurement Locations 4.10-7
Figure 4.13-1 Existing (2013) Weekday Peak Hour Traffic Volumes 4.13-6
Figure 4.13-2 Project Opening Year (2015) No Project Weekday Peak Hour Traffic Volumes 4.13-10
Figure 4.13-3 Cumulative Year (2030) No Project Weekday Peak Hour Traffic Volumes 4.13-12
Figure 4.13-4 Project Only Weekday Peak Hour Traffic Volumes 4.13-15

Figure 4.13-5 Project Opening Year (2015) Plus Project Weekday Peak Hour Traffic Volumes 4.13-21
Figure 4.13-6 Cumulative Year (2030) Plus Project Weekday Peak Hour Traffic Volumes 4.13-27
Figure 6-1 Alternate Site Photograph 6-12

List of Tables

Table ES-1 Summary of Environmental Impacts, Mitigation Measures, and Residual Impacts ES-4
Table 1-1 NOP Response and Scoping Meeting Issues 1-1
Table 2-1 Existing Site Characteristics 2-10
Table 3-1 Planned and Pending Projects in the Vicinity of the Project Site 3-3
Table 4.2-1 Current Federal and State Ambient Air Quality Standards 4.2-2
Table 4.2-2 Ambient Air Quality Data 4.2-7
Table 4.2-3 SCAQMD LSTs for Emissions in SRA-4 ..... 4.2-10
Table 4.2-4 Estimated Construction Maximum Daily Air Pollutant Emissions (lbs/day) 4.2-12
Table 4.2-5 Long-Term Operational Emissions (lbs/day) 4.2-13
Table 4.3-1 Special Status Plant Species Potentially Occurring in the Project Site Vicinity 4.3-4
Table 4.3-2 Special-Status Wildlife Species Potentially Occurring in the Project Site Vicinity 4.3-5
Table 4.4-1 Geologic Units within the Project Site 4.4-5
Table 4.6-1 Estimated Construction Emissions of Greenhouse Gases 4.6-13
Table 4.6-2 Estimated Annual Area Source Greenhouse Gas Emissions 4.6-13
Table 4.6-3 Estimated Annual Energy-Related Greenhouse Gas Emissions 4.6-14
Table 4.6-4 Estimated Annual Solid Waste Greenhouse Gas Emissions 4.6-14
Table 4.6-5 Estimated Greenhouse Gas Emissions from Water Use 4.6-15
Table 4.6-6 Estimated Annual Mobile Emissions of Greenhouse Gases 4.6-15
Table 4.6-7 Combined Annual Emissions of Greenhouse Gases 4.6-16
Table 4.6-8 Project Consistency with Applicable Climate Action Team Greenhouse Gas Emission Reduction Strategies 4.6-17
Table 4.6-9 Project Consistency with Applicable SCAG SCS Greenhouse Gas Emission Reduction Strategies 4.6-21
Table 4.6-10 Project Consistency with Applicable Long Beach Sustainable City Action Plan Goals 4.6-22
Table 4.8-1 Storm Event Safety Factor Capacity 4.8-12
Table 4.9-1 City of Long Beach General Plan Policy Consistency 4.9-9
Table 4.9-2 City of Long Beach Strategic Plan Policy Consistency 4.9-17
Table 4.9-3 Project Consistency with Applicable Long Beach Sustainable City Action Plan Goals 4.9-18
Table 4.10-1 City of Long Beach Interior Noise Level Standards 4.10-3
Table 4.10-2 City of Long Beach General Plan Noise Level Standards 4.10-4
Table 4.10-3 Noise Measurements 4.10-6
Table 4.10-4 Existing Traffic-Generated Noise 4.10-8
Table 4.10-5 Significance of Changes in Operational Roadway Noise Exposure 4.10-11

Table 4.10-6 Typical Construction Equipment Noise Levels 4.10-12
Table 4.10-7 Typical Maximum Construction Noise Levels at Various Distances from Project Construction (dBA) 4.10-13
Table 4.10-8 Vibration Source Levels for Construction Equipment 4.10-13
Table 4.10-9 Pre-Project and Post-Project Local Traffic Noise 4.10-15
Table 4.10-10 Pre-Project and Post-Project Surrounding Road Network Traffic Noise 4.10-16
Table 4.11-1 Current Housing and Population 4.11-1
Table 4.11-2 SCAG Employment, Households and Population Forecasts for Long Beach 4.11-2
Table 4.11-3 Planned and Pending Residential Projects in the City of Long Beach 4.11-5
Table 4.12-1 Current Local School Enrollment 4.12-2
Table 4.12-2 Estimated Project Related Student Generation Rates 4.12-10
Table 4.12-3 Post-Project Enrollments and Capacities of Schools Serving the Project Site 4.12-11
Table 4.13-1 Level of Service Definitions 4.13-4
Table 4.13-2 Existing1 (Weekday) Intersection Peak Hour Levels of Service Summary 4.13-5
Table 4.13-3 Existing (Weekday) Roadway Segment Levels of Service Summary 4.13-7
Table 4.13-4 Opening Year (2015) No Project Intersection Peak Hour Levels of Service Summary 4.13-11
Table 4.13-5 Cumulative Year (2030) No Project Intersection Peak Hour Levels of Service Summary 4.13-13
Table 4.13-6 Trip Generation Rates and Estimates 4.13-13
Table 4.13-7 Project Construction–Related Traffic Generation 4.13-17
Table 4.13-8 Existing (Weekday) Intersection Peak Hour Plus Construction Traffic Levels of Service Summary 4.13-18
Table 4.13-9 Opening Year (2015) Plus Project Conditions for Study Intersections 4.13-22
Table 4.13-10 Existing Plus Project Conditions for Study Roadway Segments 4.13-23
Table 4.13-11 Cumulative Peak Hour Intersection Capacity Analysis 4.13-28
Table 4.14-1 Current and Planned Water Supplies for the Long Beach System (AFY) 4.14-1
Table 4.14-2 MWD Water Supply in Normal, Single and Multiple Dry Years (Thousands of Acre Feet) 4.14-2
Table 4.14-3 LBWD Water Supply in Average, Single-Dry and Multiple-Dry Years (Acre Feet) 4.14-3
Table 4.14-4 City of Long Beach Per Capita Solid Waste Diversion Rates 4.14-7
Table 4.14-5 Estimated Project Water Demand 4.14-13
Table 4.14-6 Estimated Project Wastewater Generation 4.14-14
Table 4.14-7 Estimated Solid Waste Generation 4.14-16
Table 4.14-8 Comparison of 50 year Capital Storm Event Flows Pre-Project and Post-Project 4.14-17
Table 4.14-9 Estimated Electricity Consumption 4.14-18
Table 4.14-10 Estimated Natural Gas Consumption 4.14-18

Table 5-1 Estimated Project-Related Energy Usage Compared to State-Wide Energy Usage....5-4
Table 5-2 Estimated Project-Related Annual Motor Vehicle Fuel Consumption...5-4
Table 6-1 Comparison of Project Alternatives' Buildout Characteristics....6-1
Table 6-2 Comparison of Environmental Impacts of Alternatives....6-22

Appendices

Appendix A: Initial Study/NOP and NOP Comment Letters
Appendix B: Applicant Submittal Package
Appendix C: Air Quality and Greenhouse Gas Emissions Technical Data
Appendix D: Cultural Resources Study
Appendix E: Geotechnical Investigation
Appendix F: Phase I Environmental Site Assessment
Appendix G: Preliminary Hydrology Study
Appendix H: Noise Impact Study
Appendix I: Noise Data and Calculations
Appendix J: Transportation Impact Analysis

This page intentionally left blank.

EXECUTIVE SUMMARY

This section summarizes the characteristics of the proposed project, and the environmental impacts, mitigation measures, and residual impacts associated with the proposed project.

PROJECT SYNOPSIS

Project Applicant

Integral Communities
888 San Clemente Drive, Suite 100
Newport Beach, CA 92660
Phone: (949) 720-3612

Project Description

This Environmental Impact Report (EIR) has been prepared to examine the potential environmental effects of the proposed Riverwalk Residential Development Project. The following is a summary of the full project description, which may be found in Section 2.0 *Project Description.*

The proposed Riverwalk residential development (project) is located on a 10.56-acre parcel at 4747 Daisy Avenue in the City of Long Beach, with a Los Angeles County Assessor's ID Number of 7133-016-005. As shown in Figure 2-2, the proposed project would involve subdividing the project site and developing it into a gated residential community containing 131 detached single family homes on lots with a minimum square footage of 2,400 square feet. The proposed homes would be a mixture of 2 and 3-story homes with a maximum height of 35′6″. The proposed subdivision would be served by internal, privately maintained streets connected to the existing neighborhood by Daisy Avenue. A connection to Oregon Avenue would be available in case of emergencies, but would otherwise remain blocked off under normal circumstances. The proposed subdivision would include 262 private garage parking spaces (a two-car garage for each home) and 40 on-street guest parking spaces located along the development's internal streets.

The project would include 157,941 square feet (34%) of landscaped and open space area. This open space would include a small pocket park; a recreation center with a pool, spa, and clubhouse; and private access to the pedestrian/bicycle path along the Los Angeles River. It would also include a 6,238 square foot drainage basin at the northeastern corner of the site. The applicant is proposing to cater to new families, second time homebuyers, move-down buyers, and "empty nesters."

There would be two vehicular access points both located on the northern boundary of the site: one from Daisy Avenue and an emergency-only access from Oregon Avenue. Both of the access points would be gated. Internal access would be provided by private roads. The site would be surrounded by an eight-foot tall block wall on its western and southern boundaries. A six-foot six-inch tall block wall and landscape buffer would line the northern and eastern boundaries of the project site.

The private roadways, open space, and community amenities would be managed and maintained by a Homeowner's Association (HOA).

Additionally, the City and applicant have entered into a Development Agreement requiring the applicant to implement a number of offsite improvements that would benefit the community, one of which is the construction of a park located at the southwest corner of Oregon Avenue and Del Amo Boulevard. The applicant would carry out the final design, engineering and construction of the park (under the working name Oregon Park). This park would serve an area that is in need of additional recreational facilities. Oregon Park would include a soccer field with sports field lighting, tot lot, picnic area, restrooms, bench seating, bike racks, and fitness equipment.

The Development Agreement mandates the timing of the construction of both Oregon Park and the project in such a manner that Oregon Park's infrastructure improvements shall be completed upon or before the completion of the project's infrastructure improvements. The Development Agreement further dictates that the applicant shall complete construction of Oregon Park prior to the issuance of the 33rd certificate of occupancy for the project and establishes a date certain by which Oregon Park must be completed. The Park must be accepted for maintenance by the City prior to the issuance of the 67th certificate of occupancy for the Project.

The Development Agreement specifies a number of additional offsite improvements that would benefit the community, including but not limited to, roadway improvements along or near Daisy Avenue, Oregon Avenue, and 48th Street, as well as a new traffic signal at the intersection of Del Amo Boulevard and Oregon Avenue (personal correspondence, Barbi Clark, City of Long Beach, March 2015).

Site preparation for the proposed project would include removal of all remaining vegetation, trees, and structures on the site, including an amphitheater, deck, five buildings, two tool sheds, an old mobile home, and parking lots, after which 30,000-40,000 cubic yards of imported fill would be placed on the site. Other site preparation activities would include utility and infrastructure improvements, paving, and landscaping.

Implementation of the proposed project would require the following discretionary approvals from the City of Long Beach:

- **Site Plan Review and Approval –** Review and approval of the Site Plan for the proposed project
- **Tentative Tract Map –** Approval of a Tentative Tract Map for subdivision of the project site
- **General Plan Amendment –** Approval of a change to the project site's land use designation from Open Space and Parks (LUD No. 11) to Townhomes (LUD 3A)
- **Zoning Ordinance Amendment and Zone Change -** A change in the site's zoning from Institutional (I) to a new residential use zoning district to be created or amended as part of this entitlement
- **Certification of Final EIR**

ALTERNATIVES

Three alternatives to the proposed project were selected for consideration as follows:

- Alternative 1: No Project (no new residential develpoment on the project site)
- Alternative 2: Reduced Density
- Alternative 3: Alternate Site
- Alternative 4: Revised Access

The No Project Alternative would avoid or reduce the proposed project's potentially significant but mitigable impacts, and would avoid or reduce the proposed project's other, less than significant potential impacts in all environmental impact areas except Aesthetics and Land Use and Planning. The No Project Alternative is therefore considered environmentally superior overall. Section 15126.6(e)(2) of the State *CEQA Guidelines* requires that, if the environmentally superior alternative is the No Project Alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives. The environmentally superior alternative other than the No Project Alternative is the Alternate Site Alternative, which would avoid or reduce the proposed project's potentially significant but mitigable impacts in all environmental impact areas except Cultural Resources, in which case potential impacts would be roughly equal to those of the proposed project. The Alternate Site Alternative would also avoid or reduce the proposed project's other, less than significant potential impacts in all environmental impact areas except Aesthetics and Land Use and Planning, in which it would have roughly equal impacts.

SUMMARY OF IMPACTS AND MITIGATION MEASURES

Table ES-1 includes a brief description of the environmental issues relative to the proposed project, the identified environmental impacts, proposed mitigation measures, and residual impacts (the impact after application of mitigation, if any). Impacts are categorized by classes. Class I impacts are defined as significant, unavoidable adverse impacts which require a statement of overriding considerations to be issued per Section 15093 of the *State CEQA Guidelines* if the project is approved. Class II impacts are significant adverse impacts that can be feasibly mitigated to less than significant levels and which require findings to be made under Section 15091 of the *State CEQA Guidelines.* Class III impacts are considered less than significant impacts.

Table ES-1 Summary of Environmental Impacts, Mitigation Measures, and Residual Impacts

Impact	Mitigation Measures	Significance After Mitigation
AESTHETICS		
Impact AES-1 The proposed project would involve conversion of the site from its current, mostly undeveloped, state into a residential community containing 131 detached single family homes. However, because it would not block views of the San Gabriel Mountains to the north, which are the only potential scenic vista in the project vicinity, the project's impact on scenic vistas would be Class III, less than significant.	None required	Less than significant
Impact AES-2. The project site does not contain any scenic resources identified in the City of Long Beach General Plan and would not have a substantial direct effect on any other on- or off-site scenic resources. The proposed project's impact on scenic resources would therefore be Class III, less than significant.	None required	Less than significant
Impact AES-3. While the proposed project would change the visual character and quality of the project site and, to a lesser degree, its surroundings, it would generally have a high level of visual character and quality and would not conflict with adopted policies of the City of Long Beach related to visual character and quality. The project would therefore have a Class III, less than significant, impact related to visual character and quality.	None required	Less than significant
AIR QUALITY		
Impact AQ-1. Onsite construction activity would generate temporary emissions. These construction emissions would be within SCAQMD thresholds for all criteria pollutants except NOx and within all LSTs for all criteria pollutants except PM_{10} and $PM_{2.5}$. Mitigation is required to lower construction emissions below these thresholds. Therefore, construction-related impacts would be Class II, significant but mitigable.	**AQ-1 Construction Equipment Restrictions.** During demolition, the contractor shall limit the use of excavators to one. During grading, the contractor shall limit use of excavators to two operating no more than seven hours per day. During any phase of construction, the contractor shall limit the operation of scrapers to two operating seven hours per day, and shall not allow the operation of cranes on-site.	Less than significant with mitigation incorporated

Table ES-1 Summary of Environmental Impacts, Mitigation Measures, and Residual Impacts

Impact	Mitigation Measures	Significance After Mitigation
Impact AQ-2. Operation of the proposed facilities project would generate air pollutant emissions in the long-term. However, emissions would not exceed SCAQMD operational significance thresholds for any criteria pollutants. Therefore, operational air quality impacts would be Class III, less than significant.	None required	Less than significant
BIOLOGICAL RESOURCES		
Impact BIO-1. Implementation of the proposed project has the potential to affect special-status species, including nesting raptors and migratory birds. This is a Class II, significant but mitigable impact.	**BIO-1(a) Preconstruction Bat Surveys.** Prior to any building demolition, brush clearing, tree clearing, or grading activities associated with the project, a qualified biologist shall complete a preconstruction survey to determine the presence or absence of any maternity roosting of special-status bats. If special-status bats are present, demolition and/or clearing within 100 feet of an active maternity roost shall be delayed until after the roosting season (April 15 through August 31). **BIO-1(b) Raptor and Nesting Bird Protection.** To avoid disturbance of nesting and special status birds including raptorial species protected by the Federal Migratory Bird Treaty Act and Sections 3503, 3503.5, and 3513 of the CFGC, activities related to the project, including, but not limited to, vegetation removal, ground disturbance, and construction and demolition shall occur outside of the bird breeding season (January 1 through September 1). If construction must begin within the breeding season, then a pre-construction nesting bird survey shall be conducted no more than three days prior to initiation of ground disturbance and vegetation removal. The nesting bird pre-construction survey shall be conducted within the disturbance footprint and a 500-foot buffer as allowable without trespassing on private lands outside the project site. The survey shall be conducted by a biologist familiar with the identification of raptors and special status species known to occur in Los Angeles County using typical methods. If nests are found, a buffer ranging in size from 25 to 500 feet (25 feet for urban-adapted species such as Anna's hummingbird and California towhee and up to 500 feet for certain raptors) depending upon the species, the proposed work activity, and existing disturbances associated with land uses outside of the site, shall be	Less than significant with mitigation incorporated

Table ES-1 Summary of Environmental Impacts, Mitigation Measures, and Residual Impacts

Impact	Mitigation Measures	Significance After Mitigation
	determined and demarcated by the biologist with bright orange construction fencing, flagging, construction lathe, or other means to mark the boundary. All construction personnel shall be notified as to the existence of the buffer zone and to avoid entering the buffer zone during the nesting season. No ground disturbing activities shall occur within this buffer until the avian biologist has confirmed that breeding/nesting is completed and the young have fledged the nest.	
Impact BIO-2. With enforcement of consultation requirements contained in the project's Development Agreement, and permitting requirements contained in the City's Municipal Code, the proposed project would not conflict with any adopted policy of the City of Long Beach protecting biological resources. This is a Class III, less than significant impact.	None required	Less than significant
Impact BIO-3. The proposed project would not have a substantial adverse effect on any riparian habitat, federally protected wetlands, or other sensitive natural communities or migratory corridors and would therefore have a Class III, less than significant impact in this regard.	None required	Less than significant
CULTURAL RESOURCES		
Impact CR-1. Construction of the proposed project would involve ground-disturbing activities such as grading, surface excavation, and placement of imported fill, which have the potential to unearth or adversely impact previously unidentified archaeological resources. Impacts would be Class II, significant but mitigable.	**CR-1(a) Archaeological Resource Construction Monitoring.** At the commencement of any ground-disturbing construction activities, including grading, surface excavation, and placement of imported fill, within the project site, an orientation meeting shall be conducted by an archaeologist for construction workers associated with ground-disturbing procedures. The orientation meeting shall describe the possibility of exposing unexpected archaeological resources and directions as to what steps are to be taken if such a find is encountered. A qualified archaeologist shall be present during and monitor all earth moving activities within native soil. In the event that unearthed prehistoric or archaeological cultural resources, historic artifacts, or human remains are encountered during project construction, all work in the vicinity of the find shall be halted until such time as the find is	Less than significant with mitigation incorporated

Table ES-1 Summary of Environmental Impacts, Mitigation Measures, and Residual Impacts

Impact	Mitigation Measures	Significance After Mitigation
	evaluated by a qualified archaeologist and appropriate mitigation (e.g., curation, preservation in place, etc.) in accordance with Public Resources Code 21083.2, if necessary, is implemented. Additionally, if such cultural resource remains are encountered, Mitigation Measure CR-1(b) shall take effect. **CR-1(b) Unanticipated Discovery of Cultural Remains.** If cultural resource remains are encountered during construction or land modification activities, work shall stop and the City shall be notified at once to assess the nature, extent, and potential significance of any cultural remains. The applicant shall implement a subsurface testing program (known as a Phase II site evaluation according to Cultural Resource Management best use practices) to determine the resource boundaries, assess the integrity of the resource, and evaluate the site's significance through a study of its features and artifacts. If the Phase II site evaluation concludes the site is significant, a Phase III data recovery excavation program may be implemented to exhaust the data potential of the site, if the site cannot be avoided. If the site is determined significant, the applicant may choose to cap the resource area using culturally sterile and chemically neutral fill material and shall include open space accommodations and interpretive displays for the site to ensure its protection from development. A qualified archaeologist shall be retained to monitor the placement of fill upon the site and to make open space and interpretive recommendations. If a significant site will not be capped, the results and recommendations of the Phase II study shall determine the need for a Phase III data recovery program designed to record and remove significant cultural materials that could otherwise be tampered with. If the site is determined insignificant, no capping and or further archaeological investigation shall be required. The results and recommendations of the Phase II study shall determine the need for construction monitoring.	

Table ES-1 Summary of Environmental Impacts, Mitigation Measures, and Residual Impacts

Impact	Mitigation Measures	Significance After Mitigation
Impact CR-2. Construction of the proposed project would involve ground-disturbing activities such as grading, surface excavation, and placement of imported fill. Although unlikely, these activities have the potential to unearth and/or impact paleontological resources. Impacts would be Class II, significant but mitigable.	**CR-2(a). Paleontological Resource Construction Monitoring.** Ground-disturbing activity in areas of low paleontological sensitivity (Holocene alluvial sediments) that does not exceed three feet in depth shall not require paleontological monitoring. Monitoring of excavations exceeding 3 feet in depth shall be monitored by a qualified paleontologist to determine if potentially fossil bearing units are present at ground disturbing depths. If no fossils are observed during the first 50 percent of excavations exceeding three feet in depth, or if the qualified paleontologist can determine that excavations are not disturbing Pleistocene or Pliocene aged sediments, then paleontological monitoring shall be reduced to weekly spot-checking under the discretion of the qualified paleontologist. **CR-2(b). Fossil Salvage.** If fossils are discovered, the qualified paleontologist (or paleontological monitor) shall recover them. Typically fossils can be safely salvaged quickly by a single paleontologist and not disrupt construction activity. In some cases larger fossils (such as complete skeletons or large mammal fossils) require more extensive excavation and longer salvage periods. In this case the paleontologist shall have the authority to temporarily direct, divert or halt construction activity to ensure that the fossil(s) can be removed in a safe and timely manner. Once salvaged, fossils shall be identified to the lowest possible taxonomic level, prepared to a curation-ready condition and curated in a scientific institution with a permanent paleontological collection, along with all pertinent field notes, photos, data, and maps.	Less than significant with mitigation incorporated
GEOLOGY AND SOILS		
Impact GEO-1. Seismically-induced ground failure or ground shaking could damage structures on the project site, resulting in loss of property and risk to human health. However, the level of risk is not unusual compared to that of the region as a whole, and compliance with applicable standards would reduce risks to acceptable levels. Impacts would be Class III, less than significant.	None required	Less than significant

Table ES-1 Summary of Environmental Impacts, Mitigation Measures, and Residual Impacts

Impact	Mitigation Measures	Significance After Mitigation
Impact GEO-2. The project site is located in an area with the potential for soil liquefaction or settlement. However the level of risk is reduced due to a layer on non-liquefying soils. Therefore, soil related hazards associated with liquefaction or settlement would be Class II, significant but mitigable.	**GEO-2(a). Placement of Compacted Fill.** The existing fill and near surface alluvial soils in all the proposed structural areas shall be over excavated to a depth of four feet below the existing grade or two feet below the bottoms of the proposed structural footings, whichever is deeper, and shall be replaced with properly compacted fill. **GEO-2(b). Building Foundations.** All building foundation systems shall be properly designed and constructed using either a post-tensioned or strengthened conventional concrete foundation, as determined by the City of Long Beach Building Official.	Less than significant with mitigation incorporated
Impact GEO-3. The project could result in substantial soil erosion or the loss of topsoil during initial grading and construction. However, compliance with applicable standards and guidelines could reduce the amount of erosion or topsoil loss to acceptable levels. Impacts would be Class III, less than significant.	None required	Less than significant
GREENHOUSE GAS EMISSIONS/CLIMATE CHANGE		
Impact GHG-1. Development that could potentially occur under the proposed project would generate additional GHG emissions beyond existing conditions. However, GHG emissions would not exceed proposed SCAQMD significance thresholds. Impacts would therefore be Class III, less than significant.	None required	Less than significant
Impact GHG-2. The proposed project would be consistent with the Climate Action Team GHG reduction strategies and the SCAG Sustainable Communities Strategy. Impacts related to consistency with GHG plans and policies would therefore be Class III, less than significant.	None required	Less than significant
HAZARDS AND HAZARDOUS MATERIALS		
Impact HAZ-1. Development of the proposed residential community would not involve the routine storage, transport, use or disposal of hazardous materials. It would require the demolition of existing structures that could contain asbestos or lead based paints, the release of which has the potential to adversely affect human health and safety. The	None required	Less than significant

Table ES-1 Summary of Environmental Impacts, Mitigation Measures, and Residual Impacts

Impact	Mitigation Measures	Significance After Mitigation
project site is also located within ¼ mile of a school. However, compliance with existing regulations would reduce potential impacts to a Class III, less than significant, level.		
HYDROLOGY AND WATER QUALITY		
Impact HWQ-1. During project grading and construction and long-term operation of the project, the soil surface would be subject to erosion and the downstream watershed could be subject to temporary sedimentation and discharges of various pollutants. However, features have been incorporated into the project to minimize these effects and the project would be required to comply with the NPDES General Construction Permit, which would result in a Class III, less than significant impact.	None required	Less than significant
Impact HWQ-2. The proposed project would alter the existing drainage pattern on the project site. However, runoff from the project site would not exceed the capacity of the off-site storm drain system due to the required on-site retention basin limiting stormwater runoff to pre-development levels. Therefore, impacts would be Class III, less than significant.	None required	Less than significant
Impact HWQ-3. The proposed project would increase impervious surfaces on the site and could interfere with groundwater recharge. However, the adjacent Dominguez Gap Basin and Wetlands were designed to absorb stormwater runoff and recharge groundwater supplies. Impacts would be Class III, less than significant.	None required	Less than significant
LAND USE AND PLANNING		
Impact LU-1. With implementation of the mitigation measures identified throughout this EIR, the proposed project would be potentially consistent with applicable policies of the City's adopted General Plan, 2010 Strategic Plan, and Sustainable City Plan. This is a Class II, significant but mitigable impact.	See Mitigation Measures AQ-1, BIO-1(a), BIO-1(b), and N-5	Less than significant with mitigation incorporated

Table ES-1 Summary of Environmental Impacts, Mitigation Measures, and Residual Impacts

Impact	Mitigation Measures	Significance After Mitigation
NOISE AND VIBRATION		
Impact N-1. Construction-related activities associated with the proposed project would intermittently generate high noise levels and groundborne vibration on and adjacent to the site. This is a Class III, less than significant impact.	None required	Less than significant
Impact N-2. Onsite operations of the proposed project would generate noise levels that may periodically be audible to existing land uses near and within the project area. However, operational noise is not expected to exceed City noise standards or thresholds. This is a Class III, less than significant impact.	None required	Less than significant
Impact N-3. Traffic generated by the proposed project is anticipated to result in noise level increases along roadways in the project vicinity. Traffic-related increases in noise would not exceed the City's threshold at sensitive receptors along roadway segments. This is a Class III, less than significant impact.	None required	Less than significant
Impact N-4. Noise levels from the UP Railroad and traffic on Interstate 710 would not exceed exterior noise thresholds for the proposed residences. Additionally, railroad vibration impacts would not exceed applicable vibration thresholds for the proposed residences. This is a Class III, less than significant impact.	None required	Less than significant
Impact N-5. Interior noise in proposed residences facing the railroad and Interstate-710 would exceed the City's interior noise standards for residences. This is a Class II, significant but mitigable impact.	**N-5. Windows and Sliding Glass Doors.** All first floor and second floor windows and sliding glass doors facing Interstate 710 shall utilize a minimum STC rating of 28. All first floor and second floor windows and sliding glass doors facing the adjacent railroad track shall utilize a minimum STC rating of 30. All other windows and sliding glass doors on the project site shall utilize a minimum STC rating of 25.	Less than significant with mitigation incorporated

Table ES-1 Summary of Environmental Impacts, Mitigation Measures, and Residual Impacts

Impact	Mitigation Measures	Significance After Mitigation
POPULATION AND HOUSING		
Impact PH-1. Development associated with the proposed project may directly increase the City's population. However, this population growth would fall within and be consistent with City of Long Beach General Plan and SCAG population forecasts. The proposed project would therefore not in itself induce population growth beyond that already planned, and impacts related to inducement of substantial population growth would be Class III, less than significant.	None required	Less than significant
PUBLIC SERVICES AND RECREATION		
Impact PS-1. Buildout of the proposed project would place increased demands on fire protection services. However, the project would not create the need for new or expanded fire protection facilities. Impacts would be Class III, less than significant.	None required	Less than significant
Impact PS-2. Buildout of the proposed project would place increased demands on police services. However, the proposed project would not create the need for new or expanded police facilities. Impacts would be Class III, less than significant.	None required	Less than significant
Impact PS-3. Buildout of the proposed project would place increased demands on public library facilities. However, the project would not create the need for new or expanded public library facilities. Impacts would be Class III, less than significant.	None required	Less than significant
Impact PS-4. Buildout of the proposed project would place increased demands on public schools. However, the project would not create the need for new or expanded school facilities. Impacts would be Class III, less than significant.	None required	Less than significant

Table ES-1 Summary of Environmental Impacts, Mitigation Measures, and Residual Impacts

Impact	Mitigation Measures	Significance After Mitigation
Impact PS-5. Buildout of the proposed project would place increased demands on park facilities. However, the project would not create the need for new or expanded park facilities beyond those already planned. Impacts would be Class III, less than significant.	None required	Less than significant
TRANSPORTATION AND TRAFFIC		
Impact T-1. Construction of the proposed project would increase traffic on the surrounding street network, but would not cause any intersection to exceed the City's LOS standard. Impacts associated with construction of the proposed project would be Class III, less than significant.	None required	Less than significant
Impact T-2. Implementation of the proposed project would increase traffic on the surrounding street network. However, project-generated traffic would not cause any intersection or road segment to exceed City standards nor would it conflict with the County CMP. Impacts associated with the proposed project would be Class III, less than significant.	None required	Less than significant
Impact T-3. The proposed project does not include any hazardous design feature and would not result in inadequate emergency access. Impacts associated with the proposed project would be Class III, less than significant.	None required	Less than significant
UTILITIES AND SERVICE SYSTEMS		
Impact U-1. The proposed project would generate demand for approximately 39 acre-feet of water per year. Based on the 2010 Urban Water Management Plan, the City has adequate water supplies to meet projected demand through the year 2035. Therefore, impacts to water supply would be Class III, less than significant.	None required	Less than significant

Table ES-1 Summary of Environmental Impacts, Mitigation Measures, and Residual Impacts

Impact	Mitigation Measures	Significance After Mitigation
Impact U-2. The proposed project would generate a net increase of approximately 33,800 gallons of wastewater per day. Projected future wastewater generation would remain within the capacity of local wastewater facilities. However, the sewer mains adjacent to the project site may be over-capacity and not able to receive wastewater flows from the proposed increased density on the project site. This impact would be Class II, significant but mitigable.	**U-2. Wastewater Infrastructure.** Prior to issuance of grading or building permits, the applicant shall submit a sewer study performed by an experienced civil engineer, including a hydraulic analysis, for review and approval by the LBWD. If the study determines that the existing sewer mains are over capacity and would be unable to accommodate the additional wastewater generated by the proposed project, then the project applicant shall pay to upgrade the existing sewer mains to sufficient design and capacity to accommodate the proposed project, prior to the issuance of building or grading permits. Replacement sewer lines shall be installed in the same locations as existing sewer lines in order to ensure that only temporary disturbance of existing rights-of-ways would occur and that installation of these replacement sewer lines would not result in new areas of disturbance. The sewer upgrades must be designed and implemented consistent with the information and conclusions in the approved sewer study.	Less than significant with mitigation incorporated
Impact U-3. The proposed project would generate approximately 0.71 tons of solid waste per day that would need to be disposed of at a landfill. However, projected future solid waste generation would remain within the capacity of local landfills. Impacts would therefore be Class III, less than significant.	None required	Less than significant
Impact U-4. The proposed project would not result in increased peak period off-site conveyance of stormwater. Impacts to stormwater conveyance facilities would be Class III, less than significant.	None required	Less than significant
Impact U-5. The proposed project would incrementally increase electricity and natural gas consumption within the City. However, because energy resources are available to serve the project, impacts to energy would be Class III, less than significant.	None required	Less than significant

1.0 INTRODUCTION

This document is a Draft Environmental Impact Report (EIR) for the proposed Riverwalk Residential Development Project, located in the City of Long Beach, County of Los Angeles. For the purposes of this analysis, the Riverwalk Residential Development Project refers to the development scenario proposed by Integral Communities, for the entire 10.56-acre site, as detailed in Section 2.0, *Project Description*.

This section describes: (1) the purpose and legal authority of the EIR; (2) the general background of the project; (3) the scope and content of the EIR; (4) lead, responsible, and trustee agencies; (5) the environmental review process required under the California Environmental Quality Act (CEQA); and (6) areas of known public controversy.

1.1 ENVIRONMENTAL IMPACT REPORT BACKGROUND

The City of Long Beach prepared a Notice of Preparation (NOP) of an EIR and distributed it for agency and public review for the required 30-day review period on September 4, 2014. The City received 25 written responses to the NOP during the public review period, as well as one written response after the end of the comment period. The NOP is presented in Appendix A, along with the Initial Study that was prepared for the project and the NOP responses received. The intent of the NOP was to provide interested individuals, groups, public agencies and others a forum to provide input to the City regarding scope and focus of the EIR. Two EIR scoping meetings, the first on September 24, 2014 and the second on September 30, 2014, were held during the public review period to solicit further public comment on the scope and content of the EIR. Table 1-1 lists the issues relevant to the EIR that were brought up in the NOP written comments and at the public scoping meetings as well as the EIR sections where the issues are addressed.

Table 1-1
NOP Response and Scoping Meeting Issues

Issue	Where Addressed
Flooding	Initial Study
Loss of privacy and blocking of sunlight for surrounding uses from multi-story homes on site	Section 4.1, Aesthetics
Aesthetic compatibility with surroundings	
South Coast Air Quality Management District air quality analysis requirements	Section 4.2, Air Quality
Air quality impacts from traffic associated with construction and operation of project	
California Department of Fish and Wildlife requirements	Section 4.3, Biological Resources
Nesting birds (including owls)	
Other special-status species	
Loss of on- and off-site trees	
Impacts to nearby wetland	
Regional setting	

Table 1-1
NOP Response and Scoping Meeting Issues

Issue	Where Addressed
Native American consultation	Section 4.4, Cultural Resources
Potential for cultural resources on site	
Existing sink holes and cracks in neighborhood	Section 4.5, Geology and Soils
Seismic risks from Newport-Inglewood fault	
Project traffic's impact on emergency response	Section 4.7, Hazards and Hazardous Materials
Drainage, both on and off site	Section 4.8, Hydrology and Water Quality
Appropriateness of proposed residential density	Section 4.9, Land Use and Planning
Consistency with regional planning goals and policies	
Construction noise impacts	Section 4.10, Noise
Noise from operation of project (traffic, music, etc.)	
Noise from airplanes, railway, and freeway	
Population growth	Section 4.11, Population and Housing
Public services impacts to schools and fire and police service	Section 4.12, Public Services and Recreation
Need for recreational and open space	
Traffic capacity of local streets	Section 4.13, Transportation and Traffic
Traffic hazards	
Construction traffic impacts	
Overflow parking into neighborhood	
Los Angeles County Sanitation District wastewater generation estimates, permit requirements, and fees	Section 4.14, Utilities and Service Systems
Adequacy of public utilities infrastructure	
Availability of water	
Consider lower density alternative	Section 5.4, Alternatives
Consider park or open space alternative	
Consider access alternatives such as creating permanent vehicular access along river/wetlands, or widening Oregon Avenue	
Make project publicly accessible, not gated	

1.2 LEAD, RESPONSIBLE, AND TRUSTEE AGENCIES

The *CEQA Guidelines* define lead, responsible and trustee agencies. The City of Long Beach is the lead agency for the project because it holds principal responsibility for approving this EIR.

A responsible agency refers to a public agency other than the lead agency that has discretionary approval over the project. There are no responsible agencies for the project.

A trustee agency refers to a state agency having jurisdiction by law over natural resources affected by a project. There are no trustee agencies for the proposed project.

1.3 PURPOSE AND LEGAL AUTHORITY

The proposed project requires discretionary approvals from the City of Long Beach. Therefore, it is subject to the environmental review requirements of CEQA. In accordance with Section 15121 of the *CEQA Guidelines,* the purpose of this EIR is to serve as an informational document that:

> *...will inform public agency decision-makers and the public generally of the significant environmental effects of a project, identify possible ways to minimize the significant effects, and describe reasonable alternatives to the project.*

This EIR has been prepared as a Project EIR pursuant to Section 15161 of the *CEQA Guidelines.* A Project EIR is appropriate for a specific development project. As stated in the *CEQA Guidelines:*

> *This type of EIR should focus primarily on the changes in the environment that would result from the development project. The EIR shall examine all phases of the project, including planning, construction, and operation.*

This EIR is to serve as an informational document for the public and City of Long Beach decision-makers. The process will culminate with a Planning Commission hearing to consider certification of the Final EIR and approval of the project, unless the Planning Commission's decision is appealed to the City Council, in which case the process would culminate with a City Council hearing to consider certification of the Final EIR and approval of the project.

1.4 SCOPE AND CONTENT/ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

This EIR addresses the issues determined to be potentially significant based on the Initial Study and NOP responses. The issues addressed in this EIR include:

- *Aesthetics*
- *Air Quality*
- *Biological Resources*
- *Cultural Resources*
- *Geology/Soils*
- *Greenhouse Gas Emissions*
- *Hazards & Hazardous Materials*
- *Hydrology/Water Quality*
- *Land Use/Planning*
- *Noise*
- *Population/Housing*
- *Public Services & Recreation*
- *Transportation/Traffic*
- *Utilities/Service Systems*

This EIR addresses the issues referenced above and identifies the potentially significant environmental impacts, including site-specific and cumulative effects of the project, in accordance with the provisions set forth in the *CEQA Guidelines.* In addition, the EIR

recommends feasible mitigation measures, where possible, that would reduce or eliminate adverse environmental effects.

In preparing the EIR, use was made of pertinent City policies and guidelines, certified EIRs and adopted CEQA documents, and background documents prepared by the City. A full reference list is contained in Section 7.0, *References and Report Preparers*.

The Alternatives section of the EIR (Section 6.0) was prepared in accordance with Section 15126.6 of the *CEQA Guidelines*. The alternatives discussion evaluates the CEQA-required "no project" alternative and three alternative development scenarios for the site. It also identifies the environmentally superior alternative among the alternatives assessed.

The level of detail contained throughout this EIR is consistent with the requirements of CEQA and applicable court decisions. The *CEQA Guidelines* provide the standard of adequacy on which this document is based. *CEQA Guidelines* Section 15151 states:

> *An EIR should be prepared with a sufficient degree of analysis to provide decision-makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of the proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection, but for adequacy, completeness, and a good faith effort at full disclosure.*

1.5 ENVIRONMENTAL REVIEW PROCESS

The major steps in the environmental review process, as required under CEQA, are outlined below and illustrated on Figure 1-1. The steps are presented in sequential order.

1. **Notice of Preparation (NOP).** After deciding that an EIR is required, the lead agency must file an NOP soliciting input on the EIR scope to the State Clearinghouse, other concerned agencies, and parties previously requesting notice in writing *(CEQA Guidelines* Section 15082; Public Resources Code Section 21092.2). The NOP must be posted in the County Clerk's office for 30 days. The NOP may be accompanied by an Initial Study that identifies the issue areas for which the proposed project could create significant environmental impacts.
2. **Draft Environmental Impact Report (DEIR) Prepared.** The DEIR must contain: a) table of contents or index; b) summary; c) project description; d) environmental setting; e) discussion of significant impacts (direct, indirect, cumulative, growth-inducing and unavoidable impacts); f) a discussion of alternatives; g) mitigation measures; and, h) discussion of irreversible changes.
3. **Notice of Completion and Notice of Availability.** A lead agency must file a Notice of Completion with the State Clearinghouse when it completes a Draft EIR (CEQA Guidelines Section 15085) and prepare a Public Notice of Availability of a Draft EIR. The lead agency must file the Notice of Availability with the County Clerk's office for a 30 day posting period and send a copy of the Notice of Availability to anyone requesting it *(CEQA Guidelines* Section 15087). Additionally, public notice of DEIR availability must be given through at least one of

the following procedures: a) publication in a newspaper of general circulation; b) posting on and off the project site; and c) direct mailing to owners and occupants of contiguous properties. The lead agency must solicit input from other agencies and the public, and respond in writing to all comments received (PRC Sections 21104 and 21153). The minimum public review period for a DEIR is 30 days. When a Draft EIR is sent to the State Clearinghouse for review, the public review period must be 45 days unless the Clearinghouse (Public Resources Code Section 21091) approves a shorter period.

4. **Final EIR.** A Final EIR (FEIR) must include: a) the Draft EIR; b) copies of comments received during public review; c) list of persons and entities commenting; and, d) responses to comments.

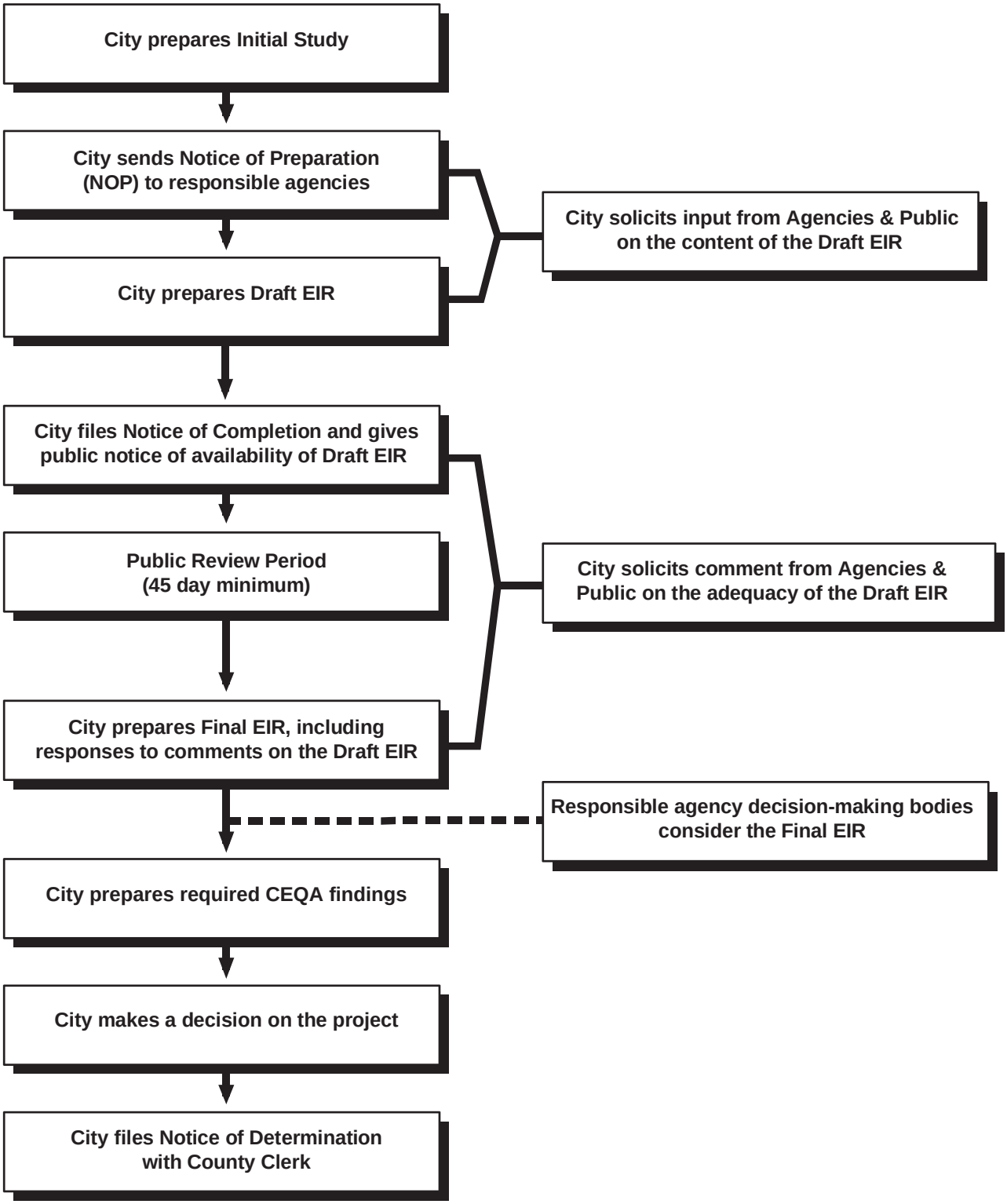
5. **Certification of FEIR.** Prior to making a decision on a proposed project, the lead agency must certify that: a) the FEIR has been completed in compliance with CEQA; b) the FEIR was presented to the decision-making body of the lead agency; and, c) the decision-making body reviewed and considered the information in the FElR prior to approving a project *(CEQA Guidelines* Section 15090).

6. **Lead Agency Project Decision.** A lead agency may: a) disapprove a project because of its significant environmental effects; b) require changes to a project to reduce or avoid significant environmental effects; or, c) approve a project despite its significant environmental effects, if the proper findings and statement of overriding considerations are adopted *(CEQA Guidelines* Sections 15042 and 15043).

7. **Findings/Statement of Overriding Considerations.** For each significant impact of the project identified in the EIR, the lead or responsible agency must find, based on substantial evidence, that either: a) the project has been changed to avoid or substantially reduce the magnitude of the impact; b) changes to the project are within another agency's jurisdiction and such changes have or should be adopted; or c) specific economic, social, or other considerations make the mitigation measures or project alternatives infeasible *(CEQA Guidelines* Section 15091). If an agency approves a project with unavoidable significant environmental effects, it must prepare a written Statement of Overriding Considerations that sets forth the specific social, economic, or other reasons supporting the agency's decision.

8. **Mitigation Monitoring Reporting Program.** When an agency makes findings on significant effects identified in the EIR, it must adopt a reporting or monitoring program for mitigation measures that were adopted or made conditions of project approval to mitigate significant effects.

9. **Notice of Determination.** An agency must file a Notice of Determination within five working days after deciding to approve a project for which an EIR is prepared *(CEQA Guidelines* Section 15094). A local agency must file the Notice with the County Clerk. The Notice must be posted for 30 days and sent to anyone previously requesting notice. Posting of the Notice starts a 30-day statute of limitations on CEQA legal challenges [Public Resources Code Section 21167(c)].



Environmental Review Process Figure 1-1

2.0 PROJECT DESCRIPTION

The proposed project would involve subdividing the 10.56-acre project site and developing it into a gated residential community containing 131 detached single family homes. The residential lots would contain a minimum of 2,400 square feet. The development would also include landscaping; a small pocket park; a recreation center with a pool, spa, and clubhouse; 262 garage parking spaces (a two-car garage for each home); and 40 on-street guest parking spaces. This section describes the project location, major characteristics of the site and the proposed development, project objectives, and approvals needed to implement the project.

2.1 PROJECT APPLICANT

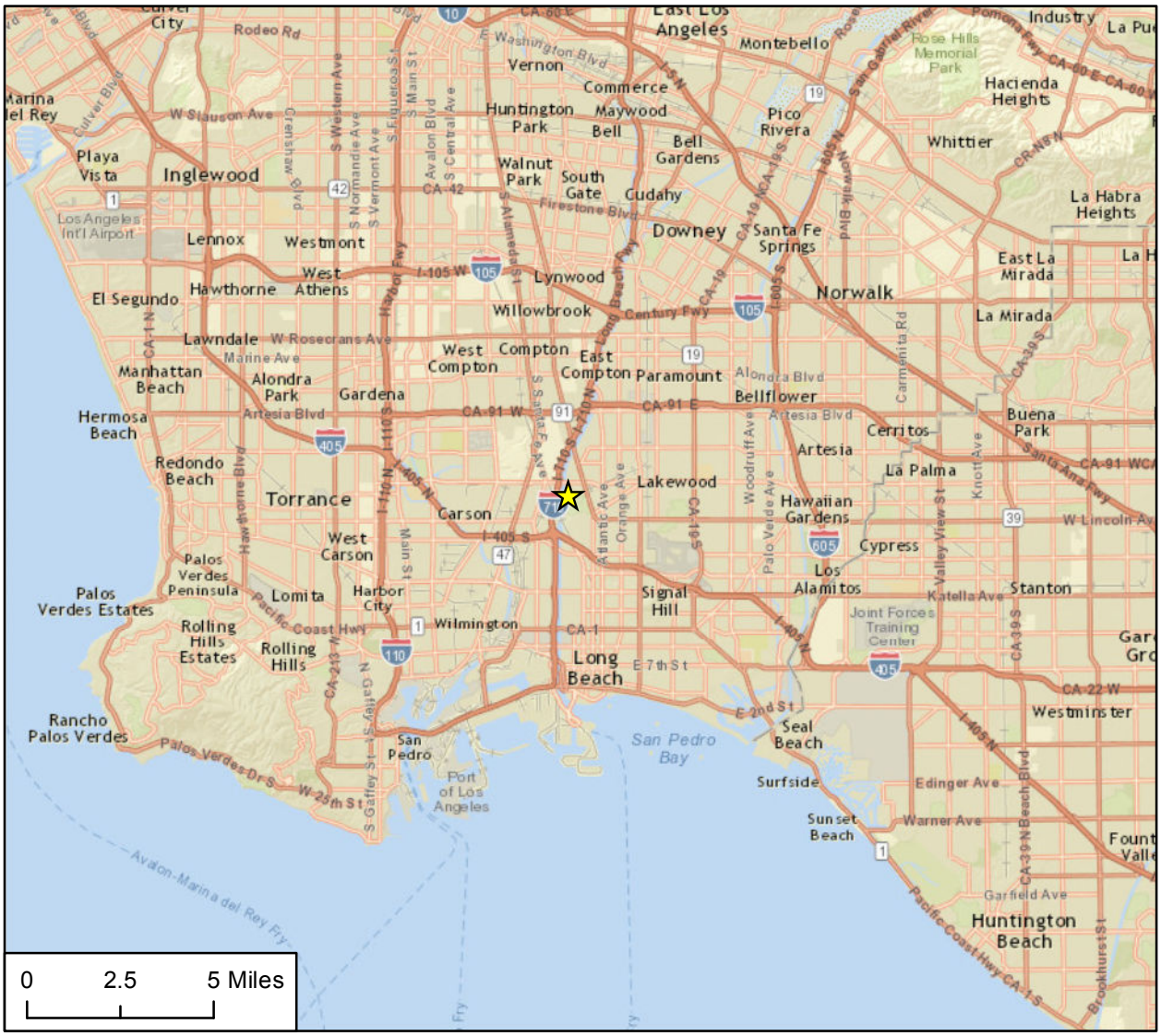
Integral Communities
888 San Clemente Drive, Suite 100
Newport Beach, CA 92660
Phone: (949) 720-3612

2.2 PROJECT LOCATION

The project site is located on a 10.56-acre parcel at 4747 Daisy Avenue in the City of Long Beach (the City), County of Los Angeles. The project site is bordered by the Union Pacific (UP) Railroad on the south, the Dominguez Gap Wetlands and Los Angeles River on the west, and existing residential neighborhoods on the north and east. The Virginia Country Club golf course is located just south of the UP Railroad tracks to the south of the site. As shown on Figure 2-1 (Regional Location), the project site is located in northwestern Long Beach, northwest of the Long Beach Airport. The site is regionally accessible from Interstate 405 (the San Diego Freeway), and Interstate 710 (Long Beach Freeway). Figure 2-2 presents an aerial view of the project site and surrounding uses. Figures 2-3a and 2-3b provide ground-level photographs of the site, and Figures 2-4a and 2-4b provide ground-level photographs of nearby land uses.

2.3 CURRENT LAND USE AND REGULATORY SETTING

Table 2-1 summarizes the existing characteristics of the project site, which are also described below. Maps showing the land use designation and zoning of the site and its surroundings are shown in Figures 2-5 and 2-6.



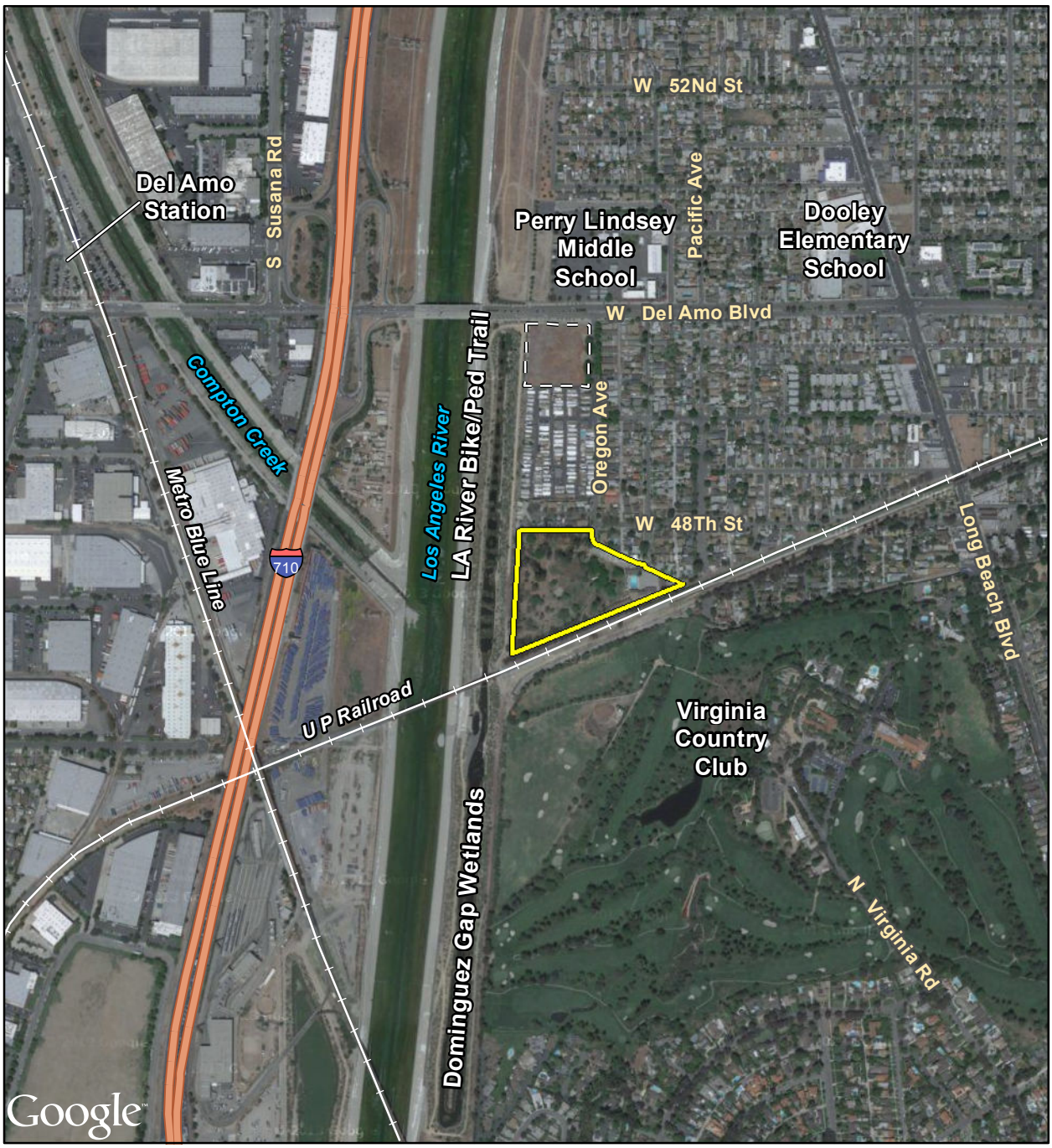
Imagery provided by ESRI and its licensors © 2014.

N

Project Location

Regional Location

Figure 2-1



Imagery provided by Google and its licensors © 2014.

Project Boundary

Future Oregon Park Site

0 500 1,000 Feet

N

Aerial View of Project Site and Surrounding Uses

Figure 2-2

Photo 1: Looking west along the northern boundary of the project site from near the Oregon Avenue gate.

Photo 2: Looking north from the southern tip of the project site along its western boundary.

Site Photographs

Figure 2-3a

Photo 3: View of former amphitheater, looking southwest from approximate center of project site

Photo 4: Abandoned storage building in southern part of project site, looking southeast, with UP Railroad berm and tracks in background

Site Photographs

Figure 2-3b

Photo 1: View looking north along Daisy Avenue from entrance into the project site.

Photo 2: Union Pacific (UP) railroad tracks and train passing along the southern boundary of the project site, with Dominguez Gap Wetlands in foreground.

Site Vicinity Photographs

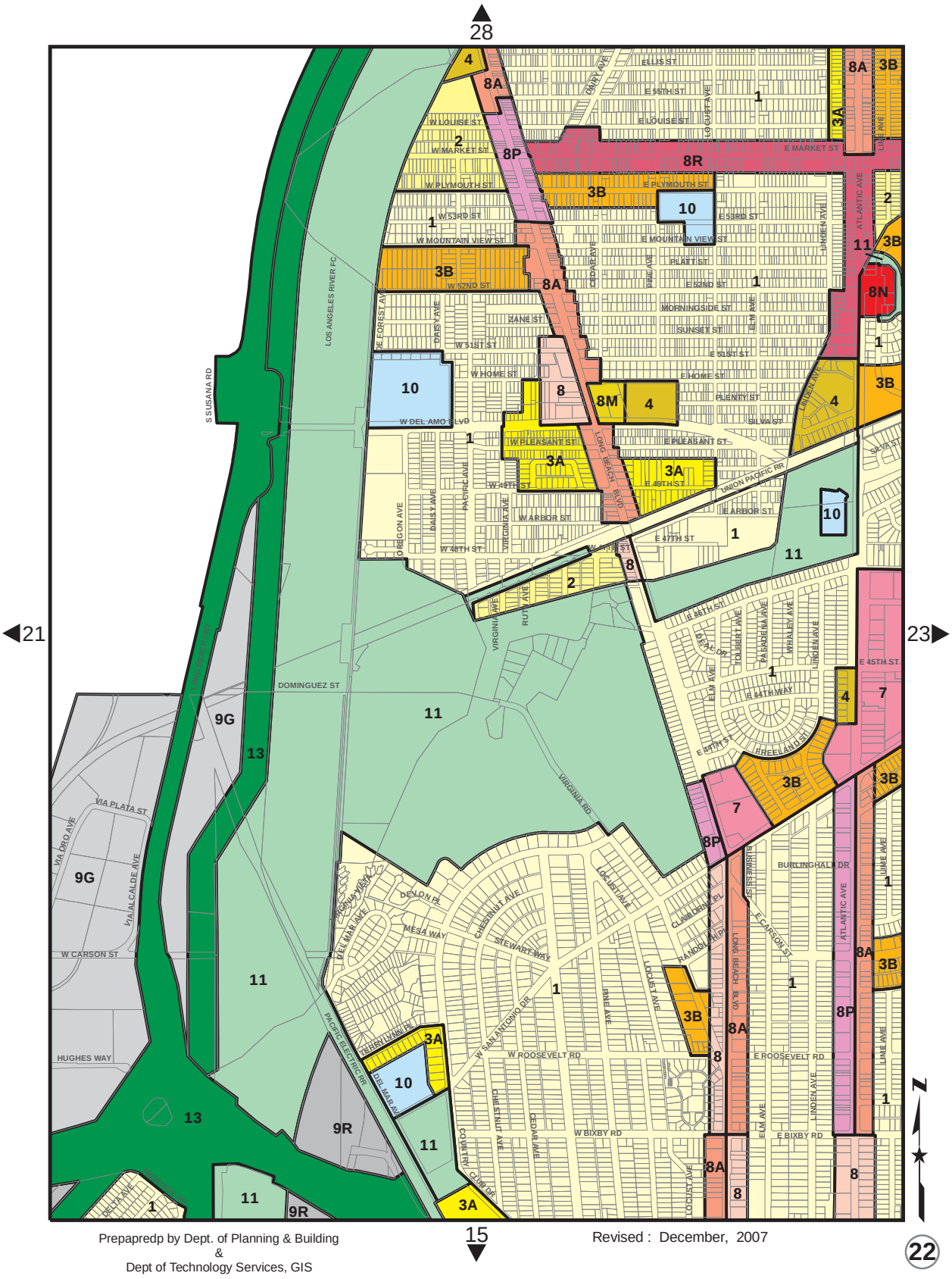
Figure 2-4a

Photo 3: Los Angeles River Bike Path, looking north, with Los Angeles River on left and Dominguez Gap Wetlands on right.

Photo 4: Looking south towards weir and pumping station in the Dominguez Gap Wetlands, with UP railroad track bridge overhead in foreground.

Site Vicinity Photographs

Figure 2-4b



Prepapredp by Dept. of Planning & Building
&
Dept of Technology Services, GIS

Revised : December, 2007

General Plan Land Use Designations

Figure 2-5

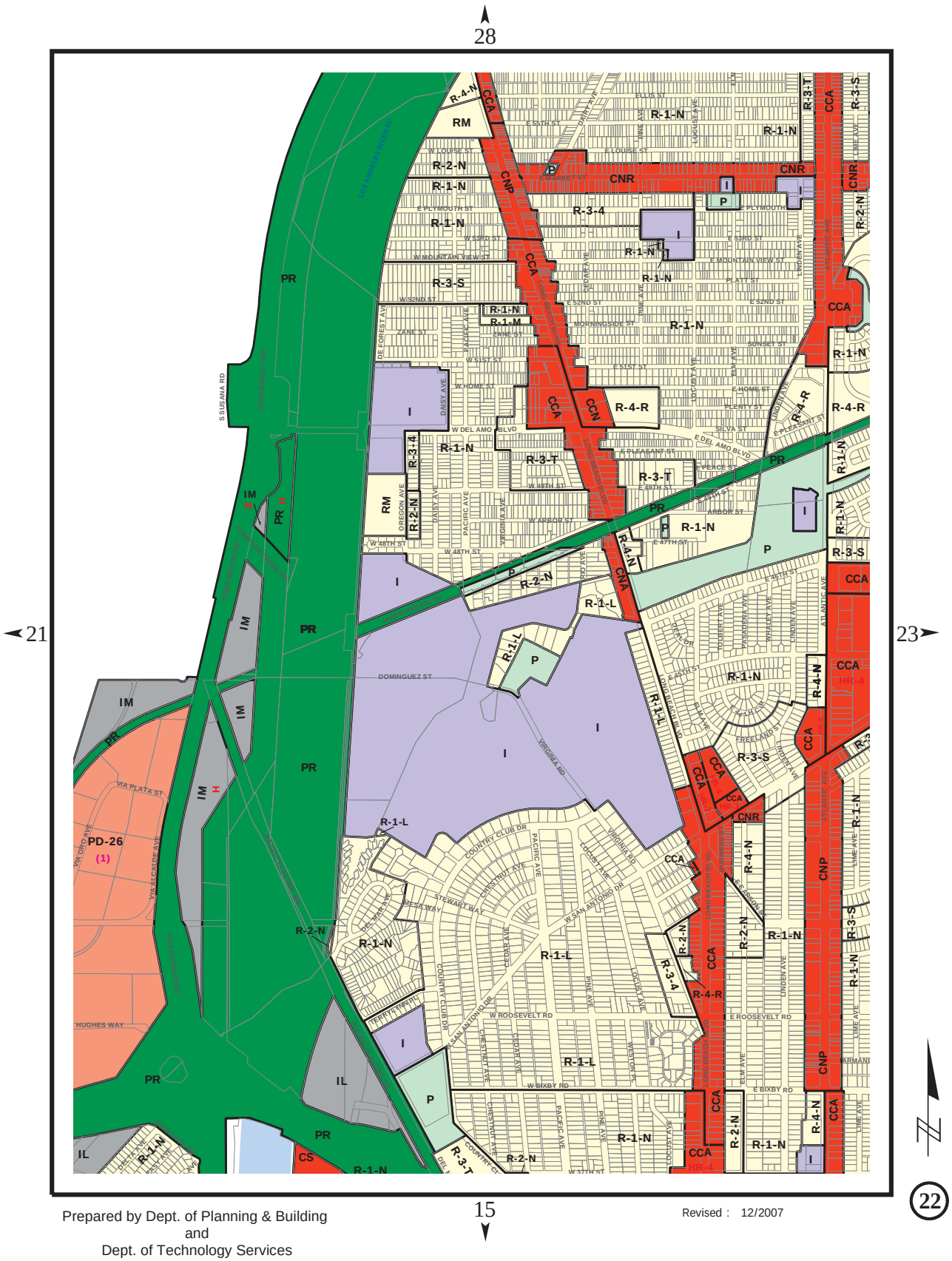

28
21
23
15
22
N
RM
R-4-N
CCA
CNP
R-1-N
R-2-N
R-3-4
CNR
P
I
R-3-S
R-1-M
R-4-R
CCN
R-3-T
R-3-4
PR
IM
H
PD-26
(1)
IL
CS
R-1-L
R-3-T
R-4-N
R-2-N
R-3-S
R-1-N
R-2-N
R-3-4
R-4-R
R-1-L
R-1-N
R-2-N
R-3-S
R-1-N
R-2-N
R-3-4
R-4-R
R-1-L
R-1-N
R-2-N
R-3-S
R-1-N
R-2-N
R-3-S
R-1-N
R-2-N
R-3-S
R-1-N
R-2-N
R-3-T
R-1-N
R-2-N
R-3-T
R-1-N
R-2-N
R-3-T

Table 2-1
Existing Site Characteristics

Assessor's Parcel Number	7133-016-005
Site Size	10.56 acres
General Plan Land Use Designations	Open Space and Park (LUD 11)
Zoning Designations	Institutional (I)
Current Use and Development	Boy Scout Camp (No longer in use)
Surrounding Land Use Designations (see Figure 2-5)	North: Single Family District (LUD 1) East: Single Family District (LUD 1), Mixed Style Homes (LUD 2), Open Space and Park (LUD 11) South: Open Space and Park (LUD 11) West: Open Space and Park (LUD 11)
Surrounding Zoning Designations (see Figure 2-6)	North: Single Family Residential Standard Lot (R-1-N), Two Family Residential Standard Lot (R-2-N), Single Family Residential District for Mobile Homes (RM) East: Single Family Residential Standard Lot (R-1-N), Two Family Residential Standard Lot (R-2-N), Public Right of Way (PR), Park (P) South: Public Right of Way (PR), Institutional (I) West: Public Right of Way (PR)
Regional Access Local Access	Interstate 710 (Long Beach Freeway) Oregon Avenue and Daisy Avenue
Public Services	Water: Long Beach Water Department Sewer: Long Beach Water Department Fire: Long Beach Fire Department Police: City of Long Beach Police Department

2.3.1 Current Land Use

The project site was developed as the Will J. Reid Boy Scout Camp (Boy Scout Camp), including an amphitheater, deck, five buildings, two tool sheds, a mobile home, and a parking lot, but the Boy Scout Camp is no longer in use and the site, although still containing these structures and improvements, is currently unused.

2.3.2 Surrounding Land Uses

The project site is bordered by single family residences to the north and east. The Los Angeles River and bicycle path run along the western boundary of the site. Industrial uses and the Long Beach Freeway are located on the opposite side of the Los Angeles River. The UP Railroad runs along the southern portion of the project site. The Virginia County Club is located on the opposite side of the UP Railroad.

2.4 PROJECT CHARACTERISTICS

2.4.1 Proposed Land Uses and Development

The proposed project would involve subdividing the project site and developing it into a gated residential community containing 131 detached single family homes on lots with a minimum square footage of 2,400 square feet. The proposed homes would be a mixture of 2 and 3-story homes with a maximum height of 35'6". The proposed subdivision would be served by internal, privately maintained streets connected to the existing neighborhood by Daisy Avenue. A connection to Oregon Avenue would be available in case of emergencies, but would otherwise remain blocked off under normal circumstances. The proposed subdivision would include 262 private garage parking spaces (a two-car garage for each home) and 40 on-street guest parking spaces located along the development's internal streets.

The project would include 157,941 square feet (34%) of landscaped and open space area. This open space would include a small pocket park; a recreation center with a pool, spa, and clubhouse; and private access to the pedestrian/bicycle path along the Los Angeles River. It would also include a 6,238 square foot drainage basin at the northeastern corner of the site. The applicant is proposing to cater to new families, second time homebuyers, move-down buyers, and "empty nesters."

Figure 2-7 shows the proposed site plan, including a summary of key statistics related to the proposed buildings and other proposed site characteristics.

There would be two vehicular access points both located on the northern boundary of the site: one from Daisy Avenue and an emergency-only access from Oregon Avenue. Both of the access points would be gated. Internal access would be provided by private roads. The site would be surrounded by an eight-foot tall block wall on its western and southern boundaries. A six-foot six-inch tall block wall and landscape buffer would line the northern and eastern boundaries of the project site.

The private roadways, open space, and community amenities would be managed and maintained by a Homeowner's Association (HOA).

Additionally, the City and applicant have entered into a Development Agreement requiring the applicant to implement a number of offsite improvements that would benefit the community, one of which is the construction of a park located at the southwest corner of Oregon Avenue and Del Amo Boulevard. The applicant would carry out the final design, engineering and construction of the park (under the working name Oregon Park). This park would serve an area that is in need of additional recreational facilities. Oregon Park would include a soccer field with sports field lighting, tot lot, picnic area, restrooms, bench seating, bike racks, and fitness equipment.

This page intentionally left blank.

PROJECT SUMMARY:

- NET AREA : 460,092 s.f. (10.56 ACRES)
- TOTAL NUMBER OF UNITS: 131
- NET DENSITY (131 units / 10.56 acres) = 12.4 du/ac
- 1ST FLOOR BLDG. FOOTPRINT:
  - -Plan 1: (1,450 s.f. x 30 units) = 43,500 s.f.
  - -Plan 2: (1,125 s.f. x 32 units) = 36,000 s.f.
  - -Plan 3: (1,126 s.f. x 35 units) = 39,375 s.f.
  - -Plan 4: (1,119 s.f. x 34 units) = 38,046 s.f.
  - -Rec Center. + Lift Station = 2,130 s.f.
  - -Total Bldg Footprint Area = 159,051 s.f.
- LOT COVERAGE = (159,087 s.f./ 460,092 s.f.) = 35%
- INTERIOR STREET: 34' Curb to Curb (26' clear) (w/ Parking on 1 side)
- ALLEY DRIVE: 20' min. (w/ 6' apron)
- GARAGE TO GARAGE: 32' (Door to door)
- REC. AREA: 15,131 s.f.
- TOT LOT AREA: 6,725 s.f.
- TURF AREA: 6,238 s.f.
- LANDSCAPE /OPEN SPACE AREA:
  - TOTAL PRIVATE LANDSCAPE AREA = 69,015 S.F.
  - TOTAL H.O.A. LANDSCAPE AREA = 125,320 S.F.
  - TOTAL LANDSCAPE/OPEN SPACE AREA = 194,335 S.F. (45%)

PLAN SUMMARY

UNIT MIX :

PLAN 1: 30 Units TOTAL
PLAN 2: 32 units TOTAL
PLAN 3: 35 units TOTAL (3 with enhanced side elevation)
PLAN 4: 34 units TOTAL (1 with enhanced side elevation)

TOTAL: 131 UNITS

✱ ASTERISK SYMBOL INDICATES UNIT WITH ENHANCED SIDE ELEVATION:
- PLAN 3: (UNITS # 31, #98 AND 104)
- PLAN 4: (UNIT #93)

PARKING SUMMARY

Garage Parking :
- PLAN 1: (2-car) x 30 units = 60
- PLAN 2: (2-car) x 32 units = 64
- PLAN 3: (2-car) x 35 units = 70
- PLAN 4: (2-car) x 34 units = 68
- Total Garage spaces = 262 (2.00 / unit)

GUEST PARKING:
- Total guest spaces: = 40 (.3 / unit)
  (8'x20' parallel space)

TOTAL = 302 Spaces (2.3 spaces / unit)

Project Site Plan

Source: Integral Communities, March 2015

Figure 2-7

The Development Agreement mandates the timing of the construction of both Oregon Park and the project in such a manner that Oregon Park's infrastructure improvements shall be completed upon or before the completion of the project's infrastructure improvements. The Development Agreement further dictates that the applicant shall complete construction of Oregon Park prior to the issuance of the 33rd certificate of occupancy for the project and establishes a date certain by which Oregon Park must be completed. The Park must be accepted for maintenance by the City prior to the issuance of the 67th certificate of occupancy for the Project.

The Development Agreement specifies a number of additional offsite improvements that would benefit the community, including but not limited to, roadway improvements along or near Daisy Avenue, Oregon Avenue, and 48th Street, as well as a new traffic signal at the intersection of Del Amo Boulevard and Oregon Avenue (personal correspondence, Barbi Clark, City of Long Beach, March 2015).

2.4.2 Site Preparation and Construction

Site preparation for the proposed project would include removal of all remaining vegetation, trees, and structures on the site, including an amphitheater, deck, five buildings, two tool sheds, an old mobile home, and parking lots, after which 30,000-40,000 cubic yards (cy) of imported fill would be placed on the site[1]. Other site preparation activities would include utility and infrastructure improvements, paving, and landscaping. Infrastructure improvements and landscaping would include:

- 4′ wide concrete sidewalks throughout the development
- An 8′ high one-sided split-face black wall along the southern and western perimeters of the project site adjacent to the UP Railroad right-of-way (ROW) and Dominguez Gap Wetlands/L.A. River
- A 6′6″ high one-sided split-face block wall and landscape buffer (evergreen trees) along the northern and eastern perimeters of the project site adjacent to residential uses
- A 6′6″ high access gate on the western perimeter that connects to an existing dirt trail
- A 6′6″ high emergency access gate on the eastern perimeter
- Vehicle access onto "A" Street for entry to the project site. This would include a vehicle access gate and a roundabout
- Street trees, alley trees and focal trees throughout the development
- Irrigation for all landscaping

Construction is anticipated to begin no earlier than the third quarter of 2015 and last approximately three and one half years, ending by approximately late 2018 or early 2019.

[1] The applicant estimates that the quantity of imported fill would be 28,900 cy (personal conversation, Edward Galligher, April 2015). An estimate of 30,000-40,000 cy is used in this EIR in order to provide a conservative estimate of the total amount of imported fill.

2.5 PROJECT OBJECTIVES

The objectives of the proposed project are as follows:

- Replace a vacant and underutilized site with a residential community of two and three story residences
- Provide construction of high quality housing consistent with the City of Long Beach 2013-2021 Housing Element
- Create an attractive, high quality neighborhood design that reflects the project site's unique location
- Provide residential development that does not conflict with surrounding land uses and neighborhoods
- Provide a walkable pedestrian friendly neighborhood with recreational amenities
- Provide bike and trail linkages between the project site and existing facilities in the area
- Create a financially viable project that provides for the creation of construction employment opportunities, recreational opportunities, and expanded housing opportunities
- Utilize sustainability features to encourage efficient use of the project site through building and landscape designs and orientations which recognize the climatic conditions in the area
- Enhance City property tax revenues

2.6 REQUIRED APPROVALS

Implementation of the proposed Riverwalk Residential Development Project would require the following discretionary approvals from the City, which is the lead agency and the only public agency with discretionary approval over the project:

- **Site Plan Review and Approval –** Review and approval of the Site Plan for the proposed project
- **Tentative Tract Map –** Approval of a Tentative Tract Map for subdivision of the project site
- **General Plan Amendment –** Approval of a change to the project site's land use designation from Open Space and Parks (LUD No. 11) to Townhomes (LUD 3A)
- **Zoning Ordinance Amendment and Zone Change-** A change in the site's zoning from Institutional (I) to a new residential zoning district to be created or amended as part of this entitlement
- **Certification of Final EIR**

Additionally, as discussed in 2.4.1 above, as a condition of the Development Agreement for the Riverwalk project, the City is also requiring the applicant to carry out the final design, engineering, and construction of a park (under the working name Oregon Park) at the southwest corner of Oregon Avenue and Del Amo Boulevard. This park is a separate project that has already undergone its own environmental review and entitlement process with the City.

This page intentionally left blank.

3.0 ENVIRONMENTAL SETTING

3.1 REGIONAL SETTING

The project site is located in the City of Long Beach, in southern Los Angeles County, within the greater Los Angeles metropolitan area (refer to Figure 2-1, *Regional Location*, and Figure 2-2, *Aerial View of Project Site and Surrounding Uses*, both of which can be found in Section 2.0, *Project Description*). Long Beach is approximately 20 miles south of downtown Los Angeles and is located adjacent to the Pacific Ocean. The total area of the City is approximately 33,908 acres (53 square miles). Developed land comprises approximately 98.6% of Long Beach and about 473 acres, or 1.4%, of the City is undeveloped (City of Long Beach, 2013). Water-covered areas and miscellaneous land uses account for the remaining land. The Mediterranean climate of the region and coastal influence produce moderate temperatures year round, with rainfall concentrated in the winter months. The region is subject to various natural hazards, including earthquakes, tsunami and flooding.

3.2 PROJECT SITE SETTING

The project site is located on a 10.56-acre parcel at 4747 Daisy Avenue south of West 48th Street in northwestern Long Beach. The project site is bordered by the Union Pacific (UP) Railroad on the south, the Dominguez Gap Wetlands and Los Angeles River on the west (including bicycle and pedestrian paths along both), and existing residential neighborhoods on the north and east. The Virginia Country Club golf course is located just south of the UP Railroad tracks to the south of the site.

The project site was formerly occupied by the Will J. Reid Boy Scout Camp, but it is no longer used for this purpose, and consists mostly of vacant, undeveloped land. Structures still remaining on the site from its former use include an amphitheater, deck, five buildings, two tool sheds, a mobile home, and a parking lot. Although the site is not currently accessible to the public, it has two gated vehicular and pedestrian access points: one on the southern end of Daisy Avenue south of 48th Street and the other at Oregon Avenue south of West 48th Street.

Beyond the uses immediately bordering the project site, various other uses are present in the vicinity of the project site. Industrial uses and the Long Beach Freeway are located approximately ⅓ to ¼ mile to the west of the project site on the opposite side of the Los Angeles River. Del Amo Boulevard is located approximately ¼ mile north of the project site, and Long Beach Boulevard is located approximately ⅓ mile east of the project site. Long Beach Boulevard east of the project site is bordered by commercial uses. The south side of Del Amo Boulevard north of the project site is bordered by residential uses and one commercial use at its intersection with Long Beach Boulevard, and the north side of Del Amo Boulevard is bordered by residences, commercial uses, and two schools: Perry Lindsey Middle School and Dooley Elementary School.

Photos of the project site and surrounding uses are shown in Figure 2-3, Figure 2-4a, and Figure 2-4b. The project site setting is described in greater detail in the individual environmental issue analyses in Section 4.0, *Environmental Impact Analysis*.

3.3 CUMULATIVE PROJECTS SETTING

CEQA defines "cumulative impacts" as two or more individual events that, when considered together, are considerable or will compound other environmental impacts. Cumulative impacts are the changes in the environment that result from the incremental impact of development of the proposed project and other nearby projects. For example, traffic impacts of two nearby projects may be insignificant when analyzed separately, but could have a significant impact when analyzed together. Cumulative impact analysis allows the EIR to provide a reasonable forecast of future environmental conditions and can more accurately gauge the effects of a series of projects.

Cumulative impacts are discussed within each of the specific impact analysis discussions in Section 4.0, *Environmental Impact Analysis*. Section 15130 of the *CEQA Guidelines* states that an adequate discussion of cumulative impacts should include either a list of past, present, and probable future projects producing related or cumulative impacts; or a summary of projections contained in an adopted local, regional or statewide plan, or related planning document, that describes or evaluates conditions contributing to the cumulative effect.

For cumulative impacts that are localized in nature, such as aesthetics, cultural resources, geology and soils, and noise, the cumulative analysis in this EIR uses the list of planned and pending projects in the general area shown in Table 3-1, based on information provided by the City of Long Beach in January of 2015. The projects on this list consist of planned or pending projects in the City of Long Beach or neighboring jurisdictions within the general vicinity of the site of the proposed project, in an area roughly bounded by Alameda Street on the west, Artesia Boulevard on the north, Orange Avenue on the east, and Wardlow Road on the south. Three planned or pending projects were identified within this area. Two were identified in the City of Long Beach: Oregon Park, and the Houghton Park Community Center Rebuild. As discussed in Section 2.0, *Project Description*, as a condition of the Development Agreement for the proposed project, the City is requiring the applicant to carry out the final design, engineering, and construction of a park (under the working name Oregon Park) at the southwest corner of Oregon Avenue and Del Amo Boulevard. This park is a separate project that has already undergone its own environmental review and entitlement process with the City. The Houghton Park Community Center Rebuild would consist of renovation of an existing facility, with no expansion of its square footage. The project in the City of Carson would consist of 13 new single family homes. The total development involved with these projects would therefore consist of one 3.3-acre City park and 13 single family homes.

For certain cumulative impacts with a larger area of potential effect (impacts that may combine with the impacts of other projects on a city-wide, regional, state-wide, or even global level), the "summary of projections" method is used in this EIR. For example, Section 4.12, *Population and Housing*, of this EIR uses housing and population projections from the City of Long Beach General Plan and the Southern California Association of Government's (SCAG's) Regional Comprehensive Plan, as well as the total number of residential units shown on the list of planned and pending projects in the City as of January 2015 (see Table 4.11-3), which equals 807 residential units city-wide. As described in Section 4.11, SCAG forecasts that the population of Long Beach will be 534,100 persons by 2035, which would be an increase of 63,808 persons from

the City's 2014 population of 470,292 persons. This would be a 13.6% overall increase, an increase of approximately 3,038 persons or 0.6% per year, over this 21-year period.

Other impacts, such as greenhouse gas emissions that may contribute towards global warming, are cumulative by nature, with no localized impacts that could be attributed to any one project alone. The cumulative impacts analysis for such impacts therefore notes this fact and explains that the analysis contained throughout the impact analysis is cumulative in nature. The cumulative impacts analysis for Section 4.13, *Transportation and Traffic*, is conducted under the future year scenarios within the project-level impact analysis. The future year scenarios are taken from the Traffic Impact Analysis (TIA) for the proposed project completed in January 2015 by Fehr & Peers, which assumed a 1.52% annual growth rate factor for Year 2015 Conditions, and an 0.84% annual growth rate for Year 2030 Conditions, both of which take into account approved and pending projects.

Table 3-1
Planned and Pending Projects in the Vicinity of the Project Site

Related Project	Address	Jurisdiction	Description/Size
City of Long Beach			
Oregon Park	4951 Oregon Avenue	Long Beach	Local neighborhood park on a 3.3-acre site with one regulation soccer field, a tot lot, picnic areas, and 52-space parking lot. Would include signalization of the intersection of Del Amo Boulevard and Oregon Avenue.
Houghton Park Community Center Rebuild	6301 Myrtle Avenue	Long Beach	Rebuild of existing park's community center, no plans for expansion at this time.
City of Carson			
Thirteen Single-Family Homes (City Ventures)	2666 East Dominguez Street	Carson	Thirteen single-family homes on properties previously occupied by the Dominguez Trailer Park and older residential properties.
		Totals	**3.3-acre City park** **13 single family homes**

Source: City of Long Beach Planning Department, January 2015
City of Carson Planning Division, January 2015
SF = Square-Feet

This page intentionally left blank.

4.0 ENVIRONMENTAL IMPACT ANALYSIS

This section discusses the possible environmental effects of the proposed project for the specific issue areas that were identified through the Initial Study and NOP process as having the potential to experience significant impacts. "Significant effect" is defined by the *State CEQA Guidelines §15382* as "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance." An economic or social change by itself shall not be considered a significant effect on the environment, but may be considered in determining whether the physical change is significant.

The assessment of each issue area begins with a discussion of the setting relevant to that issue area. Following the setting is a discussion of the project's impacts relative to the issue area. Within the impact analysis, the first subsection identifies the methodologies used and the "significance thresholds," which are those criteria adopted by the City, other agencies, universally recognized, or developed specifically for this analysis to determine whether potential impacts are significant. The next subsection describes each impact of the proposed project, mitigation measures for significant impacts, and the level of significance after mitigation. Each impact under consideration for an issue area is separately listed in bold text, with the discussion of the impact and its significance following. Each bolded impact listing also contains a statement of the significance determination for the environmental impact as follows:

> ***Class I, Significant and Unavoidable:*** *An impact that cannot be reduced to below the threshold level given reasonably available and feasible mitigation measures. Such an impact requires a Statement of Overriding Considerations to be issued if the project is approved.*
>
> ***Class II, Significant but Mitigable:*** *An impact that can be reduced to below the threshold level given reasonably available and feasible mitigation measures. Such an impact requires findings to be made.*
>
> ***Class III, Not Significant:*** *An impact that may be adverse, but does not exceed the threshold levels and does not require mitigation measures. However, mitigation measures that could further lessen the environmental effect may be suggested if readily available and easily achievable.*
>
> ***Class IV, Beneficial:*** *An impact that would reduce existing environmental problems or hazards.*

Following each environmental impact discussion is a listing of recommended mitigation measures (if required) and the residual effects or level of significance remaining after the implementation of the measures. In those cases where the mitigation measure for an impact could have a significant environmental impact in another issue area, this impact is discussed as a residual effect.

The impact analysis concludes with a discussion of cumulative effects, which evaluates the impacts associated with the proposed project in conjunction with other future development in the area.

This page intentionally left blank.

4.1 AESTHETICS

This section addresses potential impacts related to aesthetics, including changes in public views and visual character, and consistency with adopted urban design policies.

4.1.1 Setting

a. Visual Character of the Project Site Vicinity. The project site is located in northern Long Beach, approximately 5.4 miles north of the Pacific Ocean. The project area is characterized by a mix of urban development and open spaces that are either man-made (such as the Virginia Country Club golf course), or that have been heavily altered (such as the channelized Los Angeles River and Dominguez Gap Wetlands). The project site is bordered by the Union Pacific (UP) Railroad on the south, the Dominguez Gap Wetlands and Los Angeles River on the west, and an existing residential neighborhood on the north and east. Bicycle, equestrian, and pedestrian paths are located along the Dominguez Gap Wetlands and the Los Angeles River. The Virginia Country Club golf course is located just south of the UP Railroad tracks to the south of the site. Industrial uses and the Long Beach Freeway are located on the opposite, western side of the Los Angeles River. The project site is not located along or within the viewshed of a designated scenic corridor.

Figure 2-2 in Section 2.0, *Project Description*, presents an aerial view of the project site and surrounding uses. Figures 2-3a and 2-3b provide photographs of the site. Figures 2-4a and 2-4b provide photographs of nearby land uses.

b. Visual Character of the Project Site. The project site is bordered by constructed open space on its southern and western sides (the Virginia County Club golf course to its south and the Dominguez Gap Wetlands and Los Angeles River to its west); however, these open space resources do not contribute to the visual character of the project site itself because they are not visible from the site. The golf course is not visible from the project site because the UP railroad tracks that form the southeastern boundary of the site are located on an elevated berm that blocks views from the site to the south and southeast. This berm is approximately 20 feet in height compared to the on-site grade of the project site, and is topped with eucalyptus trees at the western end of the site, and with lower bushes at the western end of the site. Similarly, the Dominguez Gap Wetlands, the Los Angeles River, and the Long Beach Freeway and industrial uses in its vicinity are not visible from the site because of the levees along the wetland and the river. The visual character of the project site is therefore characterized by its semi-developed state, with much of the site being occupied by open areas consisting of non-native grasses and bare dirt and a scattering of mature native and non-native trees, but with a significant amount of developed areas remaining from its former use as a Boy Scout camp. Remnant abandoned facilities include an amphitheater, deck, five buildings, two tool sheds, an old mobile home, an empty pool, and a parking lot. Some of these remnant abandoned facilities are shown in Figures 2-3a and 2-3b. The railroad berm and surrounding residences visible from the project site also contribute to its semi-urbanized visual character. The site is mostly flat, but with the western end of the site sloping up by roughly 5-10 feet toward the berm along the Dominguez Gap Wetlands.

c. Regulatory Setting. Citywide policies on scenic vistas focus on protecting views of the City's natural resources and views along significant streets and boulevards. The Scenic Routes Element, adopted in 1975, proposed five scenic route systems within the City for potential adoption as official scenic routes within the City, but only Ocean Boulevard was officially adopted by the City as a scenic route. The Scenic Routes Element was adopted by the Long Beach City Council in 1975. The purpose of the Scenic Routes Element is to protect and enhance the scenic resources of the City of Long Beach, by establishing a system of scenic routes along existing roadways that traverse areas of scenic beauty and interest. The only designated scenic route established by this Element, Ocean Boulevard, is located approximately 5 miles south of the project site near the mouth of the Los Angeles River. The project site is not within the viewshed of Ocean Boulevard.

Neighborhood aesthetics and character are addressed in several City policies, especially those contained in the Urban Design Analysis, Conclusions and Policy Directions Section of the Land Use Element and several policies in the Conservation and Scenic Routes Elements. These issues are further addressed in the City's Zoning Ordinance through a range of development standards that are applied by zoning district.

As part of the discretionary approvals required for the proposed project, the project would require approval of a General Plan Amendment to change the project site's land use designation from Open Space and Park (LUD No. 11) to Townhomes (LUD 3A), and to change its zoning from Institutional (I) to a new PUD zoning district to be created as part of the requested entitlement. The project would also require site plan review and approval, and review and approval of a tentative tract map. The ultimate determination of whether the proposed project is consistent with the General Plan, Zoning Ordinance and PD-19 district standards resides exclusively with the decision-making bodies that would review and approve or deny these entitlements (Site Plan Review Committee, Planning Commission, and City Council).

This section primarily focuses on aesthetic policies and design standards that are most applicable to the design of the proposed project for the purpose of assessing whether any inconsistency with these standards creates a significant impact on the City's visual resources. With the creation of a new PUD zoning district to be created as part of the requested entitlement, the proposed project would be consistent with the City's Zoning Ordinance. The project's consistency with other goals and policies not related to aesthetics, including those from the City's General Plan, is discussed in Section 4.9, *Land Use and Planning*, of this EIR.

Goals and policies from the City's General Plan that both relate to aesthetics and apply to the proposed project are listed below.

Land Use Element

- *Facilities Maintenance: Long Beach will maintain its physical facilities and public rights-of-way at a high level of functional and aesthetic quality, manifesting the pride of the citizens in their City and ensuring that future generations need not bear the burden of deferred maintenance (p. 18).*

Conservation Element

- *To create and maintain a productive harmony between man and his environment through conservation of natural resources and protection of significant areas having environmental and aesthetic value (p.8).*

Open Space and Recreation Element

- ***Policy 1.2:*** *Protect and improve the community's natural resources, amenities and scenic values including nature centers, beaches, bluffs, wetlands and water bodies. (p.17).*

4.1.2 Impact Analysis

a. Methodology and Significance Thresholds. The assessment of aesthetic impacts involves qualitative analysis that is inherently subjective in nature. Different viewers react to viewsheds and aesthetic conditions differently. This evaluation measures the proposed project against existing visual conditions, analyzing the nature of the anticipated change. The project site was observed and photographically documented (see Figures 2-3a and 2-3b, and the figures in the remainder of this section of the EIR), as was the surrounding area (see Figures 2-4a and 2-4b, and the figures in the remainder of this section of the EIR), to assist in the analysis.

An impact is considered significant if the proposed project would result in one or more of the following conditions, as described in Appendix G of the State *CEQA Guidelines*:

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

The Initial Study prepared for the proposed project determined that the project would result in potentially significant impacts related to the first three of these thresholds, but a less than significant impact related to the fourth (light or glare). Consequently, the issue of light and glare is not analyzed further in this section. The Initial Study analysis is provided in Appendix A. The project's consistency with adopted goals or policies of the City of Long Beach most directly relating to the potential aesthetic impacts of the proposed project, which are listed above in Section 4.1.1c, are discussed within the impact discussion sections to which they most directly relate.

b. Project Impacts and Mitigation Measures.

Impact AES-1 The proposed project would involve conversion of the site from its current, mostly undeveloped, state into a residential community containing 131 detached single family homes. However, because it would not significantly intrude into views of the San Gabriel Mountains to the north, which are the only potential scenic vista in the project vicinity, the project's impact on scenic vistas would be Class III, *less than significant*.

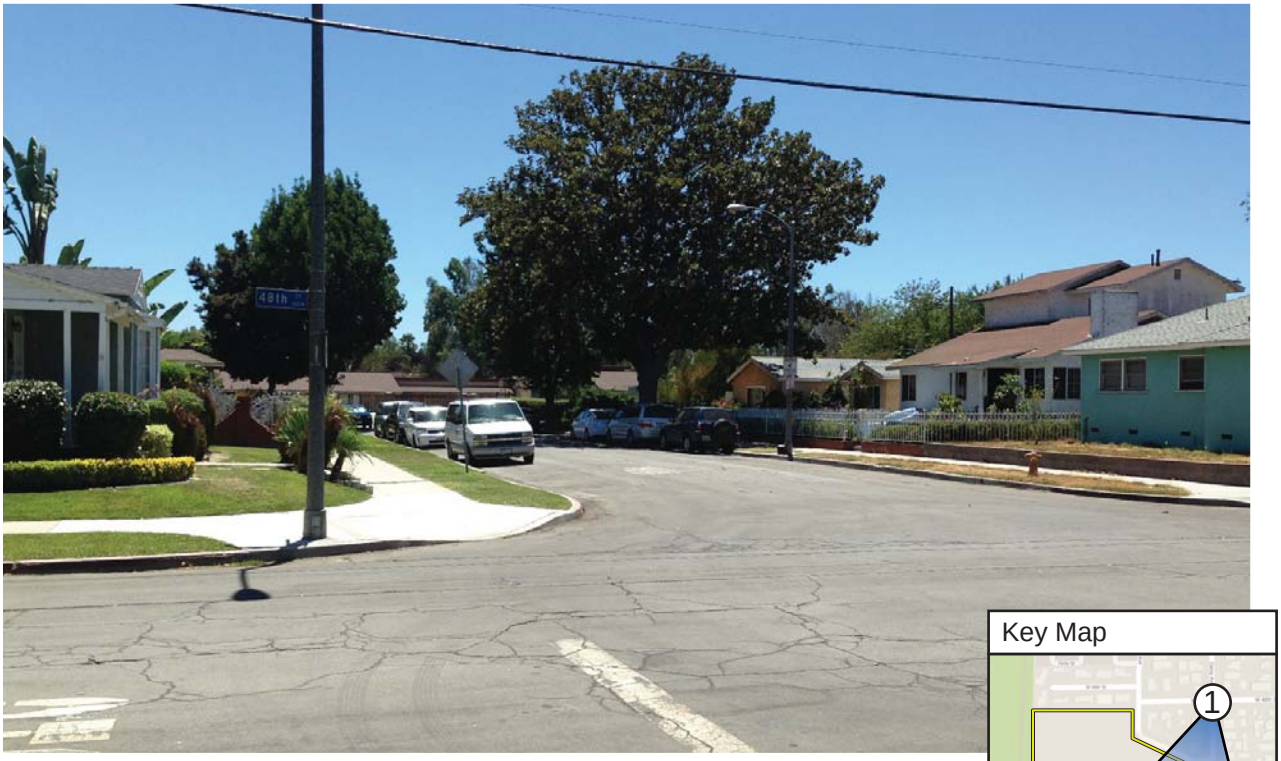
As discussed in the *Setting*, the project site is located in a low-lying area near the confluence of the Los Angeles River and Compton Creek, with elevated berms on its southern and western boundaries. Views from the project site into surrounding areas consist almost exclusively of views of homes and trees in the nearby residential neighborhoods. Near the western boundary of the project site, limited views of the San Gabriel Mountains in the distance are available as one looks to the north, parallel to the Dominguez Gap Wetlands and the Los Angeles River. The project site is not currently publicly accessible. Therefore, no public views from the project site would be affected by the project.

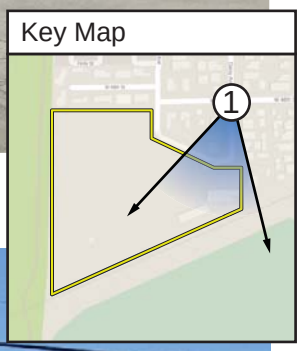
In order to visually analyze this potential impact, Rincon Consultants, Inc. created visual simulations showing "before and after" views from certain locations, with the "before" pictures showing the current view from these locations, and the "after" view introducing visual simulations of the buildings proposed under the project into the same picture. These visual simulations are shown in Figures 4.1-1 through 4.1-3. The proposed project may require replacement of two street trees on Daisy Avenue south of West 48th Street, as shown in Figure 4.1-1. Potential impacts from this tree replacement on scenic resources and visual character and quality are analyzed under Impacts AES-2 and AES-3 below.

Scenic vistas from the vicinity of the project site would only be affected by the proposed project if the structures proposed under the project intervened into that vista. No areas to the south or east of the project site have views into the distance through the project site that could be blocked by project-related structures because of the elevated berms on those sides of the project site. Thus, the buildings that would be constructed on the project site would only be visible from the west and north. As shown in Figures 4.1-1 and 4.1-2, on-site buildings would be visible from some areas to the immediate north of the project site, but no scenic vistas exist from these areas when looking to the south. The only area from which scenic vistas have the potential to be blocked by project-related buildings is from the west, where project-related buildings have the potential to intrude into views to the east and northeast of the San Gabriel Mountains as seen from the bicycle and pedestrian path along the top of the Los Angeles River levee. However, as shown in Figure 4.1-3, views of the mountains would not be significantly obstructed by project-related buildings. The project's impact to scenic vistas would therefore be less than significant.

Mitigation Measures. None required.

Significance After Mitigation. Impacts would be less than significant without mitigation.



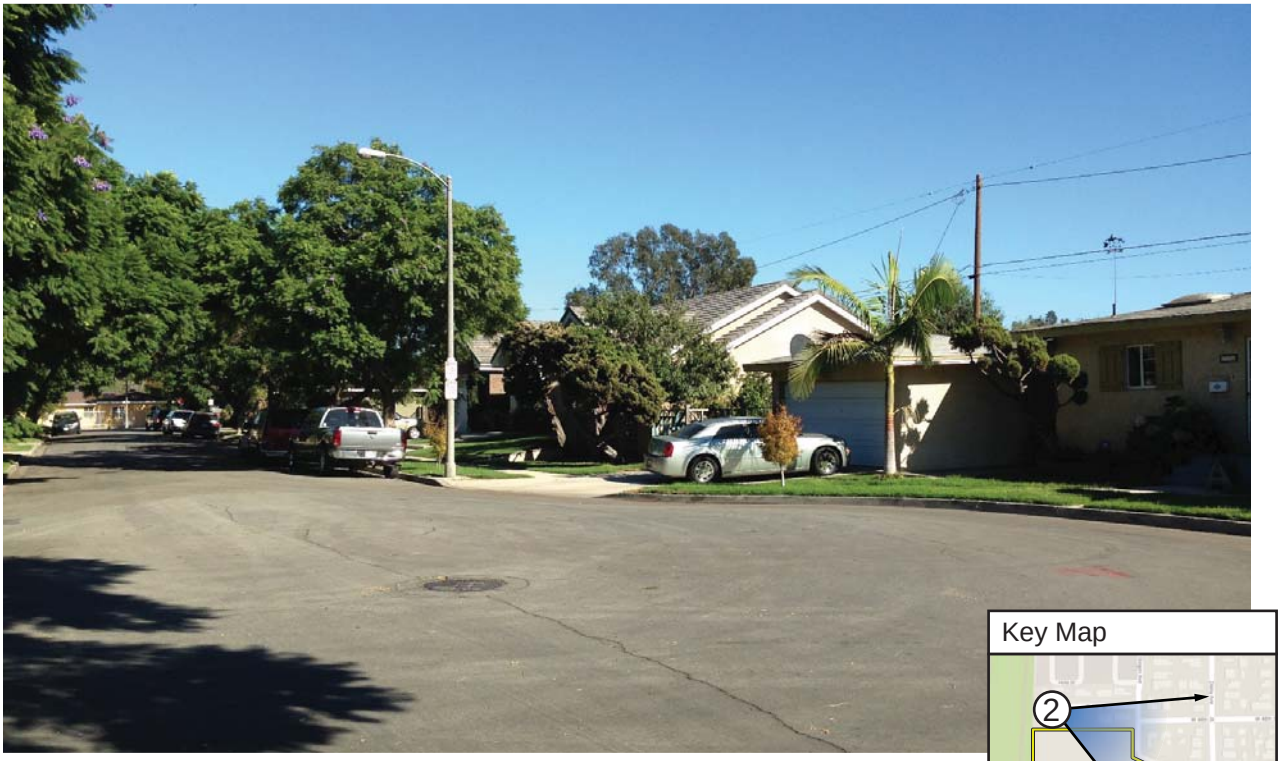


Existing View

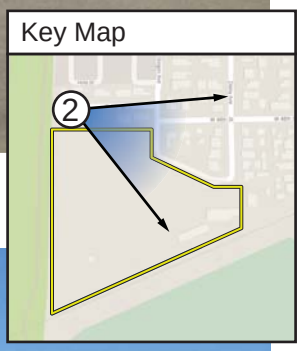
Proposed View

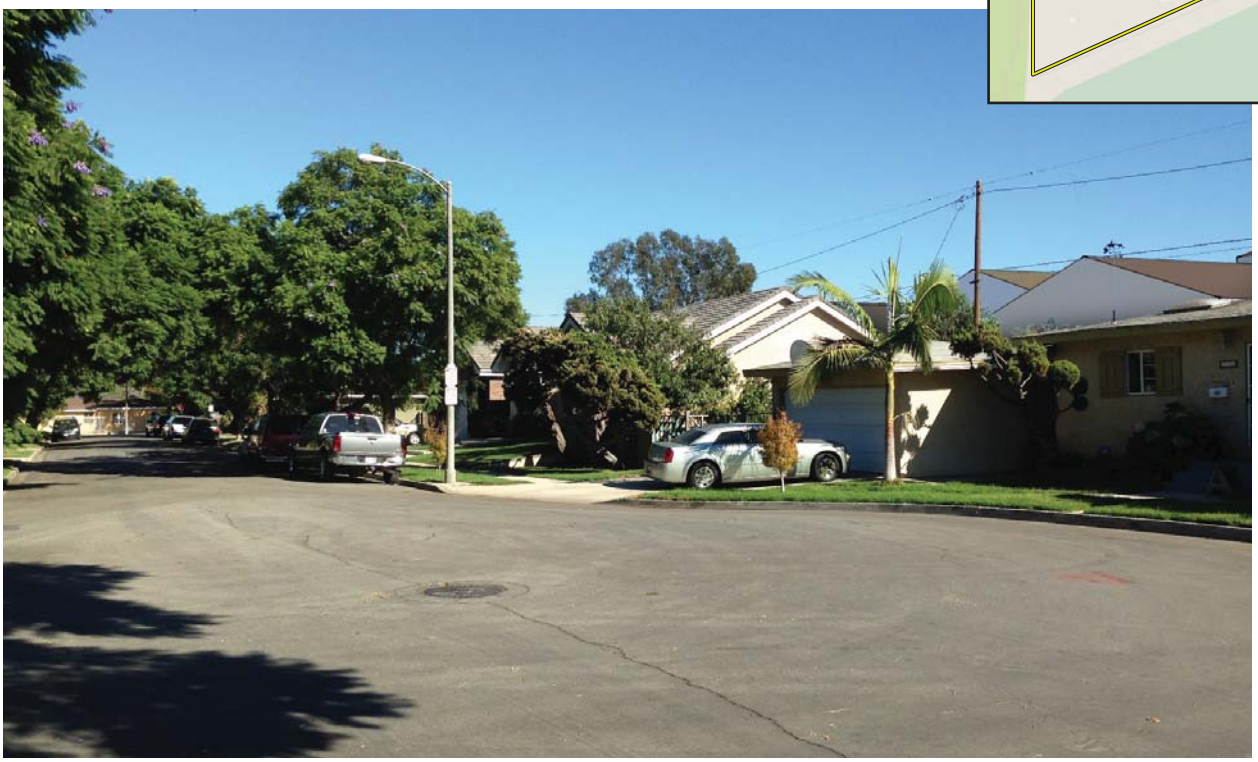
Photosimulation 1: View looking south towards project site from intersection of Daisy Avenue and West 48th Street

Figure 4.1-1



Existing View



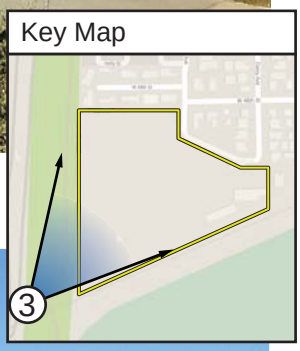


Proposed View

Photosimulation 2: View looking east towards project site from the western terminus of West 48th Street

Figure 4.1-2

Existing View



Proposed View

Photosimulation 3: View looking northeast towards project site from the LA river bicycle and pedestrian path just north of the UP Railroad Bridge

Figure 4.1-3

Impact AES-2 The project site does not contain any scenic resources identified in the City of Long Beach General Plan and would not have a substantial direct effect on any other on- or off-site scenic resources. The proposed project's impact on scenic resources would therefore be Class III, *less than significant*.

As stated in Section 4.1.1c, Policy 1.2 of the Open Space and Recreation Element of the City's General Plan calls on the City to "Protect and improve the community's natural resources, amenities and scenic values including nature centers, beaches, bluffs, wetlands and water bodies." If the proposed project would conflict with this policy or otherwise substantially damage scenic resources, it would have a significant impact on scenic resources.

The project site itself does not contain any of the natural resources mentioned in Policy 1.2. While the Dominguez Gap Wetlands and Los Angeles River are adjacent to the project site, they would remain as scenic resources in the area after completion of the proposed project. Indirect impacts of the proposed project on the visual character and quality of these resources are discussed under Impact AES-3.

Although the proposed project would involve the removal of trees and other vegetation currently on the project site, the City of Long Beach does not have any policy or ordinance protecting trees on private property. Additionally, these trees have limited visibility from surrounding areas due to the fact that the area is fully developed and because of the presence of elevated berms on the western and southeastern boundaries of the site. Lastly, while the proposed project would involve removal of these trees (examples of on-site trees are shown in Figures 2-3a and 2-3b), it would also involve planting 352 new trees on the project site, which would be distributed throughout the project site as shown on Figure 2-7 in Section 2.0.

As part of the Development Agreement that will be incorporated into the Conditions of Approval of the proposed project, the City is requiring certain off-site improvements from the applicant. Among these required improvements are: (1) providing for the continuation of the sidewalk pavement and parkways that terminate north of the properties located at 4774 and 4777 Daisy Avenue, just north of the project site entrance on Daisy Avenue; and (2) continuation of the sidewalk pavements, curb and curb gutters, and parkways on both sides of Oregon Avenue that terminate north of 4768 Oregon Avenue, just north of the project's emergency vehicle access gate. On Daisy Avenue, these improvements may require the removal of up to two existing street trees, as shown in the visual simulation in Figure 4.1-1. On Oregon Avenue, these improvements may require the removal of one street tree, shown in Figure 4.1-4. The project's Development Agreement also, however, requires that the applicant provide for new street trees in these locations. While these street trees would, at least initially, most likely be of smaller size than the trees to be removed (especially the large tree on the west side of Daisy Avenue shown in Figure 4.1-1), they would offset their loss as scenic resources in the long term.

For the reasons discussed above, the proposed project would not conflict with Policy 1.2 of the Open Space and Recreation Element of the City's General Plan or otherwise substantially damage scenic resources, and this impact would be less than significant.

Street Tree on Oregon Avenue south of West 48th Street

Figure 4.1-4

Mitigation Measures. None required.

Significance After Mitigation. Impacts would be less than significant without mitigation.

Impact AES-3 While the proposed project would change the visual character and quality of the project site and, to a lesser degree, its surroundings, it would generally have a high level of visual character and quality and would not conflict with adopted policies of the City of Long Beach related to visual character and quality. The project would therefore have a Class III, *less than significant*, impact related to visual character and quality.

Regulations and policies relating to visual character and quality that would apply to the proposed project are listed in Section 4.1.1c, *Regulatory Setting*. These include goals and policies from the Land Use Element and Conservation Element of the City's General Plan requiring the City to maintain its physical facilities and public rights-of-way at a high level of functional and aesthetic quality, and to create and maintain a productive harmony between man and his environment through conservation of natural resources and protection of significant areas having environmental and aesthetic value. As discussed in Section 4.1.1c, with creation of a new PUD zoning district to be created as part of this entitlement, the proposed project would be consistent with the City's Zoning Ordinance.

If the proposed project conflicted with the goals and policies discussed above, or otherwise had a substantial negative effect on the visual character or quality of the project site or its surroundings, it would have a significant impact related to visual character and quality. The analysis below therefore analyzes the visual character and quality of the project site and its surroundings, both before and after project implementation, in order to determine if this would occur.

The project site is currently vacant and relatively unmaintained, as shown in Figures 2-3a and 2-3b in Section 2.0. For example, Figure 2-3a shows that much of the vegetation that previously existed on the site when it was being used as a Boy Scout Camp, including lawns and trees, has been removed or allowed to die, leaving the ground cover on the site to be mostly dirt and sparse, non-native grasses. The buildings and other facilities associated with the former Boy Scout Camp that remain on the project site, such as the abandoned storage building shown in Figure 2-3b, also generally exhibit a low level of maintenance. Therefore, the project site is characterized by a low level of visual quality, both as a natural habitat and as a built environment.

Construction of the proposed project would change the visual character of the site from largely undeveloped to highly developed, but would generally improve the visual quality of the site by providing new housing, infrastructure, and landscaping on the site. Figures 4.1-5 and 4.1-6 show elevations and renderings of the proposed recreation center and entryway to the project site on Daisy Avenue. Figure 4.1-6 shows elevations of two-story home models, and Figure 4.1-7 shows elevations of proposed three-story home models. These images are taken from the applicant's submittal package, which includes other elevations and renderings of the facilities proposed under the project, and which is reproduced in full in Appendix B of this EIR. As can be seen in the full submittal package, Figures 4.1-6 and 4.1-7 are representative of the general

Source: Urban Arena, June 2014

Entry and Recreation Center Rendering

Figure 4.1-5

REC CENTER
(FRONT)

REC CENTER
(LEFT)

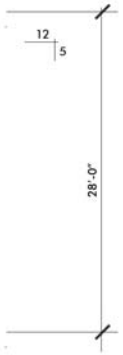
REC CENTER
(RIGHT)

REC CENTER
(REAR)

Source: Urban Arena, June 2014

Entry and Recreation Center Elevations

Figure 4.1-6



Source: Urban Arena, June 2014

Plan 1 Front Elevations

Figure 4.1-7

Source: Urban Arena, June 2014

Plan 2 Front Elevations

Figure 4.1-8

aesthetic character of the elevations of the other home models proposed under the project. As discussed Impact AES-2, the site does not currently contain any significant scenic resources, and it also does not have a high level of visual quality. With the introduction of the structures and landscaping shown on the project site plan (Figure 2-7), the aesthetic value of the site would be improved.

While the proposed project may involve removal of up to four off-site trees, these trees would be replaced as described under Impact AES-2. While these trees would, at least initially, most likely be of smaller size than the trees to be removed (especially the large tree on the west side of Daisy Avenue shown in Figure 4.1-1), this change would not be great enough to significantly impact the overall visual character and quality of the neighborhood.

In summary, for the reasons discussed above, the changes to the project site and its surroundings that would be produced by the proposed project would not be inconsistent with applicable regulations and policies relating to visual character and quality, and would not have a significant negative impact on the overall visual character and quality of the area.

Mitigation Measures. None required.

Significance After Mitigation. Impacts would be less than significant without mitigation.

c. Cumulative Impacts. The planned and pending projects in the vicinity of the project site listed in Table 3-1 of this EIR consist of 13 single-family homes at 2666 East Dominguez Street in the City of Carson, and reconstruction of the Houghton Park Community Center at 6301 Myrtle Avenue in Long Beach. Future projects in Long Beach will be required to adhere to specific development standards in the City's Zoning Ordinance and General Plan designed to protect and enhance the area's aesthetic and visual resources. Additionally, there are no planned or pending projects within any viewshed from which the project site can be seen. The site of the proposed 13 single-family homes project at 2666 East Dominguez Street in Carson is located approximately one mile from the project site, and has no visibility to or from the project site because of distance, intervening structures and vegetation, and the berms and levees along the Los Angeles River and Dominguez Gap Wetlands. The site of the proposed Houghton Park Community Center rebuilt at 6301 Myrtle Avenue in Long Beach is located approximately two miles northeast of the project site, and has no visibility to or from the project site because of distance and intervening structures and vegetation. The project would therefore not have the potential to create cumulative visual impacts with any other known development project in the vicinity. As discussed under Impacts AES-1, AES-2, and AES-3, the proposed project would not have a significant negative impact on the aesthetics of the project site or its surroundings. Although cumulative development may, over time, alter the visual character of this part of Long Beach, it would be subject to the same policies and regulations as the proposed project, and cumulative impacts related to aesthetics would be less than significant.

This page intentionally left blank.

4.2 AIR QUALITY

This section analyzes the proposed project's temporary and long-term impacts to local and regional air quality. Greenhouse gas emissions are discussed in Section 4.4, *Greenhouse Gas Emissions*. This section uses data generated using the California Air Emissions Estimator Model (CalEEMod), which can be found in Appendix C.

4.2.1 Setting

The project site is located in the City of Long Beach, which is part of the South Coast Air Basin (Basin) and under the jurisdiction of the South Coast Air Quality Management District (SCAQMD).

a. Climate and Meteorology. Air quality in the Basin is affected by various emission sources (mobile and industry, etc.) as well as atmospheric conditions such as wind speed, wind direction, temperature, and rainfall, etc. The combination of topography, low mixing height, abundant sunshine, and emissions from the second largest urban area in the United States give the Basin the worst air pollution problem in the nation.

The majority of annual rainfall in the Basin occurs between November and April. Summer rainfall is minimal and is generally limited to scattered thunder showers in coastal regions and slightly heavier showers in the eastern portion of the Basin and along the coastal side of the mountains. The Long Beach WSCMO Station climatological station monitored precipitation from April 1958 to March 2013. Average monthly rainfall measured in Long Beach during that period varied from 2.90 inches in February to 0.42 inch or less between May and October, with an annual total of 12.01 inches.

The Basin experiences a persistent temperature inversion (increasing temperature with increasing altitude) as a result of the Pacific high. This inversion limits the vertical dispersion of air contaminants, holding them relatively near the ground. As the sun warms the ground and the lower air layer, the temperature of the lower air layer approaches the temperature of the base of the inversion (upper) layer until the inversion layer finally breaks, allowing vertical mixing with the lower layer. This phenomenon is observed in midafternoon to late afternoon on hot summer days, when the smog appears to clear up suddenly. Winter inversions frequently break by midmorning.

The combination of stagnant wind conditions and low inversions produces the greatest pollutant concentrations. On days of no inversion or high wind speeds, ambient air pollutant concentrations are lowest. During periods of low inversions and low wind speeds, air pollutants generated in urbanized areas are transported predominantly onshore into Riverside and San Bernardino counties. In the winter, the greatest pollution problem is accumulation of CO and nitrogen oxides (NO_X) due to extremely low inversions and air stagnation during the night and early morning hours. In the summer, the longer daylight hours and the brighter sunshine combine to cause a reaction between hydrocarbons and NO_X to form photochemical smog.

b. Air Pollution Regulation.

Federal Regulations/Standards. Pursuant to the federal Clean Air Act (CAA) of 1970, the EPA established national ambient air quality standards (NAAQS). The NAAQS were established for six major pollutants termed "criteria" pollutants, which are those pollutants for which the federal and State governments have established AAQS, or criteria, for outdoor concentrations in order to protect public health. The current AAQS plus the California standards (which are generally more stringent than federal standards) are shown in Table 4.2.1.

Table 4.2-1
Current Federal and State Ambient Air Quality Standards

Pollutant	Federal Standard	California Standard
Ozone	0.075 ppm (8-hr avg)	0.09 ppm (1-hr avg) 0.07 ppm (8-hr avg)
Carbon Monoxide	9.0 ppm (8-hr avg) 35.0 ppm (1-hr avg)	9.0 ppm (8-hr avg) 20.0 ppm (1-hr avg)
Nitrogen Dioxide	0.053 ppm (annual avg)	0.18 ppm (1-hr avg) 0.030 ppm (annual avg)
Sulfur Dioxide	0.14 ppm (24-hr avg) 0.075 ppm (1-hr avg)	0.04 ppm (24-hr avg) 0.25 ppm (1-hr avg)
Lead	1.5 $\mu g/m^3$ (3-month avg)	1.5 $\mu g/m^3$ (30-day avg)
Particulate Matter (PM_{10})	150 $\mu g/m^3$ (24-hr avg)	20 $\mu g/m^3$ (annual avg) 50 $\mu g/m^3$ (24-hr avg)
Particulate Matter ($PM_{2.5}$)	15 $\mu g/m^3$ (annual avg) 35 $\mu g/m^3$ (24-hr avg)	12 $\mu g/m^3$ (annual avg)

ppm= parts per million
$\mu g/m^3$ = micrograms per cubic meter
Source: California Air Resources Board, http://www.arb.ca.gov/research/aaqs/aaqs2.pdf, 2014.

Data collected at permanent monitoring stations are used by the EPA to classify regions as "attainment" or "nonattainment," depending on whether the regions met the requirements stated in the primary NAAQS. Nonattainment areas are imposed with additional restrictions as required by the EPA.

The EPA established new national air quality standards for ground-level ozone and fine particulate matter in 1997. On May 14, 1999, the Court of Appeals for the District of Columbia Circuit issued a decision ruling that the CAA, as applied in setting the new public health standards for ozone and particulate matter, was unconstitutional and an improper delegation of legislative authority to the EPA. On February 27, 2001, the U.S. Supreme Court upheld the way the government sets air quality standards under the CAA. The Court unanimously rejected industry arguments that the EPA must consider financial costs as well as health benefits in writing standards. The justices also rejected arguments that the EPA took too much lawmaking power from Congress when it set tougher standards for ozone and soot in 1997. Nevertheless, the court dismissed the EPA's policy for implementing new ozone rules, saying that the agency ignored a section of the law that restricts its authority to enforce such rules.

In April 2003, the EPA was cleared by the White House Office of Management and Budget (OMB) to implement the 8-hour ground-level ozone standard. The EPA issued the proposed rule implementing the 8-hour ozone standard in April 2003. The EPA completed final 8-hour nonattainment status on April 15, 2004. The EPA revoked the 1-hour ozone standard on June 15, 2005, and lowered the 8-hour O3 standard from 0.08 parts per million (ppm) to 0.075 ppm on April 1, 2008. The EPA issued the final PM2.5 implementation rule in fall 2004. The EPA lowered the 24-hour PM2.5 standard from 65 to 35 micrograms per cubic meter (µg/m3) and revoked the annual PM10 standard on December 17, 2006. The EPA issued final designations for the 2006 24-hour PM2.5 standard on December 12, 2008.

Descriptions of the criteria pollutants follow.

Ozone. O_3 (smog) is formed by photochemical reactions between oxides of nitrogen and reactive organic gases rather than being directly emitted. Ozone is a pungent, colorless gas typical of Southern California smog. Elevated ozone concentrations result in reduced lung function, particularly during vigorous physical activity. This health problem is particularly acute in sensitive receptors such as the sick, the elderly, and young children. Ozone levels peak during summer and early fall. The entire Basin is designated as a nonattainment area for the State 1-hour and 8-hour ozone standards. The EPA has officially designated the status for the Basin regarding the 8-hour ozone standard as "Extreme." The Basin has until 2024 to attain the federal 8-hour O_3 standard.

Carbon Monoxide. CO is formed by the incomplete combustion of fossil fuels, almost entirely from automobiles. It is a colorless odorless gas that can cause dizziness, fatigue, and impairment to central nervous system functions. The entire Basin is in attainment for the State standards for CO. The Basin is designated as an "Attainment/Maintenance" area under the federal CO standards.

Nitrogen Oxides. Nitrogen dioxide (NO_2), a reddish-brown gas, and nitric oxide (NO), a colorless odorless gas, are formed from fuel combustion under high temperature or pressure. These compounds are referred to as nitrogen oxides, or NOX. NOX is a primary component of the photochemical smog reaction. It also contributes to other pollution problems, including a high concentration of fine particulate matter, poor visibility, and acid deposition (i.e., acid rain). NO_2 decreases lung function and may reduce resistance to infection. The entire Basin is designated as nonattainment for the State NO_2 standard and as an "Attainment/Maintenance" area under the federal NO_2 standard.

Sulfur Dioxide. Sulfur dioxide (SO_2) is a colorless irritating gas formed primarily from incomplete combustion of fuels containing sulfur. Industrial facilities also contribute to gaseous SO_2 levels. SO_2 irritates the respiratory tract, can injure lung tissue when combined with fine particulate matter, and reduces visibility and the level of sunlight. The entire Basin is in attainment for both federal and State SO_2 standards.

Lead. Lead is found in old paints and coatings, plumbing, and a variety of other materials. Once in the blood stream, lead can cause damage to the brain, nervous system, and other body systems. Children are highly susceptible to the effects of lead. The Los Angeles

County portion of the Basin was redesignated as nonattainment for the State and federal standards for lead in 2010.

Particulate Matter. Particulate matter is the term used for a mixture of solid particles and liquid droplets found in the air. Coarse particles (particulate matter less than 10 microns in diameter [PM_{10}]), derive from a variety of sources, including windblown dust and grinding operations. Fuel combustion and resultant exhaust from power plants and diesel buses and trucks are primarily responsible for fine particle ($PM_{2.5}$) levels. Fine particles can also be formed in the atmosphere through chemical reactions. PM_{10} can accumulate in the respiratory system and aggravate health problems such as asthma. The EPA's scientific review concluded that $PM_{2.5}$, which penetrates deeply into the lungs, is more likely than PM_{10} to contribute to the health effects listed in a number of recently published community epidemiological studies at concentrations that extend well below those allowed by the current PM_{10} standards. These health effects include premature death; increased hospital admissions and emergency room visits (primarily the elderly and individuals with cardiopulmonary disease); increased respiratory symptoms and disease (children and individuals with cardiopulmonary disease such as asthma); decreased lung functions (particularly in children and individuals with asthma); and alterations in lung tissue and structure and in respiratory tract defense mechanisms. The Basin is a nonattainment area for the State PM_{10} and $PM_{2.5}$ standards and a nonattainment area for the federal $PM_{2.5}$ standards. The Basin was redesignated as attainment/maintenance for the federal PM_{10} standard in 2013.

Reactive Organic Compounds. Reactive organic compounds (ROCs; also known as ROGs and volatile organic compounds [VOCs]) are formed from combustion of fuels and evaporation of organic solvents. ROCs are not defined criteria pollutants but are a prime component of the photochemical smog reaction. Consequently, ROCs accumulate in the atmosphere more quickly during the winter when sunlight is limited and photochemical reactions are slower.

Sulfates. Sulfates occur in combination with metal and/or hydrogen ions. In California, emissions of sulfur compounds occur primarily from the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur. This sulfur is oxidized to SO_2 during the combustion process and subsequently converted to sulfate compounds in the atmosphere. The conversion of SO_2 to sulfates takes place comparatively rapidly and completely in urban areas of California due to regional meteorological features. The entire Basin is in attainment for the State standard for sulfates.

Hydrogen Sulfide. Hydrogen sulfide (H_2S) is a colorless gas with the odor of rotten eggs. It is formed during bacterial decomposition of sulfur-containing organic substances. Also, it can be present in sewer gas and some natural gas and can be emitted as the result of geothermal energy exploitation. In 1984, a CARB committee concluded that the ambient standard for H_2S is adequate to protect public health and to significantly reduce odor annoyance. The entire Basin is unclassified for the State standard for H_2S.

Visibility-Reducing Particles. Visibility-reducing particles consist of suspended particulate matter, which is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size, and chemical composition, and can be made up of many different materials such as metals,

soot, soil, dust, and salt. The statewide standard is intended to limit the frequency and severity of visibility impairment due to regional haze. The entire Basin is unclassified for the State standard for visibility-reducing particles.

State Regulations/Standards. In 1967, the California Legislature passed the Mulford-Carrell Act, which combined two Department of Health bureaus (the Bureau of Air Sanitation and the Motor Vehicle Pollution Control Board) to establish the California Air Resources Board (CARB). The CARB coordinates and oversees both State and federal air pollution control programs in California. It also oversees activities of local air quality management agencies and maintains air quality monitoring stations throughout the State in conjunction with the Environmental Protection Agency (EPA) and local air districts. The CARB has divided the State into 15 air basins based on meteorological and topographical factors of air pollution.

The CARB identified particulate emissions from diesel-fueled engines (diesel particulate matter [DPM]) as toxic air contaminants (TACs) in August 1998. Following the identification process, CARB was required by law to determine whether there is a need for further control. In September 2000, the CARB adopted the Diesel Risk Reduction Plan (Diesel RRP), which recommends many control measures to reduce the risks associated with DPM and to achieve the goal of 85 percent DPM reduction by 2020.

California Green Building Code. California Green Buildings Standards Code (Cal Green Code) (California Code of Regulations [CCR], Title 24, Part 11) was adopted by the California Building Standards Commission in 2010 and became effective in January 2011. The Code applies to all new constructed residential, nonresidential, commercial, mixed-use, and State-owned facilities, as well as schools and hospitals. Cal Green Code is comprised of Mandatory Residential and Nonresidential Measures and more stringent Voluntary Measures (TIERs I and II).

Mandatory Measures are required to be implemented on all new construction projects and consist of a wide array of green measures concerning project site design, water use reduction, improvement of indoor air quality, and conservation of materials and resources. The Cal Green Building Code refers to Title 24, Part 6 compliance with respect to energy efficiency; however, it encourages 15 percent energy use reduction over that required in Part 6. Voluntary Measures are optional, more stringent measures may be used by jurisdictions to enhance their commitment towards green and sustainable design and achievement of Assembly Bill (AB) 32 goals. Under TIERs I and II, all new construction projects are required to reduce energy consumption by 15 percent and 30 percent, respectively, below the baseline required under the California Energy Commission (CEC), as well as implement more stringent green measures than those required by mandatory code.

Local Regulations and Policies. Local regulations and policies related to air quality are described below.

Regional Air Quality Planning Framework. The 1976 Lewis Air Quality Management Act established the SCAQMD and other air districts throughout the State. The federal CAA Amendments of 1977 required that each state adopt an implementation plan outlining pollution control measures to attain the federal standards in nonattainment areas of the state. The CARB

is responsible for incorporating air quality management plans for local air basins into a State Implementation Plan (SIP) for EPA approval. Significant authority for air quality control within the local air basins has been given to local air districts that regulate stationary source emissions and develop local nonattainment plans.

Regional Air Quality Management Plan. The SCAQMD and the SCAG are responsible for formulating and implementing the Air Quality Management Plan (AQMP) for the Basin. Every 3 years, the SCAQMD prepares a new AQMP, updating the previous plan and having a 20-year horizon. The Final 2012 AQMP was adopted by the SCAQMD on December 7, 2012, and forwarded it to the CARB for review in February 2013. The 2012 AQMP includes the new and changing federal requirements, implementation of new technology measures, and the continued development of economically sound, flexible compliance approaches.

City of Long Beach General Plan. The Air Quality Element (1996) of the Long Beach General Plan includes goals and polices related to air quality. The following goals and policies are applicable to the proposed project:

> ***Goal 6:*** *Minimize particulate emissions from the construction and operation of roads and buildings, from mobile sources, and from the transportation, handling and storage materials.*
>
> ***Policy 6.1:*** *Control Dust. Further reduce particulate emissions from roads, parking lots, construction sites, unpaved alleys, and port operations and related uses.*
>
> ***Goal 7:*** *Reduce emissions through reduced energy consumption.*
>
> ***Policy 7.1:*** *Energy Conservation. Reduce energy consumption through conservation improvements and requirements.*

c. Current Air Quality. The SCAQMD, together with the CARB, maintains ambient air quality monitoring stations in the Basin. The air quality monitoring station closest to the site is the North Long Beach station, and its air quality trends are representative of the ambient air quality in the project area. The pollutants monitored are CO, O_3, NO_2, and SO_2, PM_{10} and $PM_{2.5}$. Table 4.2-2 summarizes the ambient air quality levels measured at these stations between 2011 and 2013.

The only pollutants that exceeded thresholds during the monitoring period were O_3 and $PM_{2.5}$. The ozone standard was exceeded one time in 2013; the $PM_{2.5}$ standard exceeded 4 times in 2012 and twice in 2013.

Table 4.2-2
Ambient Air Quality Data

Pollutant	2011	2012	2013
Ozone, ppm - Worst Hour	0.062	0.067	0.071
Number of days of State exceedances – 8 hour average (>0.07 ppm)	0	0	1
Carbon Monoxide, ppm - Worst 8 Hours	2.56	2.17	No Data
Number of days of State/Federal exceedances (>9.0 ppm)	0	0	0
Nitrogen Dioxide, ppm - Worst Hour	0.106	0.077	0.066
Number of days of State exceedances (>0.18 ppm)	0	0	0
Sulfur Dioxide, ppm – Worst Hour	0.004	0.003	0.001
Number of days of State exceedances (>0.04 ppm)	0	0	0
Particulate Matter <10 microns, $\mu g/m^3$ Worst 24 Hours [1]	43	35	47
Number of samples of State exceedances (>50 $\mu g/m^3$)	0	0	0
Number of samples of Federal exceedances (>150 $\mu g/m^3$)	0	0	0
Particulate Matter <2.5 microns, $\mu g/m^3$ Worst 24 Hours[1]	39.7	49.8	47.2
Number of samples of Federal exceedances (>35 $\mu g/m^3$)	1	4	2

Source: CARB, Annual Air Quality Data Summaries available at http://www.arb.ca.gov

4.2.2 Impact Analysis

a. Methodology and Significance Thresholds.

Methodology. The air quality analysis conforms to the methodologies recommended in the SCAQMD's CEQA Air Quality Handbook (1993). The handbook includes thresholds for emissions associated with both construction and operation of proposed projects.

The SCAQMD's current guidelines, included in its CEQA Air Quality Handbook, were adhered to in the assessment of potential short- and long-term air quality impacts of the proposed project. However, the air quality models identified in the CEQA Air Quality Handbook are outdated; therefore, CalEEMod Version 2013.2.2 was used to quantify the project-related mobile and stationary source emissions.

Both temporary construction emissions and long-term operation emissions were calculated using CalEEMod. Operational emissions were estimated using information provided in the traffic study contained in Appendix C. Both construction and long-term emissions were analyzed based on the regional thresholds established by the SCAQMD and published in the *CEQA Air Quality Handbook*.

Regional Thresholds. To determine whether a proposed project would have a significant impact to air quality, Appendix G of the *CEQA Guidelines* questions whether a project would:

a) *Conflict with or obstruct implementation of the applicable air quality plan;*

b) *Violate any air quality standard or contribute substantially to an existing or projected air quality violation;*

c) *Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors);*

d) *Expose sensitive receptors to substantial pollutant concentrations; or*

e) *Create objectionable odors affecting a substantial number of people.*

Development of the proposed project would add 131 new single family residences to the City of Long Beach. According to the California Department of Finance (2014), the average household density in Long Beach is 2.82 persons per household. Based on this average, the project would add an estimated 369 residents for a total City population of 470,661 residents, a population increase of 0.07% (20,399 residents fewer than SCAG's 2020 growth forecast for Long Beach) (California Department of Finance, May 2014). Growth forecasts were used by SCAQMD to prepare the SCAB Air Quality Management Plan (AQMP). Because development would not cause population growth exceeding forecasts used to prepare the AQMP, the project would not conflict with or obstruct the implementation of that plan and further analysis of criterion a is not warranted.

As discussed in the Initial Study prepared for the project (Appendix A), onsite development would not generate objectionable odors that would affect a substantial number of people. No heavy industrial, agricultural or other uses typically associated with objectionable odors are proposed. Therefore, it is unlikely that the proposed project would generate objectionable odors affecting a substantial number of people. Consequently, threshold e related to objectionable odors are not discussed below.

The SCAQMD has developed specific numeric thresholds that apply to projects within the Basin. The SCAQMD currently recommends that impacts associated with projects with construction-related mass daily emissions that exceed any of the following emissions thresholds should be considered significant:

- *75 pounds per day of ROG*
- *100 pounds per day of NO_x*
- *550 pounds per day of CO*
- *150 pounds per day of SO_x*
- *150 pounds per day of PM_{10}*
- *55 pounds per day of $PM_{2.5}$*

The SCAQMD has also established the following significance thresholds for project operations within the Basin:

- *55 pounds per day of ROG*
- *55 pounds per day of NO_X*
- *550 pounds per day of CO*
- *150 pounds per day of SO_X*
- *150 pounds per day of PM_{10}*
- *55 pounds per day of $PM_{2.5}$*

Localized Significance Thresholds. In addition to the above thresholds, the SCAQMD has developed Localized Significance Thresholds (LSTs) in response to the Governing Board's Environmental Justice Enhancement Initiative (1-4), which was prepared to update the *CEQA Air Quality Handbook*. LSTs were devised in response to concern regarding exposure of individuals to criteria pollutants in local communities. LSTs represent the maximum emissions from a project that will not cause or contribute to an air quality exceedance of the most stringent applicable federal or state ambient air quality standard at the nearest sensitive receptor, taking into consideration ambient concentrations in each source receptor area (SRA), project size, distance to the sensitive receptors and other factors. However, LSTs only apply to emissions within a fixed stationary location, including idling emissions during both project construction and operation. LSTs have been developed for NO_x, CO, PM_{10} and $PM_{2.5}$. LSTs do not apply to mobile sources such as cars on a roadway (Final Localized Significance Threshold Methodology, SCAQMD, June 2003). As such, LSTs for operational emissions do not apply to onsite development as the majority of emissions would be generated by cars on the roadways.

LSTs have been developed for emissions within areas up to five acres in size, with air pollutant modeling recommended for activity within larger areas. The SCAQMD provides lookup tables for project sites that measure one, two, or five acres. The project area measures approximately 10 acres and is located in Source Receptor Area 4 (SRA-4)(South Coastal Los Angeles County). For the purposes of this EIR, it is assumed that construction activity at the project site would generally occur within a five-acre area at any one time. The applicable LSTs for construction on a five acre site in SRA-4 are shown in Table 4.2-3. According to the SCAQMD's publication, *Final Localized Significant (LST) Thresholds Methodology*, the use of LSTs is voluntary, to be implemented at the discretion of local agencies. The City of Long Beach has chosen to apply LST thresholds to the proposed project in response to neighborhood concerns over localized air quality impacts expressed during the NOP scoping process (see Section 1.1 of this EIR).

Table 4.2-3
SCAQMD LSTs for Emissions in SRA-4

Pollutant	Allowable emissions as a function of receptor distance in meters from a five-acre site (lbs/day)				
	25	**50**	**100**	**200**	**500**
Gradual conversion of NO_x to NO_2	123	118	126	141	179
CO	1,530	1,982	2,613	4,184	10,198
PM_{10} (construction)	14	42	58	92	191
PM_{10} (operation)	4	10	14	22	46
$PM_{2.5}$ (construction)	8	10	18	39	120
$PM_{2.5}$ (operation)	2	3	5	10	29

Source: SCAQMD. http://www.aqmd.gov/CEQA/handbook/LST/appC.pdf.

b. Project Impacts and Mitigation Measures.

Impact AQ-1 Onsite construction activity would generate temporary emissions. These construction emissions would be within SCAQMD thresholds for all criteria pollutants except NOx and within all LSTs for all criteria pollutants except PM_{10} and $PM_{2.5}$. Mitigation is required to lower construction emissions below these thresholds. Therefore, construction-related impacts would be *Class II*, significant but mitigable.

Project construction would generate temporary air pollutant emissions. These impacts are associated with fugitive dust (PM_{10} and $PM_{2.5}$) and exhaust emissions from heavy construction vehicles, in addition to ROG that would be released during the drying phase upon application of architectural coatings. Construction would generally consist of site preparation, grading, construction of the proposed buildings, paving, and architectural coating.

The site preparation phase would involve the greatest concentration of heavy equipment use and the highest potential for fugitive dust emissions. This analysis assumes that 40,000 cubic yards of soil would be imported from off-site and phased during the grading process.

The project would be required to comply with SCAQMD Rule 403, which specifies measures to reduce fugitive dust. These measures are required to be implemented at all construction sites located within the South Coast Air Basin. Therefore, the following conditions, which are required to reduce fugitive dust in compliance with SCAQMD Rule 403, were included in CalEEMod for the site preparation and grading phases of construction.

1. ***Minimization of Disturbance.*** *Construction contractors should minimize the area disturbed by clearing, grading, earth moving, or excavation operations to prevent excessive amounts of dust.*

2. ***Soil Treatment.*** *Construction contractors should treat all graded and excavated material, exposed soil areas, and active portions of the construction site, including unpaved on-site roadways to minimize fugitive dust. Treatment shall include, but not necessarily be limited to, periodic watering, application of environmentally safe soil stabilization materials, and/or roll compaction as appropriate. Watering shall be done as often as necessary, and at least three times daily, preferably in the late morning and after work is done for the day.*
3. ***Soil Stabilization.*** *Construction contractors should monitor all graded and/or excavated inactive areas of the construction site at least weekly for dust stabilization. Soil stabilization methods, such as water and roll compaction, and environmentally safe dust control materials, shall be applied to portions of the construction site that are inactive for over four days. If no further grading or excavation operations are planned for the area, the area shall be seeded and watered until landscape growth is evident, or periodically treated with environmentally safe dust suppressants, to prevent excessive fugitive dust.*
4. ***No Grading During High Winds.*** *Construction contractors should stop all clearing, grading, earth moving, and excavation operations during periods of high winds (20 miles per hour or greater, as measured continuously over a one-hour period).*
5. ***Street Sweeping.*** *Construction contractors should sweep all on-site driveways and adjacent streets and roads at least once per day, preferably at the end of the day, if visible soil material is carried over to adjacent streets and roads.*

Construction emissions modeling for site preparation, grading, building construction, paving, and application of architectural coatings is based on the overall scope of the proposed development and construction phasing, which is expected to begin late 2015 and extend through late 2018. In addition to SCAQMD Rule 403 requirements, emissions modeling also accounts for the use of low-VOC paint (150 g/L for nonflat coatings) as required by SCAQMD Rule 1113.

Table 4.2-4 shows estimated maximum daily emissions for each year of construction. The highest daily emissions would be in 2015, during which grading and site preparation are expected to occur. Construction emissions would exceed SCAQMD regional thresholds for NO_x during the first year of construction.

LSTs only apply to those emissions generated by onsite construction activities, such as emissions from onsite grading, and do not apply to offsite mobile emissions. The LSTs for sensitive receptors 25 meters from the project site were used to illustrate the closest receptors, which are located within approximately 75 feet (25 meters) of the project site to the north and east. Without controls on the use of grading equipment and duration of daily grading activities, emissions generated by temporary construction activities would exceed LSTs for PM_{10} and $PM_{2.5}$ during the first year of construction (see Table 4.2-4). Therefore, impacts related to construction emissions would be potentially significant.

Table 4.2-4
Estimated Construction Maximum
Daily Air Pollutant Emissions (lbs/day)

Year	Emissions (lbs/day)					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
2015	8.4	103.5	69.0	.12	21.3	12.8
2016	7.9	96.4	65.8	.12	12.2	7.4
2017	3.3	27.7	22.4	.03	2.4	1.8
2018	61.8	24.5	21.4	.03	2.1	1.5
Maximum lbs/day, unmitigated[a]	**61.8**	**103.5**	**69.0**	**0.12**	**21.3**	**12.8**
SCAQMD Thresholds	*75*	*100*	*550*	*150*	*150*	*55*
Threshold Exceeded?	**No**	**Yes**	**No**	**No**	**No**	**No**
Local Significance Thresholds [b] (LSTs)	*n/a*	*123*	*1,530*	*n/a*	*14*	*8*
Threshold Exceeded?	**n/a**	**No**	**No**	**n/a**	**Yes**	**Yes**
Maximum lbs/day mitigated[c]	**61.8**	**97.7**	**65.2**	**0.11**	**10.3**	**6.7**
SCAQMD Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**
LST Threshold Exceeded?	**n/a**	**No**	**No**	**n/a**	**No**	**No**

Source: SCAQMD LST Spreadsheet for a 5-acre site and CalEEMod; see Appendix C for calculations.

[a] Maximum daily emissions based on highest in any construction period.

[b] LSTs are for a five-acre project in SRA-4 within a distance of 25 meters from the site boundary

[c] Mitigation measures focus on reducing heavy equipment operations during construction to reduce NO_x, PM_{10} and $PM_{2.5}$ emissions.

Fugitive dust mitigation effectiveness based on SCAQMD information obtained from WRAP Fugitive Dust Handbook, September 7, 2006.

Mitigation Measures. Mitigation measure AQ-1 would be required to reduce NOx emissions to below SCAQMD thresholds and the PM_{10} and $PM_{2.5}$ emissions to below LSTs during grading activities. Mitigation Measure AQ-1 is based on modifications to CalEEMod default values assigned for the mix of heavy construction equipment and the duration of use per day. With restrictions on heavy equipment operating on-site during grading, the SCAQMD thresholds and LSTs would be met.

AQ-1 **Construction Equipment Restrictions.** During demolition, the contractor shall limit the use of excavators to one. During grading, the contractor shall limit use of excavators to two operating no more than seven hours per day. During any phase of construction, the contractor shall limit the operation of scrapers to two operating seven hours per day, and shall not allow the operation of cranes on-site.

Significance After Mitigation. Temporary construction-related air quality impacts would be less than significant with mitigation.

Impact AQ-2 **Operation of the proposed project would generate air pollutant emissions in the long-term. However, emissions would not exceed SCAQMD operational significance thresholds for any criteria pollutants. Therefore, operational air quality impacts would be Class III, *less than significant*.**

Long-term air pollutant emissions are those associated with stationary sources and mobile sources involving any project-related changes. The proposed project would result in an increase in both stationary and mobile source emissions. Stationary source emissions would come from additional natural gas consumption for onsite buildings and electrical demand. Mobile source emissions would come from project-related vehicle trips. Project-related vehicle trips are largely dependent on the number of residences. The net increase in long-term operational emissions associated with the proposed project calculated using CalEEMod, are shown in Table 4.2-5. The net increase of all criteria pollutants would be less than the corresponding SCAQMD daily emission thresholds. Therefore, project-related long-term impacts to regional air quality would not be significant.

Table 4.2-5
Long-Term Operational Emissions (lbs/day)

Emission Source	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Area	9.26	0.65	43.0	0.1	5.4	5.44
Energy	0.11	0.98	0.42	0.01	0.08	0.08
Mobile	4.43	13.16	52.78	0.15	9.8	2.75
Total Project Emissions	**13.8**	**14.79**	**96.2**	**0.26**	**15.28**	**8.27**
SCAQMD Thresholds	*55*	*55*	*550*	*150*	*150*	*55*
Threshold Exceeded?	***No***	***No***	***No***	***No***	***No***	***No***

Source: see Appendix C for CalEEMod calculations;

Mitigation Measures. Mitigation would not be required since impacts would be less than significant.

Significance After Mitigation. Impacts would be less than significant without mitigation.

c. Cumulative Impacts. SCAQMD's approach to determining cumulative air quality impacts for criteria air pollutants is to first determine whether the proposed project would result in a significant project-level impact to regional air quality based on SCAQMD significance thresholds. If the project does not exceed SCAQMD thresholds, then the lead agency needs to consider the additive effects of related projects only if the proposed project is part of an ongoing regulatory program or is contemplated in a Program EIR, and the related projects are located within an approximately one mile of the proposed project site. If there are related projects within the vicinity (one-mile radius) of the project site, that are part of an ongoing regulatory program or are contemplated in a Program EIR, then the additive effect of the related projects should be considered.

Each related project listed in Section 3.0 would generate emissions during construction and operation. Neither the proposed project nor the related projects are part of an ongoing regulatory program or are contemplated in a Program EIR. The SCAQMD therefore recommends that project-specific air quality impacts be used to determine the potential cumulative impacts to regional air quality. As discussed under Impact AQ-2, the proposed project would result in an increase in daily operational emissions; however, emissions would not exceed the SCAQMD thresholds.

Because the proposed project would not generate emissions that exceed the SCAQMD's operational thresholds and the project is consistent with the AQMP, operation of the project would not make a cumulatively considerable contribution with regard to criteria pollutants. Therefore, the project's contribution to cumulative regional long term air quality impacts would not be cumulatively considerable.

As discussed under Impact AQ-1, construction-generated emissions would not exceed SCAQMD significance thresholds for ROG, NOx, CO, SO_2, PM_{10} and $PM_{2.5}$. Mitigation measure AQ-1 is provided as a voluntary measure to reduce NOx emissions during construction to below LSTs. Therefore, the project's contribution to temporary cumulative regional air quality impacts would not be cumulatively considerable.

4.3 BIOLOGICAL RESOURCES

This section assesses potential impacts to biological resources from the proposed project, including potential impacts to special status species, and impacts related to consistency with local policies or ordinances protecting biological resources. The impact analysis is based on review of the California Natural Diversity Database (CNDDB), USGS topographic maps, the Initial Study for the proposed project, and a reconnaissance site visit conducted by Rincon Consultants, Inc. on August 6, 2014.

4.3.1 Setting

a. Regional Site Setting. The project site is regionally located in the City of Long Beach, Los Angeles County, California approximately 5.5 miles directly north of the mouth of the Los Angeles River at Terminal Island. The City of Long Beach lies on the coastal plain of the Los Angeles Basin, and is bordered on the northwest by the City of Los Angeles and on the southeast by Orange County. The regional climate within the basin is Mediterranean, characterized by warm summers, mild winters, infrequent seasonal rain fall, and year-round average temperature ranging from a cold season low of 46°F to a warm season high of 83°F. Average annual precipitation in the region is approximately 12 inches, with most of the annual precipitation occurring between the months of December and March.

b. Project Site Setting. The project site is bordered by the Union Pacific (UP) Railroad on the south, the Dominguez Gap Wetlands and Los Angeles River with existing bike and pedestrian trails on the west, and existing residential neighborhoods to the north and east. The Virginia Country Club golf course is located just south of the UP Railroad tracks to the south of the site.

c. Vegetation. The project site is developed and/or disturbed from previous uses. On-site structures, although not currently in use, include an amphitheater, deck, five buildings, two tool sheds, an old mobile home, and a parking lot. The site is landscaped with a scattering of mature native and non-native trees such as coast live oak (*Quercus agrifolia*), Fremont cottonwood (*Populus fremontii*), California sycamore (*Platanus racemosa*), black locust (*Robinia pseudoacacia*), gum (*Eucalyptus* sp.), white mulberry (*Morus alba*), carrotwood (*Cupaniopsis anacardioides*), various species of pine (*Pinus* sp.), and shamel ash (*Fraxinus uhdei*). Several of the eucalyptus trees onsite have been recently cut down, an activity that is not part of the proposed project. Ground cover in open areas occurring within the project site primarily consists of non-native grass and dirt that undergo regular disturbance in the form of heavy foot traffic and landscape maintenance.

d. Wildlife. While the site is primarily developed, landscaped, or otherwise previously disturbed, vegetation onsite does provide habitat for wildlife species that commonly occur within urban developed areas of Los Angeles County. Vegetation at the site is constrained by adjacent urbanized land uses, so species diversity and abundance are less than would occur within a less urban environment; however, the mature native and non-native trees (i.e., eucalyptus trees and cottonwoods) may serve as roosting and nesting habitat for raptors and other birds. Avian species observed onsite during the field survey included house sparrow (*Passer domesticus*), house finch (*Haemorhous mexicanus*), rock dove (*Columba livia*), mourning

dove (*Zenaida macroura*), and Cooper's hawk (*Accipiter cooperii*). The mature trees onsite also contribute woody debris to the duff in the understory, which provides foraging areas for small mammals and microclimates suitable for amphibians and reptiles found in ruderal and landscape areas. Common mammal and reptile species such as California ground squirrel (*Spermophilus beecheyi*) and western fence lizard (*Sceloporus occidentalis*) were observed on site.

4.3.2 Sensitive Biological Resources

a. Regulatory Setting. Regulatory authority over biological resources is shared by Federal, State, and local authorities under a variety of statutes and guidelines. Primary authority for biological resources lies within the land use control and planning authority of local jurisdictions (in this instance, the City of Long Beach). The California Department of Fish and Wildlife (CDFW) is a trustee agency for biological resources throughout the state under CEQA and also has direct jurisdiction under the Fish and Game Code of California. Under the State and Federal Endangered Species Act, the CDFW and the U.S. Fish and Wildlife Service (USFWS) also have direct regulatory authority over species formally listed as Threatened or Endangered. The U.S. Army Corps of Engineers (USACE) has regulatory authority over specific biological resources, namely wetlands and waters of the United States, under Section 404 of the federal Clean Water Act. Statutes within the Clean Water Act, California Fish and Game Code, and Regional Water Quality Control Boards (RWQCB) protect wetlands and riparian habitat.

The Long Beach General Plan Conservation Element includes the following goal for wildlife management.

Goal 1 — *To promote measures and plans which protect and preserve distinctive types of vegetation including mammals, birds, marine organisms and especially endangered species.*

The Long Beach General Plan Conservation Element also includes the following goals for vegetation management.

Goal 1 — *To provide controls for land supporting distinctive native vegetation, wildlife species which can be used for ecologic, scientific and educational purposes.*

Goal 3 — *To locate, define, and protect other beneficial natural habitats in and about the City.*

b. Special Status Species and Vegetation Communities. For the purpose of this document, special status species are those plants and animals listed, proposed for listing, or candidates for listing as threatened or endangered by the USFWS under the federal Endangered Species Act; those listed or proposed for listing, or candidates for listing as rare, threatened, or endangered by the CDFW under the state Endangered Species Act; animals designated as "Fully Protected," "Species of Special Concern," or "Rare," by the CDFW; and those species on the *Special Vascular Plants, Bryophytes, and Lichens List* (CDFW 2010). The Federal Migratory Bird Treaty Act (MBTA) and the California Fish and Game (CFC) Code (§§ 3503, 3503.5, 3511, 3513, and 3800) protect most native birds. In addition, the federal and state endangered species acts protect some bird species listed as threatened or endangered. CDFG Code § 3513 relies on the

MBTA by prohibiting any take or possession of birds that are designated by the MBTA as migratory nongame birds, except as allowed by federal rules and regulations promulgated pursuant to the MBTA. In addition, CDFG Codes (§§ 3503, 3503.5, 3511, and 3800) further protect nesting birds, including passerine birds, raptors, and state "fully protected" birds. These regulations generally apply during the breeding season, because unlike adult birds, eggs and chicks are unable to escape impacts. Section 3503.5 of the Fish and Game Code of California protects birds of prey, and their nests and eggs against take, possession, or destruction. Vegetation in California is accorded sensitivity ranking by the CDFW using the community classification system of Holland (1986), and the more recently accepted series concepts of Sawyer et al. (2009).

Plant Communities of Special Concern. In response to legislative mandates, regulatory authorities have defined sensitive biological resources as those specific organisms that have regionally declining populations such that they may become extinct if declining population trends continue. Habitats are also considered sensitive biological resources if they have limited distributions, have high wildlife value, include sensitive species, or are particularly susceptible to disturbance. No plant communities of special concern identified by the CNDDB occur within the vicinity of the project site.

Special-Status Plants. Review of the CNDDB indicated that 10 special-status plants are known to occur within five miles of the project site (Table 4.3-1). Based on soil surveys of Los Angeles County, California, Southeastern Part (USDA 2014a), the project site consists of urban soil. Urban soil is material that has been manipulated, disturbed or transported by human activities. Typically, urban soil does not support the meticulous soil requirements that are characteristic of special-status plant species known to occur within the area. Furthermore, open areas occurring within the project site primarily consists of non-native grass ground cover and dirt, and undergo regular disturbance in the form of heavy foot traffic and landscape maintenance. Therefore, special-status plant species are not expected to occur within the project site.

Special-Status Wildlife. Review of the CNDDB identified 9 special-status wildlife species that may occur within five miles of the project site (Table 4.3-2). Special-Status wildlife species typically have very specific habitat requirements which may include, but are not limited to, vegetation communities, elevation levels and topography, and availability of primary constituent elements (i.e., space for individual and population growth, breeding, foraging, and shelter). Given the high degree of urbanization around the project site and lack of suitable habitat for each species below, the only special-status wildlife species listed in Table 4.3-2 with potential to occur on site is silver-haired bat (*Lasionycteris noctivagans*) and bank swallow (*Riparia riparia*). Silver-haired bat is known to hibernate in small tree hollows, beneath sections of tree bark, in buildings, and in wood piles, all of which occur onsite. Bank swallow is not expected to nest onsite, due to the lack of breeding habitat. However, given the site's close proximity to a railroad bridge crossing over Dominguez Gap, bank swallow may forage on site. In addition, one special-status bird species, Cooper's hawk, which is a California Species of Special Concern, has also been included in Table 4.3-2. This species was observed foraging onsite and is presumed to nest within the eucalyptus trees bordering the southern project boundary.

Table 4.3-1
Special Status Plant Species Potentially Occurring in the Project Site Vicinity

Scientific Name **Common Name**	**Status Fed/State ESA CRPR G-Rank/S-Rank**	**Habitat Requirements**	**Potential for Occurrence / Basis for Determination**
Atriplex coulteri Coulter's saltbush	--/ -- 1B.2 G2/S2	Perennial herb. Blooms Mar-Oct. Coastal bluff scrub, coastal dunes, coastal scrub, valley and foothill grassland. Ocean bluffs, ridgetops, as well as alkaline low places. 10-440m (30-1445ft).	**None.** Habitat requirements not present on site.
Atriplex parishii Parish's brittlescale	--/ -- 1B.1 G1G2/S1	Annual herb. Blooms Jun-Oct. Alkali meadows, vernal pools, chenopod scrub, playas. Usually on drying alkali flats with fine soils. 25-1900m (80-6235ft).	**None.** Habitat requirements not present on site.
Centromadia parryi ssp. *australis* Southern tarplant	--/ -- 1B.1 G3T2/S2	Annual herb. Blooms May-Nov. Marshes and swamps (margins), valley and foothill grassland. Often in disturbed sites near the coast at marsh edges; also in alkaline soils sometimes with saltgrass. Sometimes on vernal pool margins. 0-425m (0-1395ft).	**None.** Habitat requirements not present on site.
Chloropyron maritimum ssp. *maritimum* Salt marsh bird's-beak	FE/ SE 1B.2 G4?T1/S1	Annual herb (hemiparasitic). Blooms May-Oct. Coastal salt marsh, coastal dunes. Limited to the higher zones of the salt marsh habitat. 0-30m (0-100ft).	**None.** Habitat requirements not present on site.
Lasthenia glabrata ssp. *coulteri* Coulter's goldfields	--/ -- 1B.1 G4T3/S2.1	Annual herb. Blooms Feb-Jun. Coastal salt marshes, playas, valley and foothill grassland, vernal pools. Usually found on alkaline soils in playas, sinks, and grasslands. 1-1400m (3-4595ft).	**None.** Habitat requirements not present on site.
Navarretia prostrata Prostrate vernal pool navarretia	--/ -- 1B.1 G2/S2	Annual herb. Blooms Apr-Jul. Coastal scrub, valley and foothill grassland, vernal pools. Alkaline soils in grassland, or in vernal pools. Mesic, alkaline sites. 15-700m (50-2300ft).	**None.** Habitat requirements not present on site.
Orcuttia californica California Orcutt grass	FE/ SE 1B.1 G1/S1	Annual herb. Blooms Apr-Aug. Vernal pools. 15-660m (50-660ft).	**None.** Habitat requirements not present on site.
Pentachaeta lyonii Lyon's pentachaeta	FE/ SE 1B.1 G2/S2	Annual herb. Blooms Mar-Aug. Chaparral, valley and foothill grassland, coastal scrub. Edges of clearing in chaparral, usually at the ecotone between grassland and chaparral or edges of firebreaks. 30-630m (100-2065ft).	**None.** Habitat requirements not present on site.
Suaeda esteroa Estuary seablite	-- / -- 1B.2 G3 / S2	Perennial herb. Blooms May-Jan. Marshes and swamps. Coastal salt marshes in clay, silt, and sand substrates. 0-5m (0-15ft).	**None.** Habitat requirements not present on site.

Table 4.3-1
Special Status Plant Species Potentially Occurring in the Project Site Vicinity

Scientific Name **Common Name**	**Status Fed/State ESA CRPR G-Rank/S-Rank**	**Habitat Requirements**	**Potential for Occurrence / Basis for Determination**
Symphyo-trichum defoliatum San Bernardino aster	-- / -- 1B.2 G2 / S2	Perennial rhizomatous herb. Blooms Jul-Nov. Meadows and seeps, marshes and swamps, coastal scrub, cismontane woodland, lower montane coniferous forest, grassland. Vernally mesic grassland or near ditches, streams and springs; disturbed areas. 2-2040m (6-6695ft).	**None.** Habitat requirements not present on site.

Regional Vicinity refers to within a five-mile radius of the site.

FE = Federally Endangered FT = Federally Threatened

SE = State Endangered ST = State Threatened SR = State Rare

CRPR (CNPS California Rare Plant Rank):
1A=Presumed Extinct in California
1B=Rare, Threatened, or Endangered in California and elsewhere
2=Rare, Threatened, or Endangered in California, but more common elsewhere
3=Need more information (a Review List)
4=Plants of Limited Distribution (a Watch List)

CRPR Threat Code Extension:
.1=Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)
.2=Fairly endangered in California (20-80% occurrences threatened)
.3=Not very endangered in California (<20% of occurrences threatened)

G-Rank/S-Rank = Global Rank and State Rank as per NatureServe and CDFW's CNDDB RareFind 5.

Table 4.3-2
Special-Status Wildlife Species Potentially Occurring in the Project Site Vicinity

Scientific Name **Common Name**	**Status Fed / State ESA CDFW G-Rank / S-Rank**	**Habitat Requirements**	**Potential for Occurrence / Basis for Determination**
Birds			
Accipiter cooperii Cooper's Hawk	-- / -- WL G5 / S3	Woodland, chiefly of open, interrupted or marginal type. Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river flood-plains; also live oaks.	**Present.** Several individuals observed perched in trees on site or flying overhead. Presumed to nest within the eucalyptus trees bordering the southern project boundary.
Empidonax traillii extimus Southwestern willow flycatcher	FE / SE -- G5T1T2 / S1	Riparian woodlands in Southern California.	**None.** Habitat requirements not present on site.

Table 4.3-2
Special-Status Wildlife Species Potentially Occurring in the Project Site Vicinity

Scientific Name **Common Name**	**Status Fed / State ESA CDFW G-Rank / S-Rank**	**Habitat Requirements**	**Potential for Occurrence / Basis for Determination**
Riparia riparia Bank swallow	-- /ST -- G5 / S2S3	Colonial nester; nests primarily in riparian and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.	**Low.** May forage on site, but not expected to nest. Habitat requirements not present on site; however, railroad bridge crossing over Dominguez Gap is located approximately 200 feet southwest of the site .
Mammals			
Lasionycteris noctivagans silver-haired bat	-- / -- SSC G5 / S3S4	Hibernate in small tree hollows, beneath sections of tree bark, in buildings, rock crevices, in wood piles, and on cliff faces	**Moderate**. Marginally suitable roosting habitat (i.e. tree cavities and buildings) present on site.
Nyctinomops macrotis Big free-tailed bat	-- / -- SSC G4 / S2	Low-lying arid areas in Southern California. Need high cliffs or rocky outcrops for roosting sites. Feeds principally on large moths.	**None.** Habitat requirements not present on site.
Perognathus longimembris pacificus Pacific pocket mouse	FE / -- SSC G5T1 / S1	Inhabits the narrow coastal plains from the Mexican border north to El Segundo, Los Angeles Co. Seems to prefer soils of fine alluvial sands near the ocean, but much remains to be learned.	**None.** Habitat requirements not present on site.
Reptiles			
Phrynosoma blainvillii Coast horned lizard (=Blainvilli's)	-- / -- SSC G3G4 / S3S4	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects.	**None.** Habitat requirements not present on site.
Invertebrates			
Cicindela gabbii western tidal-flat tiger beetle	-- / -- -- G2G4 / S1	Inhabits areas adjacent to non-brackish water along the coast of California from San Francisco Bay to northern Mexico. Clean, dry, light-colored sand in the upper zone. Subterranean larvae prefer moist sand not affected by wave action.	**None.** Habitat requirements not present on site.
Danaus plexippus Monarch butterfly	-- / -- -- G5 / S3	Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico. Roosts located in wind-protected tree groves (eucalyptus, Monterey pine, cypress), with nectar and water sources nearby.	**None.** Habitat requirements not present on site.

Table 4.3-2
Special-Status Wildlife Species Potentially Occurring in the Project Site Vicinity

Scientific Name **Common Name**	**Status Fed / State ESA CDFW G-Rank / S-Rank**	**Habitat Requirements**	**Potential for Occurrence / Basis for Determination**
Glaucopsyche lygdamus palosverdesensis Palos Verdes blue butterfly	FE / -- -- G5T1 / S1	Restricted to the cool, fog-shrouded, seaward side of Palos Verdes Hills, Los Angeles County. Host plant is Astragulus trichopodus var. lonchus (locoweed).	**None.** Host plant not present on site.

Regional Vicinity refers to within a five-mile radius of the site.
FT = Federally Threatened *SE = State Endangered*
FC = Federal Candidate Species *ST = State Threatened*
FE = Federally Endangered *SR = State Rare*
SSC = CDFW Species of Special Concern *FP = CDFW Fully Protected*
G-Rank/S-Rank = Global Rank and State Rank as per NatureServe and CDFW's CNDDB RareFind4.

c. Drainages and Wetlands. The project site does not contain any federally protected waters or wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) (USFWS 2014b); riparian habitat or streambed as defined by Section 1600 et seq. of the Fish and Game Code; or "waters of the State," pursuant to Section 401 of the Clean Water Act or the Porter-Cologne Water Quality Control Act.

d. Protected Trees. Trees occurring within the City of Long Beach along City streets or on other City property are afforded protection under Section 14.28, *Trees and Shrubs* (Ordinance C-7642) of the Long Beach Municipal Code and through the City of Long Beach's Tree Maintenance Policy. The purpose of these regulations is to preserve and protect the community's urban forest and to promote the health and safety of City trees, from the time they are planted through maturity. The project site does not occur within City-owned property; and therefore does not contain protected trees.

e. Other Regulated Areas. No native wildlife corridors or native wildlife nursery sites are identified within the project site. The project site is also not within any habitat conservation plans or any other regional planning areas, as identified by the City of Long Beach or any other local, regional, state or federal agency. The project site is located approximately nine miles northeast of coastal California gnatcatcher (*Polioptila californica californica*) critical habitat as indicated by the USFWS Critical Habitat portal (http://criticalhabitat.fws.gov/) and the CDFW Biogeographic Information and Observation System (BIOS) (http://bios.dfg.ca.gov/). No other critical habitat is located within the vicinity of the project site.

4.3.3 Impact Analysis

Data used for this analysis included aerial photographs, topographic maps, the CNDDB database, biological impact assessments, accepted scientific texts to identify species, and field surveys.

a. Methodology and Significance Thresholds. The assessment of biological impacts is based on a review of project site information and conditions. Pursuant to the State *CEQA Guidelines* Appendix G Environmental Checklist, the proposed project would create a significant impact relative to biological resources if it would result in any of the following conditions:

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

The Initial Study (Appendix A) prepared for the proposed project determined that project implementation would not result in any impacts related to a Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. Consequently, these issues are not analyzed further in this section. The analysis that follows focuses on the remaining impact criteria listed above.

b. Project Impacts and Mitigation Measures.

Impact BIO-1 Implementation of the proposed project has the potential to affect special-status species, including nesting raptors and migratory birds. This is a Class II, *significant but mitigable* impact.

The project site is developed/disturbed and does not support any plant 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. Therefore, implementation of the proposed project would not have a substantial direct or indirect impact on any candidate, sensitive, or special status plant species identified in such plans, policies, or regulations.

Certain special status wildlife species may, however, be present. The silver-haired bat, which is a CDFW Species of Special Concern, may utilize onsite trees as roosting habitat. Additionally, on-site trees and landscaping are considered suitable habitat for nesting migratory birds protected by the MBTA and the CFG Code such as bank swallow and Cooper's hawk, which may occur on the site . The proposed project would involve clearance and grading of the entire project site, including removal of any trees currently on the site. As such, the project has the potential to impact special-status species. Therefore, impacts to special-status species are considered potentially significant.

Mitigation Measures. The following measures would mitigate potentially significant impacts relating to the potential presence of special-status wildlife species and protected nesting birds in on-site trees and to ensure compliance with the MBTA and the CFG Code.

BIO-1(a) **Preconstruction Bat Surveys.** Prior to any building demolition, brush clearing, tree clearing, or grading activities associated with the project, a qualified biologist shall complete a preconstruction survey to determine the presence or absence of any maternity roosting of special-status bats. If special-status bats are present, demolition and/or clearing within 100 feet of an active maternity roost shall be delayed until after the roosting season (April 15 through August 31).

BIO-1(b) **Raptor and Nesting Bird Protection**. To avoid disturbance of nesting and special status birds including raptorial species protected by the Federal Migratory Bird Treaty Act and Sections 3503, 3503.5, and 3513 of the CFGC, activities related to the project, including, but not limited to, vegetation removal, ground disturbance, and construction and demolition shall occur outside of the bird breeding season (January 1 through September 1).

If construction must begin within the breeding season, then a pre-construction nesting bird survey shall be conducted no more than three days prior to initiation of ground disturbance and vegetation removal. The nesting bird pre-construction survey shall be conducted within the disturbance footprint and a 500-foot buffer as allowable without trespassing on private lands outside the project site. The survey shall be conducted by a biologist familiar with the identification of raptors and special status species known to occur in Los Angeles County using typical methods.

If nests are found, a buffer ranging in size from 25 to 500 feet (25 feet for urban-adapted species such as Anna's hummingbird and California towhee and up to 500 feet for certain raptors) depending upon the species, the proposed work activity, and existing disturbances associated with land uses outside of the site, shall be determined and demarcated by the biologist with bright orange construction fencing, flagging, construction lathe, or other

means to mark the boundary. All construction personnel shall be notified as to the existence of the buffer zone and to avoid entering the buffer zone during the nesting season. No ground disturbing activities shall occur within this buffer until the avian biologist has confirmed that breeding/nesting is completed and the young have fledged the nest.

Significance After Mitigation. With implementation of Mitigation Measures BIO-1(a) and BIO-1(b), potential impacts to special status wildlife and nesting birds would be reduced to a less than significant level.

Impact BIO-2 With enforcement of consultation requirements contained in the project's Development Agreement, and permitting requirements contained in the City's Municipal Code, the proposed project would not conflict with any adopted policy of the City of Long Beach protecting biological resources. This is a Class III, *less than significant* impact.

As explained in Section 4.3.2d above, regulations and policies related to biological resources that would apply to the proposed project include Section 14.28, *Trees and Shrubs* (Ordinance C-7642) of the Long Beach Municipal Code (LBMC) and the City of Long Beach's Tree Maintenance Policy. These regulations contain various requirements designed to preserve and protect the community's urban forest and to promote the health and safety of City trees, from the time they are planted through maturity, but it only applies to City-owned trees, including street trees. The project site is on private property and any trees that have been or may in the future be removed from the project site are not subject to this policy, and such activities would therefore not conflict with this ordinance or policy. However, sidewalk, curb, and gutter extensions required by the Conditions of Approval of the proposed project may require replacement of up to two street trees on Daisy Avenue south of West 48th Street, and one street tree on Oregon Avenue. The Conditions of Approval require the applicant to provide for new street trees in these locations. Additionally, Section 14.28.060 of the LBMC requires that no person may remove any tree planted along City streets without first obtaining a permit from the Director of Public Works. These requirements will help ensure that new street trees are properly selected and installed. The proposed project would therefore not conflict with any adopted policy of the City of Long Beach protecting trees, and impacts would be less than significant.

Mitigation Measures. Impacts would be less than significant and therefore no mitigation is necessary.

Significance After Mitigation. Impacts would be less than significant without mitigation.

Impact BIO-3 The proposed project would not have a substantial adverse effect on any riparian habitat, federally protected wetlands, or other sensitive natural communities or migratory corridors and would therefore have a Class III, *less than significant* impact in this regard.

As discussed in the *Setting*, the project site does not contain any riparian habitat, jurisdictional drainages/wetlands, suitable habitat for special-status plant species, or migratory corridors as identified in local or regional plans, policies, and regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service. The Dominguez Gap Wetlands, which parallel the Los Angeles River from just upstream of the 405 Freeway to upstream of Compton Creek, is located immediately west of the project site. Although the Los Angeles River itself is contained in a concrete-lined channel, the 37-acre East Basin of the Dominguez Gap Wetlands adjacent to the project site includes approximately one mile of constructed wetlands and native upland habitat that supports foraging and nesting/breeding habitat for native and migratory wildlife. The Dominguez Gap Wetlands, and associated Los Angeles River, however, are separated from the project site by a berm/levee with pedestrian and horseback trails; thus, no direct impacts to habitat would occur. Surface flows eventually drain from the project site to the wetlands and the river through an existing storm culvert along the southern boundary of the project. However, as discussed in Section 4.8, *Hydrology*, proposed hydrological plans of the site include implementing a system of stormwater management techniques that would minimize runoff from the project site. The project would be required to comply with the NPDES General Construction Permit, which would prevent polluted runoff as described in Impact HWQ-1 in Section 4.8, *Hydrology*.

Mitigation Measures. None required.

Significance After Mitigation. Impacts would be less than significant without mitigation.

c. Cumulative Impacts. Cumulative impacts for biological resources consider both localized and regional impacts. Section 3.3, *Cumulative Projects Setting* of this EIR contains both a list of currently planned and pending projects in the general vicinity, which includes 3.3 acres of new City park and 131 new single family homes, and also a discussion of expected growth in the City of Long Beach, which is projected by SCAG to grow by approximately 0.6% per year over the next 20 years. Significance for cumulative impacts to biological resources is based upon:

- *The cumulative contribution of other approved and proposed development to fragmentation of open space in the project site's vicinity;*
- *The loss of sensitive habitats and species;*
- *Contribution of the proposed project to urban expansion into natural areas; and*
- *Isolation of open space within the proposed project by future projects in the vicinity.*

The project's impacts on biological resources have been determined in this section of the EIR to be less than significant. Furthermore, the project's contribution to cumulative land use change (caused by the proposed change in land use from a former Boy Scout camp to residential development) would not be cumulatively considerable compared to the reduction and fragmentation of native habitats (including sensitive habitats), loss of native plant species diversity and populations, and reduction in native wildlife diversity and populations that has already occurred in this highly urbanized area. Therefore, the project's contribution to cumulative impacts is not significant.

This page intentionally left blank.

4.4 CULTURAL RESOURCES

The information and analysis presented in this section is based on a Cultural Resources Study prepared for the proposed project by Rincon Consultants, Inc. in October 2014, included as Appendix D of his EIR.

4.4.1 Setting

a. Historical Background.

Prehistory. The project site is located in the southern coastal region of California. The prehistoric chronological sequence is generally divided into four periods: Early Man, Milling Stone, Intermediate, and Late Prehistoric. The Early Man Horizon (ca. 10000-6000 B.C.) is represented by numerous sites identified along the mainland coast and Channel Islands. Early Man Horizon sites are generally associated with a greater emphasis on hunting than later horizons, though recent data indicates that the economy was a diverse mixture of hunting and gathering, including a significant focus on aquatic resources. The Millingstone Period, (6000-3000 B.C.), is characterized by an ecological adaptation to collecting suggested by the appearance and abundance of well-made milling implements. A broad spectrum of food resources were consumed, including small and large terrestrial mammals, sea mammals, birds, shellfish, fishes, and other littoral and estuarine species, yucca, agave, seeds, and other plant products. The Intermediate Horizon (3000 B.C. – A.D. 500) is characterized by a shift toward a hunting and maritime subsistence strategy. A noticeable trend occurred toward greater adaptation to local resources including a broad variety of fish, land mammal, and sea mammal along the coast. Tool kits for hunting, fishing, and processing food and other resources reflect this increased diversity, with flake scrapers, drills, various projectile points, and shell fishhooks being manufactured. An increase in mortars and pestles became more common, indicating an increasing reliance on acorn. The Late Prehistoric Horizon (A.D. 500 - Historic Contact) saw further increase in the diversity of food resources. More classes of artifacts were observed during this period and high quality exotic lithic materials were used for small, finely worked projectile points associated with the bow and arrow.

Ethnography. The project lies within an area traditionally occupied by the Native American group known as the Gabrielino. The name Gabrielino was applied by the Spanish to those natives that were attached to Mission San Gabriel. Today, most contemporary Gabrielino prefer to identify themselves as Tongva. Tongva territory included the Los Angeles basin and southern Channel Islands as well as the coast from Aliso Creek in the south to Topanga Creek in the north. The Tongva language belongs to the Takic branch of the Uto-Aztecan language family, which can be traced to the Great Basin region.

The Tongva established large permanent villages and smaller satellite camps throughout their territory. Society was organized along patrilineal non-localized clans, a common Takic pattern. Tongva subsistence was oriented around acorns supplemented by roots, leaves, seeds, and fruits of a wide variety of plants. Meat sources included large and small mammals, freshwater and saltwater fish, shellfish, birds, reptiles, and insects. Tongva employed a wide variety of tools and implements to gather and hunt food. The digging stick, the bow and arrow, traps, nets, blinds, throwing sticks and slings, spears, harpoons, and hooks were common tools. Like

the Chumash, the Tongva made oceangoing plank canoes (known as ti'at) capable of holding 6 to 14 people and used for fishing, travel, and trade between the mainland and the Channel Islands.

History. Spanish exploration of California began when Juan Rodriguez Cabrillo led the first European expedition into the region in 1542. For more than 200 years after his initial expedition, Spanish, Portuguese, British, and Russian explorers sailed the California coast and made limited inland expeditions, but they did not establish permanent settlements. On September 8, 1771, Fathers Pedro Cambón and Angel Somera established the Mission San Gabriel de Arcángel near the present-day city of Montebello. In addition to Mission San Gabriel, the Spanish also established a pueblo (town) in the Los Angeles Basin known as El Pueblo de la Reina de los Angeles de la Porciúncula in 1781. This pueblo was one of only three pueblos established in Alta California and eventually became the City of Los Angeles. It was also during this period that the Spanish crown began to deed ranchos to prominent citizens and soldiers. To manage and expand their herds of cattle on these large ranchos, colonists enlisted the labor of the surrounding Native American population. Native populations were also affected by the missions who were responsible for their administration as well as converting the population to Christianity. The increased European presence during this period led to the spread of disease which devastated the native populations.

The Mexican Period commenced when news of the success of the Mexican War of Independence (1810-1821) against the Spanish crown reached California in 1822. This period saw the federalization and distribution of mission lands in California with the passage of the Secularization Act of 1833. This Act federalized mission lands and enabled Mexican governors in California to distribute former mission lands to individuals in the form of land grants. Successive Mexican governors made more than 700 land grants between 1822 and 1846, putting most of the state's lands into private ownership for the first time. The land within which the project site is located was once part of Rancho Los Nietos, which was granted to Manuel Nieto in 1874. His rancho would be later divided among his heirs, a portion of which became Rancho Los Cerritos, which includes the project site.

The American Period officially began with the signing of the Treaty of Guadalupe Hidalgo in 1848, in which the United States agreed to pay Mexico $15 million for the conquered territory. This period saw many ranchos in California sold or otherwise acquired by Americans and the land subdivided into agricultural parcels or towns. Many ranchos in Los Angeles County were sold or otherwise acquired by Americans in the mid-1800s, and most were subdivided into agricultural parcels or towns. Nonetheless, ranching retained its importance and, by the late 1860s, Los Angeles was one of the top dairy production centers in the West. By 1876, the county had a population of 30,000. Ranching was supplanted by farming and urban professions during the late nineteenth century due to droughts and increased population growth.

Rancho Los Cerritos was sold by Manuel Nieto's heir to Jonathan Temple, who built a ranch house on the land approximately 0.25 miles from the current project site. Rancho Los Cerritos was then sold to Thomas and Benjamin Flint and Lewellyn Bixby, who began subdividing and selling the land in the 1870s. By 1884, the developing community had adopted the name of Long Beach. Expansion of transportation networks and further growth led to the incorporation of Long Beach in 1888. The City became a major oil producer beginning in the 1920s (Franks and

Lambert 1985) and has continued to grow as a major transportation center, shipping industry hub, and tourist destination. Today, Long Beach is the busiest port on the West Coast and is one of the most populous cities in California, with an estimated 2014 population of 470,292 (California Department of Finance, May 2014).

b. Existing Conditions.

Cultural. A records search was conducted for the project site at the California Historical Information System (CHRIS), South Central Coastal Information Center at California State University, Fullerton. The records search identified no previously recorded archaeological sites within the project site. One previously recorded cultural resource under two different numbers (P-19-000696 and P-19-179270) is located within a 0.5-mile radius of the project site. This resource is the historic Rancho Los Cerritos adobe, which is listed as a California Historical Landmark.

The records search also identified one previously conducted cultural resource study that included a portion of the project site. This study consisted of a cultural resources survey which did not identify any resources within the project site.

A Sacred Lands File search by the Native American Heritage Commission did not identify any sacred lands within the project site (see Appendix D).

A cultural resources survey was conducted for the proposed project. The survey did not identify any surficial archaeological resources within the project site. The survey did identify several extant buildings, structures, and objects within the project site. Archival research indicates these built environment features are components of a former Boy Scouts of America facility known as the Will J. Reid Scout Park. The Scout Park was evaluated and recommended not eligible for listing in the California Register of Historical Resources (CRHR) (Ramirez, Haas, and Steely, 2014).

Paleontological. The project site is located in the southwest portion of the Los Angeles Basin in the Peninsular Ranges geomorphic province. The Los Angeles Basin is subdivided into the following four structural blocks: the southwestern block, the northwestern block, the central block and the northeastern block. The project site is generally located within the boundary area of the southwestern and central blocks. This boundary area is referred to as the Newport-Inglewood Structural Zone, which can be traced from Beverly Hills to Newport Bay where it trends offshore.

A single sedimentary geologic unit has been mapped within the project area: Holocene aged alluvial sediments (Qa) are mapped as generally underlying the entire project site. Holocene/Pleistocene aged nonmarine terrace deposits (Qt) are mapped south of the southern boundary of the project site and to the west of the project site.

Quaternary Geologic Units. The Quaternary units mapped within the project site include the Holocene aged alluvial sediments. Additionally, Holocene/Pleistocene aged nonmarine terrace deposits are mapped in the vicinity of the project site. The Holocene sediments are generally considered to be too young to contain fossils, and disturbance of these sediments have a low potential to impact significant paleontological resources; however, based on the presence

of possible Pleistocene sediments in the project site vicinity, Holocene sediments are likely underlain by Pleistocene aged deposits at unknown depths. Pleistocene terrace deposits consist of fluvially deposited remnants of Pleistocene age stream channels and/or floodplains, left in a stair step sequence. Based on the presence of nonmarine terrace deposits at the surface within 250 feet of the project site, these deposits may occur at a relatively shallow depth (3-5 feet) throughout the project site. Pleistocene aged terrace deposits have been found to contain scientifically significant paleontological resources in separate studies covering southern California and North America.

Paleontological Sensitivity. Paleontological sensitivity refers to the potential for a geologic unit to produce scientifically significant fossils. Direct impacts to paleontological resources occur when earthwork activities, such as grading or trenching, cut into the geologic deposits (formations) within which fossils are buried and physically destroy the fossils. Since fossils are the remains of prehistoric animal and plant life, they are considered to be nonrenewable. Such impacts have the potential to be significant. Sensitivity is determined by rock type, past history of the geologic unit in producing significant fossils, and fossil localities recorded from that unit. Paleontological sensitivity is derived from the known fossil data collected from the entire geologic unit, not just from a specific survey.

Currently, two generally accepted paleontological sensitivity classifications are used: the Society of Vertebrate Paleontology (SVP) system outlined in the SVP Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources (SVP, 2010) and the Bureau of Land Management (BLM) Potential Fossil Yield Classification (PFYC) system outlined in the BLM Instruction Memorandum (IM) No. 2008-009 (BLM, 2009). The BLM system allows for a finer level of classification than the more general SVP system. The City of Long Beach General Plan does not provide any specific guidance on paleontological sensitivity; however, based on the geologic units present within the project site, the SVP classification system provides a sufficient level of detail for assessing paleontological sensitivity within the project site. Affected geologic formations are classified based on the relative abundance of vertebrate fossils and significant non-vertebrate fossils using a scale of high, undetermined, low and no paleontological sensitivity, depending upon the resource sensitivity of the impacted geologic formations. The specific criteria applied for each sensitivity category are presented below and extracted directly from the SVP Guidelines:

- **High Potential:** Rock units from which vertebrate or significant invertebrate, plant, or trace fossils have been recovered are considered to have a high potential for containing additional significant paleontological resources. Rocks units classified as having high potential for producing paleontological resources include, but are not limited to, sedimentary formations and some volcaniclastic formations (e. g., ashes or tephras), and some low-grade metamorphic rocks which contain significant paleontological resources anywhere within their geographical extent, and sedimentary rock units temporally or lithologically suitable for the preservation of fossils (e. g., middle Holocene and older, fine-grained fluvial sandstones, argillaceous and carbonate-rich paleosols, cross-bedded point bar sandstones, fine-grained marine sandstones, etc.). Paleontological potential consists of both (a) the potential for yielding abundant or significant vertebrate fossils or for yielding a few significant fossils, large or small, vertebrate, invertebrate, plant, or trace fossils and (b) the importance of recovered evidence for new and significant taxonomic, phylogenetic, paleoecologic, taphonomic, biochronologic, or stratigraphic

data. Rock units which contain potentially datable organic remains older than late Holocene, including deposits associated with animal nests or middens, and rock units which may contain new vertebrate deposits, traces, or trackways are also classified as having high potential.

- **Undetermined Potential:** Rock units for which little information is available concerning their paleontological content, geologic age, and depositional environment are considered to have undetermined potential. Further study is necessary to determine if these rock units have high or low potential to contain significant paleontological resources. A field survey by a qualified professional paleontologist to specifically determine the paleontological resource potential of these rock units is required before a paleontological resource impact mitigation program can be developed. In cases where no subsurface data are available, paleontological potential can sometimes be determined by strategically located excavations into subsurface stratigraphy.

- **Low Potential:** Reports in the paleontological literature or field surveys by a qualified professional paleontologist may allow determination that some rock units have low potential for yielding significant fossils. Such rock units will be poorly represented by fossil specimens in institutional collections, or based on general scientific consensus only preserve fossils in rare circumstances and the presence of fossils is the exception not the rule, e.g. basalt flows or Recent colluvium. Rock units with low potential typically will not require impact mitigation measures to protect fossils.

- **No Potential:** Some rock units have no potential to contain significant paleontological resources, for instance high-grade metamorphic rocks (such as gneisses and schists) and plutonic igneous rocks (such as granites and diorites). Rock units with no potential require no protection or impact mitigation measures relative to paleontological resources.

In general terms, for geologic units with high sensitivity, full-time monitoring typically is recommended during any project-related ground disturbance. For geologic units with low sensitivity, protection or salvage efforts typically are not required. For geologic units with undetermined sensitivity, field surveys by a qualified paleontologist are usually recommended to specifically determine the paleontological potential of the rock units present within the study area. For geologic units with no sensitivity, a paleontological monitor is not required. Table 4.4-1 shows the mapped geologic units within the project site, their age and paleontological sensitivity.

Table 4.4-1
Geologic Units within the Project Site

Geologic Unit*	Age*	Notes	Paleontological Sensitivity (SVP)
Alluvial sediments (Qa) (mapped at surface)	Holocene	Generally consider too young to contain fossils.	Low
Quaternary nonmarine terrace deposits (Qt) (present at unknown depth below surface deposits	Holocene(?) Pleistocene(?)	Known to produce significant fossils in southern California	High

** Source: Jennings (1962)*

c. Regulatory Setting.

State.

California Register of Historical Resources. The California Register of Historical Resources (California Register, or CRHR) is a guide to cultural resources that must be considered when a government agency undertakes a discretionary action subject to CEQA. The California Register helps government agencies identify, evaluate, and protect California's historical resources, and indicates which properties are to be protected from substantial adverse change (Pub. Resources Code, Section 5024.1(a)). The California Register is administered through the State Office of Historic Preservation (SHPO), which is part of the California State Parks system.

A cultural resource is evaluated under four California Register criteria to determine its historical significance. A resource must be significant at the local, state, or national level in accordance with one or more of the following criteria set forth in the *State CEQA Guidelines* at Section 15064.5(a)(3):

1) *It is associated with events that have made a significant contribution to the broad pattern of California's history and cultural heritage;*
2) *It is associated with the lives of persons important in our past;*
3) *It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or*
4) *It has yielded, or may be likely to yield, information important in prehistory or history.*

In addition to meeting one or more of the above criteria, the California Register requires that sufficient time must have passed to allow a "scholarly perspective on the events or individuals associated with the resource." Fifty years is used as a general estimate of the time needed to understand the historical importance of a resource according to SHPO publications. The California Register also requires a resource to possess integrity, which is defined as "the authenticity of a historical resource's physical identity evidenced by the survival of characteristics that existed during the resource's period of significance. Integrity is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association." Archaeological resources can sometimes qualify as "historical resources" [*State CEQA Guidelines*, Section 15064.5(c)(1)]. In addition, Public Resources Code Section 5024 requires consultation with SHPO when a project may impact historical resources located on State-owned land.

Two other programs are administered by the state: California Historical Landmarks and California "Points of Historical Interest." California Historical Landmarks are buildings, sites, features, or events that are of statewide significance and have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other historical value. California Points of Historical Interest are buildings, sites, features, or events that are of local (city or county) significance and have anthropological, cultural, military,

political, architectural, economic, scientific or technical, religious, experimental, or other historical value.

Native American Consultation. Prior to the adoption or amendment of a general plan proposed on or after March 1, 2005, Government Code Sections 65352.3 and 65352.4 require a city or county to consult with local Native American tribes that are on the contact list maintained by the Native American Heritage Commission. The purpose is to preserve or mitigate impacts to places, features, and objects described in Public Resources Code Sections 5097.9 and 5097.993 (Native American sanctified cemetery, place of worship, religious or ceremonial site, or sacred shrine located on public property) that are located within a city or county's jurisdiction. The proposed project requires a general plan amendment; therefore, the City of Long Beach has initiated consultation by mailing letters to Native American groups/individuals listed by the Native American Heritage Commission.

Human Remains. Section 7050.5 of the California Health and Safety Code states that in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the remains are discovered has determined whether or not the remains are subject to the coroner's authority. If the human remains are of Native American origin, the coroner must notify the Native American Heritage Commission within 24 hours of this identification. The Native American Heritage Commission will identify a Native American Most Likely Descendant (MLD) to inspect the site and provide recommendations for the proper treatment of the remains and associated grave goods. *CEQA Guidelines* Section 15064.5 directs the lead agency (or applicant), under certain circumstances, to develop an agreement with the Native Americans for the treatment and disposition of the remains.

Public Resources Code Section 5097.5. California Public Resources Code Section 5097.5 prohibits excavation or removal of any "vertebrate paleontological site…or any other archaeological, paleontological or historical feature, situated on public lands, except with express permission of the public agency having jurisdiction over such lands." Public lands are defined to include lands owned by or under the jurisdiction of the state or any city, county, district, authority or public corporation, or any agency thereof. Section 5097.5 states that any unauthorized disturbance or removal of archaeological, historical, or paleontological materials or sites located on public lands is a misdemeanor.

CEQA. The *State CEQA Guidelines* Section 15064.5 definition of a "historical resource" is presented in Section 4.4.2(a), *Methodology and Significance Thresholds* below. CEQA requires that historical resources and unique archaeological resources be taken into consideration during the CEQA review process (Public Resources Code, Section 21083.2). If feasible, adverse effects to the significance of historical resources must be avoided, or significant effects mitigated [*CEQA Guidelines* Section 15064.5(b)(4)].

If the cultural resource in question is an archaeological resource, *CEQA Guidelines* Section 15064.5(c)(1) requires that the lead agency first determine if the resource is a historical resource as defined in Section 15064.5(a). If the resource qualifies as a historical resource, potential adverse impacts must be considered in the same manner as a historical resource (California

Office of Historic Preservation 2001:5). If the archaeological resource does not qualify as a historical resource but does qualify as a "unique archaeological resource," then the archaeological resource is treated in accordance with Public Resources Code Section 21083.2 [see also *CEQA Guidelines* Section 15064.5(c)(3)]. "Unique archaeological resource" means 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:

- *Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.*
- *Has a special and particular quality such as being the oldest of its type or the best available example of its type.*
- *Is directly associated with a scientifically recognized important prehistoric or historic event or person.*

In practice, most archaeological sites that meet the definition of a unique archaeological resource will also meet the definition of a historical resource.

Treatment options under Public Resources Code Section 21083.2 include activities that preserve such resources in place in an undisturbed state. Other acceptable methods of mitigation include excavation and curation or study in place without excavation and curation (if the study finds that the artifacts would not meet one or more of the criteria for defining a "unique archaeological resource").

Local.

City of Long Beach General Plan. The Historic Preservation Element of the Long Beach General Plan includes goals and policies to protect archaeological and historical resources. The goals and policies applicable to the proposed project are presented below.

Goal 1	*Maintain and support a comprehensive, citywide historic preservation program to identify and protect Long Beach's historic, cultural, and archaeological resources.*
Policy 1.1	*The City shall comply with City, State, and Federal historic preservation regulations to ensure adequate protection of the City's cultural, historic, and archaeological resources.*
Policy 1.2	*The City shall maintain its status as a Certified Local Government (CLG) and ensure that CLG requirements are implemented as the key components of the City's historic preservation program.*
Policy 1.4	*The City shall use public input to help shape the historic preservation program.*
Goal 2	*Protect historic resources from demolition and inappropriate alterations through the use of the City's regulatory framework, technical assistance, and incentives.*

Policy 2.5	*The City shall enforce historic preservation codes and regulations.*
Policy 2.6	*The City shall implement and promote incentives for historic preservation.*
Policy 2.7	*The City shall encourage and support public, quasi-public, and private entities in local preservation efforts, including the designation of historic resources and the preservation of designated resources.*
Goal 5	*Integrate historic preservation policies into City's community development, economic development, and sustainable-city strategies.*
Policy 5.2	*The City shall consider historic preservation as a basis for neighborhood improvement and community development.*
Policy 5.3	*The City shall consider historic preservation goals and policies when making community and economic development decisions and determining sustainable-city strategies.*
Policy 5.7	*The City shall promote historic preservation as a sustainable land use practice.*

4.4.2 Impact Analysis

a. Methodology and Significance Thresholds.

According to Appendix G of the *State CEQA Guidelines*, impacts related to cultural resources from the proposed project would be significant if the project would:

- *Cause a substantial adverse change in the significance of an historical resource as defined in Section 15064.5;*
- *Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5;*
- *Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature of paleontological or cultural value;*
- *Disturb any human remains, including those interred outside of formal cemeteries*

The significance of a cultural resource deposit and subsequently the significance of any impact is determined by whether or not that deposit can increase our knowledge of the past. The determining factors are site content and degree of preservation. A finding of archaeological significance follows the criteria established in the *State CEQA Guidelines*.

CEQA Guidelines Section 15064.5 (Determining the Significance of Impacts to Archaeological Resources) states:

> *(3) […] Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the California Register of Historical Resources (Pub. Res. Code, § 5024.1, Title 14 CCR, Section 4852) including the following:*

(A) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

(B) Is associated with the lives of persons important in our past;

(C) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

(D) Has yielded, or may be likely to yield, information important in prehistory or history.

(4) The fact that a resource is not listed in, or determined to be eligible for listing in the California Register of Historical Resources, not included in a local register of historical resources (pursuant to section 5020.1(k) of the Public Resources Code), or identified in an historical resources survey (meeting the criteria in section 5024.1(g) of the Public Resources Code) does not preclude a lead agency from determining that the resource may be an historical resource as defined in Public Resources Code sections 5020.1(j) or 5024.1.

(b) A project with an effect that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment.

Historical resources are "significantly" affected if there is demolition, destruction, relocation, or alteration of the resource or its surroundings. Generally, impacts to historical resources can be mitigated to below a level of significance by following the Secretary of the Interior's *Guidelines for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings* or the Secretary of the Interior's *Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings* [13 PRC 15064.6 (b)]. In some circumstances, documentation of an historical resource by way of historic narrative photographs or architectural drawings will not mitigate the impact of demolition below the level of significance [13 PRC 15126.4 (b)(3)]. Preservation in place is the preferred form of mitigation for a "historical resource of an archaeological nature" as it retains the relationship between artifact and context, and may avoid conflicts with groups associated with the site [PRC 15126.4 (b)(3)(A)]. Historic resources of an archaeological nature and "unique archaeological resources" can be mitigated to below a level of significance by:

- *Relocating construction areas such that the site is avoided;*
- *Incorporation of sites within parks, greenspace, or other open space;*
- *"Capping" or covering the site with a layer of chemically stable soil before building; or;*
- *Deeding the site into a permanent conservation easement. [PRC 15126.4 (b)(3)(B)].*

If an archaeological resource does not meet either the historic resource or the more specific "unique archaeological resource" definition, impacts do not need to be mitigated [13 PRC 15064.5 (e)]. Where the significance of a site is unknown, it is presumed to be significant for the purpose of the EIR investigation.

b. Project Impacts and Mitigation Measures.

Impact CR-1 Construction of the proposed project would involve ground-disturbing activities such as grading, surface excavation, and placement of imported fill, which have the potential to unearth or adversely impact previously unidentified archaeological resources. Impacts would be Class II, *significant but mitigable*.

Construction of the proposed project would involve ground-disturbing activities such as grading, surface excavation (such as trenching for utility lines), and placement of imported fill. The project site is located in an area of high archaeological sensitivity due to its proximity to Rancho Los Cerritos (P-19-000696/P-19-179270). This resource is a registered California Historical Landmark and contains human burials as well as a variety of prehistoric and historic artifacts.

No archaeological resources have been identified within the project site. However, the nearby presence of Rancho Los Cerritos increases the likelihood of encountering subsurface deposits. Ground-disturbing construction activities therefore have the potential to unearth or adversely impact previously unidentified archaeological resources.

If human remains are unearthed, State Health and Safety Code Section 7050.5 requires that no further disturbance shall occur until the County Coroner (depending on the jurisdiction in which the discovery occurs) has made the necessary findings as to origin and disposition pursuant to Public Resources Code Section 5097.98. If the remains are determined to be of Native American descent, the coroner has 24 hours to notify the NAHC. The NAHC would then identify the person(s) thought to be the Most Likely Descendent (MLD) of the deceased Native American, who would then help determine what course of action should be taken in dealing with the remains.
Adverse impacts would occur if construction activities damage known or unknown cultural resources. Impacts to such resources would be potentially significant.

Mitigation Measures. The following mitigation measures would reduce impacts related to previously unidentified cultural resources to a less than significant level.

CR-1(a) Archaeological Resource Construction Monitoring. At the commencement of any ground-disturbing construction activities, including grading, surface excavation, and placement of imported fill, within the project site, an orientation meeting shall be conducted by an archaeologist for construction workers associated with ground-disturbing procedures. The orientation meeting shall describe the possibility of exposing unexpected archaeological resources and directions as to what steps are to be taken if such a find is encountered.

A qualified archaeologist shall be present during and monitor all earth moving activities within native soil. In the event that unearthed prehistoric or archaeological cultural resources, historic artifacts, or human remains are encountered during project construction, all work

in the vicinity of the find shall be halted until such time as the find is evaluated by a qualified archaeologist and appropriate mitigation (e.g., curation, preservation in place, etc.) in accordance with Public Resources Code 21083.2, if necessary, is implemented. Additionally, if such cultural resource remains are encountered, Mitigation Measure CR-1(b) shall take effect.

CR-1(b) **Unanticipated Discovery of Cultural Remains.** If cultural resource remains are encountered during construction or land modification activities, work shall stop and the City shall be notified at once to assess the nature, extent, and potential significance of any cultural remains. The applicant shall implement a subsurface testing program (known as a Phase II site evaluation according to Cultural Resource Management best use practices) to determine the resource boundaries, assess the integrity of the resource, and evaluate the site's significance through a study of its features and artifacts. If the Phase II site evaluation concludes the site is significant, a Phase III data recovery excavation program may be implemented to exhaust the data potential of the site, if the site cannot be avoided.

If the site is determined significant, the applicant may choose to cap the resource area using culturally sterile and chemically neutral fill material and shall include open space accommodations and interpretive displays for the site to ensure its protection from development. A qualified archaeologist shall be retained to monitor the placement of fill upon the site and to make open space and interpretive recommendations. If a significant site will not be capped, the results and recommendations of the Phase II study shall determine the need for a Phase III data recovery program designed to record and remove significant cultural materials that could otherwise be tampered with. If the site is determined insignificant, no capping and or further archaeological investigation shall be required. The results and recommendations of the Phase II study shall determine the need for construction monitoring.

Significance After Mitigation. Through the monitoring of ground disturbance and evaluation of any unidentified cultural resources, implementation of mitigation measures CR-1(a) and CR-1(b) would reduce impacts to previously unidentified archaeological resources to a less than significant level.

Impact CR-2 **Construction of the proposed project would involve ground-disturbing activities such as grading, surface excavation, and placement of imported fill. Although unlikely, these activities have the potential to unearth and/or impact paleontological resources. Impacts would be Class II, *significant but mitigable*.**

Construction of the proposed project would occur exclusively in areas mapped as Holocene aged alluvial sediments of low paleontological sensitivity. Nevertheless, excavations exceeding

3-5 feet in depth in areas mapped as Holocene-aged alluvial deposits (Qa) have the potential to impact underlying potentially Pleistocene-aged sediments of high paleontological sensitivity. This is a potentially significant impact.

Mitigation Measures. The following mitigation measures are required.

CR-2(a) **Paleontological Resource Construction Monitoring.** Ground-disturbing activity in areas of low paleontological sensitivity (Holocene alluvial sediments) that does not exceed three feet in depth shall not require paleontological monitoring. Monitoring of excavations exceeding three feet in depth shall be monitored by a qualified paleontologist to determine if potentially fossil bearing units are present at ground disturbing depths. If no fossils are observed during the first 50 percent of excavations exceeding three feet in depth, or if the qualified paleontologist can determine that excavations are not disturbing Pleistocene or Pliocene aged sediments, then paleontological monitoring shall be reduced to weekly spot-checking under the discretion of the qualified paleontologist.

CR-2(b) **Fossil Salvage.** If fossils are discovered, the qualified paleontologist (or paleontological monitor) shall recover all fossils. Typically fossils can be safely salvaged quickly by a single paleontologist and not disrupt construction activity. In some cases larger fossils (such as complete skeletons or large mammal fossils) require more extensive excavation and longer salvage periods. In this case the paleontologist shall have the authority to temporarily direct, divert or halt construction activity to ensure that the fossil(s) can be removed in a safe and timely manner. Once salvaged, fossils shall be identified to the lowest possible taxonomic level, prepared to a curation-ready condition and curated in a scientific institution with a permanent paleontological collection, along with all pertinent field notes, photos, data, and maps.

Significance After Mitigation. By monitoring ground disturbance and salvaging any identified resources, implementation of mitigation measures CR-2(a) and CR-2(b) would reduce impacts to a less than significant level.

c. Cumulative Impacts. The proposed project, in conjunction with other nearby planned, pending, and potential future projects in the City of Long Beach as discussed in Section 3.0, *Environmental Setting*, would have the potential to adversely impact additional cultural resources. With the proposed mitigation measures identified in this section of the EIR, such impacts to cultural resources would be less than significant at the project level, and these impacts are site-specific, not cumulative in nature. The proposed project would therefore not make a contribution to any cumulative impact on cultural resources outside the project site. Individual development proposals are reviewed separately by the City and undergo environmental review when it is determined that the potential for significant impacts exist. In the event that future cumulative development would result in impacts to known or unknown

historical resources, impacts to such resources would be addressed on a case-by-case basis in accordance with the requirements of the City's General Plan and CEQA. For example, Policy 1.1of the City's Historic Preservation Element states that "The City shall comply with City, State, and Federal historic preservation regulations to ensure adequate protection of the City's cultural, historic, and archaeological resources." Therefore, cumulative impacts related to the incremental loss of cultural resources would not be significant.

4.5 GEOLOGY AND SOILS

This section evaluates geologic and soil impacts from implementation of the proposed project, including geologic hazards and soil erosion.

4.5.1 Setting

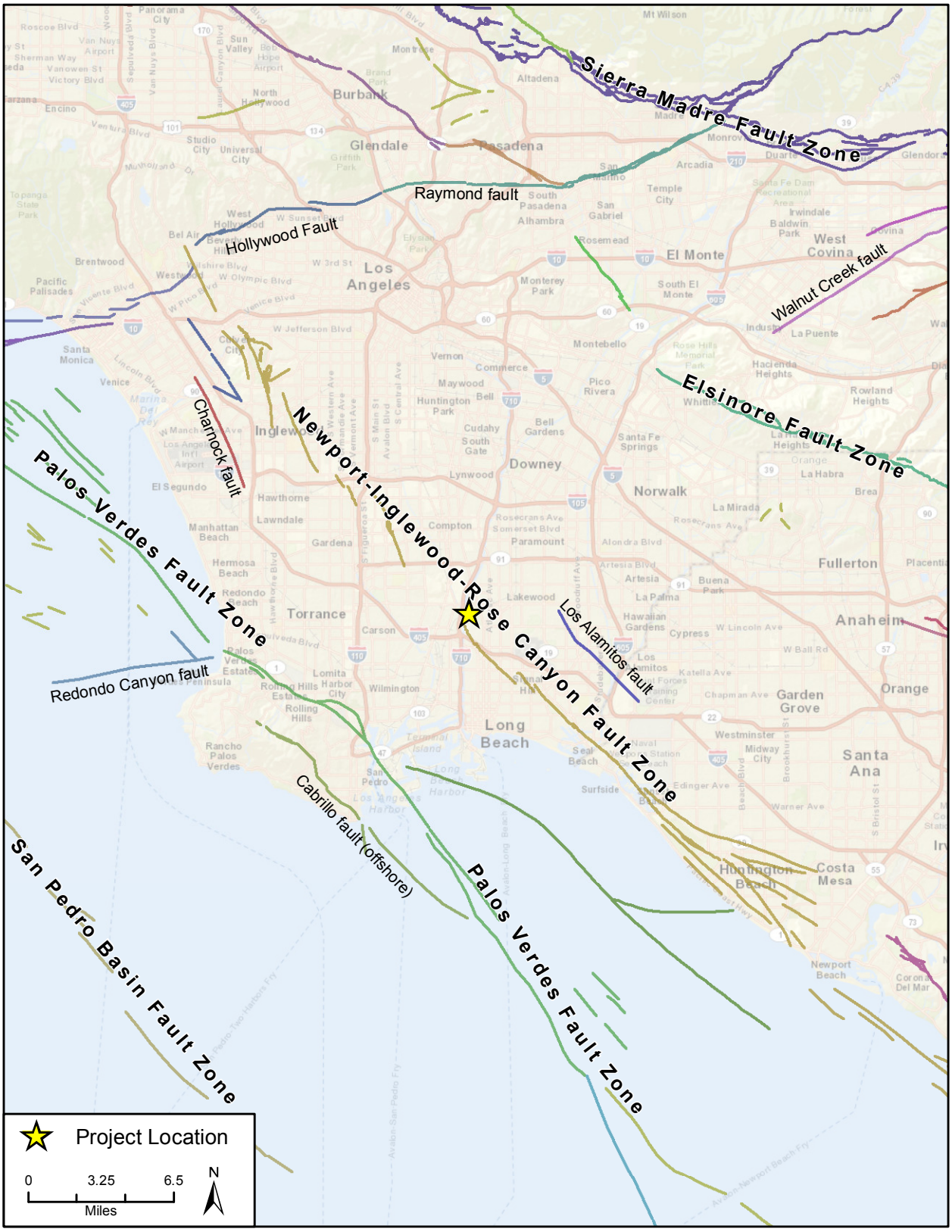
a. Regional Setting. The City of Long Beach is located on the coastal margin of the Los Angeles Basin, which is underlain by over 15,000 feet of stratified sedimentary rocks of marine origin. The coastal terrace on which the City of Long Beach lies is flanked by two flood plains on the east and west. Faults associated with the Newport-Inglewood Fault Zone cut diagonally across these features. In general, Long Beach is of low relief with a lack of significant slopes. The greatest relief is in the Signal Hill, Reservoir Hill, and Bixby Knolls areas, reflecting ancient activity along the Newport-Inglewood Fault Zone. Other areas of moderate relief include sea bluffs along the coast and lesser bluffs along the flood plains.

With the exception of isolated hilly areas, the ground surface elevation is generally less than 60 feet. The ground water level is typically less than 60 feet below the ground surface and less than 20 feet below the ground surface in many areas.

The low areas now occupied by the Los Angeles and San Gabriel rivers represent channels that were cut deeply into the marine sediments by ancestral rivers during the lower sea level stand of the last Ice Age in late Pleistocene time. Over the last 17,000 years, the rivers have filled these channels to their present levels with relatively unconsolidated sand, silt, and gravel.

The folding and faulting that has uplifted and deformed the sediments within the City of Long Beach has been mainly concentrated along a nearly continuous row of hills referred to as the Newport-Inglewood Fault Zone, discussed further below (City of Long Beach, General Plan Seismic Safety Element, 1988).

b. Seismic Setting. Similar to much of California, the project site is located within a seismically active region. Figure 4.5-1 shows the regional faults. The seismic and fault hazards relevant to the project site are described below. The most significant active faults within the City lie along the Newport-Inglewood Fault Zone. The Palos Verdes Fault is another significant fault near the City. It traverses the northern edge of the Palos Verdes Hills and trends offshore through Los Angeles Harbor then continues just offshore of the City of Long Beach. This fault is also believed to be active and could produce severe seismic shaking within the City. These faults are discussed in further detail below.



Imagery provided by ESRI and its licensors © 2015.
Faults by USGS Earthquake Hazards Program, 2015.

Regional Fault Zone Map

Figure 4.5-1

Newport-Inglewood Fault Zone. According to the Seismic Safety Element of the City of Long Beach General Plan, the Newport-Inglewood Fault Zone (Figure 4.5-2) is a right-lateral wrench fault system consisting of a series of echelon fault segments and folds. This zone is visible on the surface as a series of northwest trending elongated hills extending from Newport Beach to Beverly Hills, including Signal and Dominquez Hills. Topographic highs along the zone are surface expressions of individual faulted anticlinal structures, and these faults and folds act as ground water barriers and, at greater depths, form petroleum traps. Active or potentially active faults of the Newport-Inglewood Fault Zone within the boundaries of Long Beach include the Cherry Hill Fault, the Northeast Flank Fault, and the Reservoir Hill Fault. Subsurface movement on the Newport-Inglewood Zone produced the 1933 Long Beach (magnitude 6.3) Earthquake that caused severe damage in the City of Long Beach; and the 1920 Inglewood Earthquake (estimated magnitude 4. 9), that resulted in notable damage in the City of Inglewood. Ground breakage has not been observed along the faults of the Newport-Inglewood Zone in historic times within the City of Long Beach. However, the existence of well-defined fault scarps is suggestive of ground breakage in recent geologic time (last 10,000 years). An estimated maximum earthquake of 7 has been assigned to the zone on the basis of its estimated rupture length and its slip rate (City of Long Beach, 1988).

Per the Alquist-Priolo Earthquake Fault Zoning Act, the Long Beach Quadrangle map indicates that the project site does not cross or contain, and is not directly adjacent to, any surface faulting or ruptures. Compliance with Long Beach Municipal Code Section 18.40 – Building Code will lessen the impact of seismic damage to structures resulting from an earthquake.

Palos Verdes Fault Zone. The Seismic Safety Element of the City's General Plan reports that the Palos Verdes Fault lies immediately offshore of the City of Long Beach and is one of several major northwest trending faults in southern California that are tectonically associated with the northwest trending San Andreas Fault System. As shown in Figure 4.5-1, most of the mapped length of the Palos Verdes Fault is offshore of southern California extending northwestward from Lasuen Knoll into San Pedro Bay, through Los Angeles Harbor, across the northern front of the Palos Verdes Hills, and into Santa Monica Bay. In Santa Monica Bay, the fault appears to bend to the west down Redondo Canyon. The onshore segment of the Palos Verdes Fault has apparently uplifted Palos Verdes Hills over 1,350 feet (410 m) since the middle Pleistocene. Extensive deformation and folding of late Pleistocene and Holocene age sediments onshore, along the northern edge of the Palos Verdes Hills, would also indicate that compression across the Palos Verdes Fault has been active in the Holocene. The Palos Verdes Fault is in the same tectonic environment and is nearly parallel in orientation to other active faults, such as the Newport-Inglewood, Elsinore, and San Andreas fault zones. An estimated maximum earthquake of 7 has been assigned to this fault based on comparisons with the Newport-Inglewood Fault Zone (City of Long Beach, 1988).

State of California Department of Conservation, Division of Mines and Geology, 1986.

Alquist-Priolo Earthquake Fault Zone Map
Long Beach Quadrangle

Figure 4.5-2

c. Seismic Hazards. Faults generally produce damage in two ways: ground shaking and surface rupture. Seismically induced ground shaking covers a wide area and is greatly influenced by the distance of a site to the seismic source, soil conditions, and depth to groundwater. Surface rupture is limited to very near the fault. Other hazards associated with seismically induced ground shaking include earthquake-triggered landslides, liquefaction, and settlement. The International Building Code identifies the project site as being in Seismic Zone 4, which is characterized as having the highest earthquake risk.

Faulting. The U.S. Geological Survey defines active faults as those that have had surface displacement within Holocene time (about the last 11,000 years). Holocene surface displacement can be recognized by the existence of cliffs in alluvium, terraces, offset stream courses, fault troughs and aligned saddles, sag ponds, and the existence of steep mountain fronts. Potentially active faults are those that have had surface displacement during Quaternary time, within the last 1.6 million years. Inactive faults have not had surface displacement within the last 1.6 million years.

Seismic Risk and Ground Acceleration. Earthquakes are characterized by magnitude, which is a quantitative measure of the strength of the earthquake based on strain energy released during a seismic event. The magnitude of an earthquake is constant for any given site and is independent of the site in question. The intensity of an earthquake at a given site, however, is not constant and is subject to variations. The intensity is an indirect measurement of ground motion at a particular site and is affected by the earthquake magnitude, the distance between the site and the hypocenter (the location on the fault at depth where the energy is released), and the geologic conditions between the site and the hypocenter. Intensity, which is often measured by the Mercalli scale, generally increases with increasing magnitude and decreases with increasing distance from the hypocenter. Topography may also affect the intensity of an earthquake from one site to another. Topographic effects such as steep sided ridges or slopes may result in a higher intensity than sites located in relatively flat-lying areas.

Seismically induced ground acceleration is the shaking motion that is produced by an earthquake. Probabilistic modeling is done to predict future ground accelerations. Probabilistic modeling generally considers two scenarios, design basis earthquake ground motion or upper-bound earthquake ground motion. Design basis earthquake ground motion calculations are typically applied for residential and commercial sites. This ground motion is defined as a ground motion that has a 10 percent chance of exceedance in 50 years. Upper-bound earthquake ground motion calculations are applied to public schools, hospitals, skilled nursing facilities, and essential services buildings, such as police stations, fire stations, city hall, and emergency communication centers. Upper-bound earthquake ground motion is defined as the ground motion that has a 10 percent chance of exceedance in 100 years.

The probabilistic approach attempts to model the probability that seismically induced ground shaking would affect a specified area. In this approach, the models predict the possibility of a specified ground acceleration affecting a site within a specified timeframe. This is done by identifying faults that are active, determining the frequency of earthquake activity along modeled faults, the strength of the earthquakes, and attenuation relationships as described above.

Ground Rupture. Ground surface rupture results when the movement along a fault is sufficient to cause a gap or rupture along the upper edge of the fault zone on the surface. Major active faults, such as those associated with the Newport-Inglewood Fault Zone, represent the most likely location for future fault rupture in the City of Long Beach (City of Long Beach, 1988). The zones that have been defined around the major portions of these faults are referred to as Special Study Zones. These zones have been defined by the State Geologist in accordance with the Alquist-Priolo Special Studies Zones Act. The project site is not located in a Special Studies Zone as depicted on Plate 2 of the Seismic Safety Element of the General Plan (Figure 4.5-3); the California Department of Conservation used the term Special Studies Zones prior to January 1, 1994, at which time the term was changed to Earthquake Fault Zones

Landsliding. Landslides are slope failures that occur where the horizontal seismic forces act to induce soil and/or bedrock failures. The most common effect is reactivation or movement on a pre-existing landslide. Existing slides that are stable under static conditions (i.e., factor-of-safety above one) become unstable and move during strong ground shaking. The project site is located in a flat area. Furthermore, the project site is not designated as being in an "area of relatively steep slopes" in the City's General Plan Seismic Safety Element (1988).

Liquefaction. Liquefaction is defined as the sudden loss of soil strength due to a rapid increase in soil pore water pressures resulting from seismic ground shaking. Liquefaction potential is dependent on such factors as soil type, depth to groundwater, degree of seismic shaking, and the relative density of the soil. When liquefaction of the soil occurs, buildings and other objects on the ground surface may tilt or sink, and lightweight buried structures (such as pipelines) may float toward the ground surface. Plate 7 of the City of Long Beach Seismic Safety Element show that the project site is located in an area designated "Liquefaction Potential Minimal". However, the Seismic Hazards Zones Map published by the California Geologic Survey (CGS), formerly the California Department of Conservation, Division of Mines and Geology (CDMG), identifies the project site as being located in an area of historical occurrence of liquefaction such that mitigation is required per Public Resources Code Section 269(c). Figure 4.5-4 illustrates liquefaction hazards areas within the City of Long Beach.

Per the Seismic Hazards Mapping Act, the Long Beach Quadrangle map indicates that the project site is within an area that is subject to liquefaction; however, compliance with Long Beach Municipal Code Section 18.40 – Building Code will lessen the impact of damage to structures resulting from seismically induced hazards.

Settlement. Damaging settlement can occur during earthquakes even without the presence of liquefaction. In saturated granular soils, water pressure between grains that is built up during earthquakes may lead to settlements after the shaking has stopped and the pressure released (Lee and Albaisa, 1974). The areas that are most at risk of settlement are the same areas as those that are susceptible to liquefaction, and any damage resulting from general settlement is generally less severe than damage resulting from liquefaction. Any damage or potential impacts to structures resulting from soil settlement can be lessened by complying with Long Beach Municipal Code Section 18.40 – Building Code.

City of Long Beach General Plan Seismic Safety Element, October 1988.

Legend

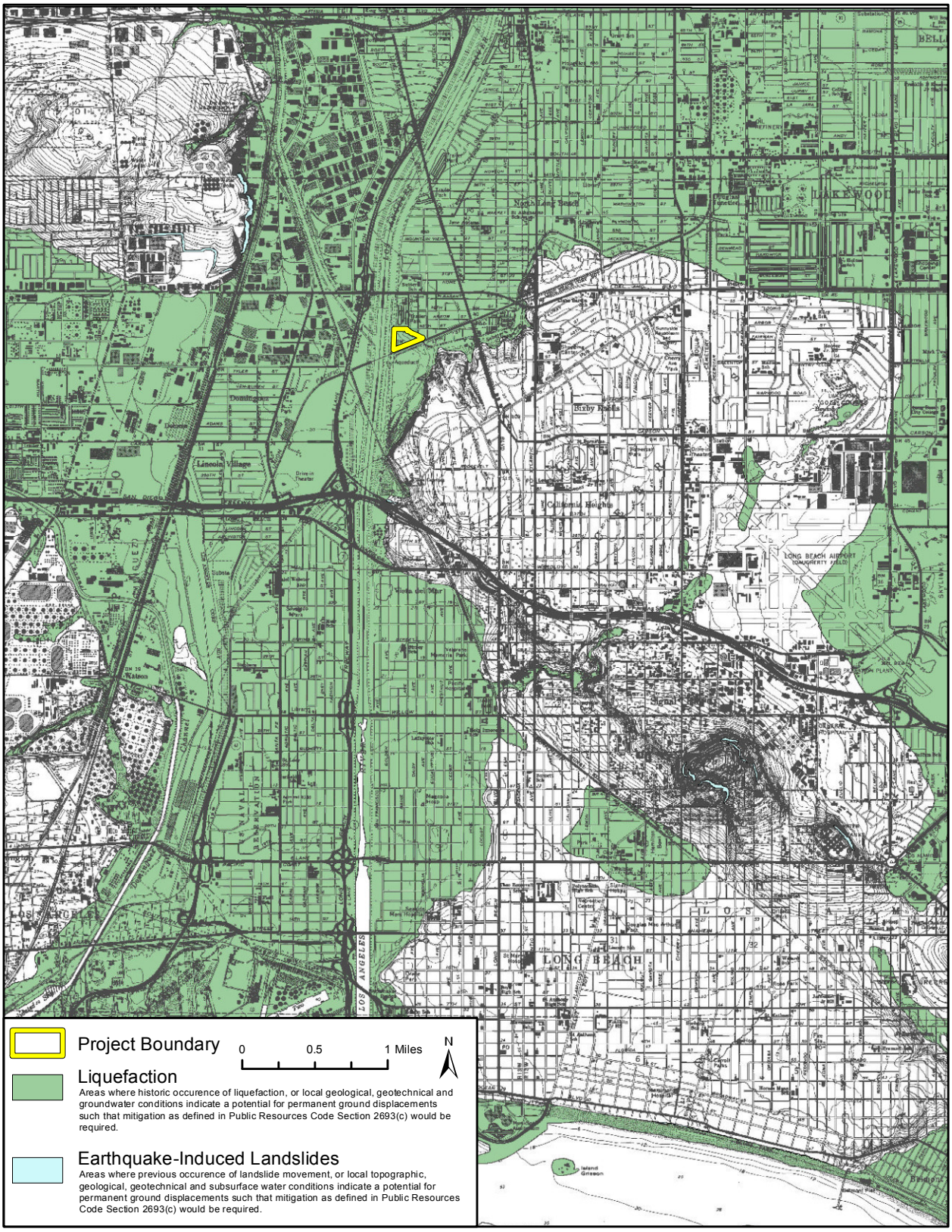
- Newport - Inglewood Zone of Deformation Faults
- Dashed Where Inferred
- Dotted Where Concealed
- Querried Where Uncertain
- Alquist - Priolo Special Study Zones
- Caution Zones for Essential and Hazardous Facilities
- Project Boundary

N

0 0.8 1.6
Miles

Seismic Safety Element, Plate 2

Figure 4.5-3



State of California Department of Conservation, Division of Mines and Geology, 1999.

Areas of Potential Liquefaction
Long Beach Quadrangle

Figure 4.5-4

Seismic Hazard Evaluation. The CDMG published a Seismic Hazard Map for peak horizontal accelerations on spatially uniform conditions of rock, soft rock, and alluvial sites with a 10% probability of exceedance in 50 years for sites within the Long Beach area. The accelerations are expressed in units of gravity. The Seismic Hazard Map indicates an expected peak acceleration of 0.44g to 0.48g (10 percent probability in 50 years) in the vicinity of the project site and a predominant moment magnitude (M_W) 6.8 earthquake (California Department of Conservation, 1998).

The City's Seismic Safety Element also identifies Seismic Response Areas within Long Beach. Each sub area reflects differences from one area to another in the estimated potential for each seismic hazard. The project site is located within Seismic Response Area B-4. The B identifies the soil profile in the area, which is "Sandy and clayey alluvial materials composed of interlayered lenses of cohesionless and cohesive material overlying the shallow Gaspur or Recent aquifers; includes some local filled areas." Potential impacts associated with this Seismic Response Area are discussed in Section 4.5.2, *Impact Analysis*, below.

d. Soil Characteristics. The City of Long Beach General Plan Conservation Element classifies the predominant soil type in the area of the project site as River Wash. The Conservation Element defines River Wash to be principally made up of gray sand and soil particles which have been transported via water currents during peak flow periods and floods. Usually, these are found along river bottoms and mouths. During wet weather, these are in the form of sediment, which becomes loose, sand-like material during summer. Additionally, as discussed above in subsection "c", *Seismic Hazards*, the project site is located with Seismic Response Area B-4, where the soil profile B is "sandy and clayey alluvial materials composed of interlayered lenses of cohesionless and cohesive material overlying the shallow Gaspur or Recent aquifers; includes some local filled areas." Profile B covers the majority of the low areas now occupied by the Los Angeles and San Gabriel rivers, other than the harbor areas. These low-lying areas represent channels that were cut deeply into the uplifted marine sediments by ancestral rivers during the lower sea level stand of the last Ice Age in late Pleistocene time. Over the last 17,000 years, the rivers have filled these channels to their present level with relatively unconsolidated sediments.

The project site is in the vicinity of the Los Angeles River and is located within the southerly portion of the Downey Plain, a broad lowland alluvial plain composed primarily of alluvium as a result of sedimentation along the Los Angeles River. These alluvial deposits extend to depths greater than 150 feet below the surface, and are underlain by semi-consolidated alluvium or sedimentary bedrock. The most recent alluvial deposits extend below 41.5 feet (the maximum explored depth on the site) and consisted of alternating layers of fine grained and silty sands to sandy silts, silty clays, and low-plasticity clays. These alluvial deposits are capped by a 1.5-foot to 3-foot mantle of artificial fill, which was presumably placed during the site's original grading operations.

Soil Erosion. Soil erosion is the removal of soil by water and wind. The rate of erosion is estimated from four soil properties: texture, organic matter content, soil structure, and permeability. Other factors that influence erosion potential include the amount of rainfall and wind, the length and steepness of the slope, and the amount and type of vegetative cover.

According to the 1973 Conservation Element, soil erosion is not a major problem in Long Beach due to the City's topographic structure, except along ocean-fronting bluffs.

e. Regulatory Setting. The International Building Code (IBC), the California Building Code (CBC), the City of Long Beach General Plan Seismic Safety Element and Conservation Element , and the City of Long Beach Municipal Code incorporate policies and measures to safeguard life, health, property and public welfare from geologic hazards. Each of these is described below:

International Building Code. The International Building Code (IBC) is a model building code that provides the basis for the California Building Code (CBC). The IBC defines different regions of the United States and ranks them according to their seismic hazard potential (Seismic Design Category A through E). Design Category A has the least seismic potential and Design Category E has the highest. The project site, like all of coastal Southern California, is located in Design Category E.

California Building Code. California law provides a minimum standard for building design through the California Building Code (CBC). Chapter 23 contains specific requirements for seismic safety. Chapter 29 regulates excavation, foundations, and retaining walls. Chapter 33 contains specific requirements pertaining to site demolition, excavation, and construction to protect people and property from hazards associated with excavation cave-ins and falling debris or construction materials. Chapter 70 regulates grading activities, including drainage and erosion control. Construction activities are subject to occupational safety standards for excavation, shoring, and trenching as specified in California Division of Occupational Safety and Health (Cal/OSHA) regulations (Title 8 of the California Code of Regulations [CCR]) and in Section A33 of the CBC.

Alquist-Priolo Earthquake Fault Zoning Act. The Alquist-Priolo Earthquake Fault Zoning Act was signed into law in 1972. The purpose of this Act is to prohibit the location of most structures for human occupancy across the traces of active faults and to thereby mitigate the hazard of fault rupture. Under the Act, the State Geologist is required to delineate "Earthquake Fault Zones" along known active faults in California. Cities and counties affected by the zones must regulate certain development projects within the zones. They must withhold development permits for sites within the zones until geologic investigations demonstrate that the sites are not threatened by surface displacement from future faulting.

Seismic Hazards Mapping Act. The CGS (formerly the CDMG) provides guidance with regard to seismic hazards. Under CDMG's Seismic Hazards Mapping Act (1990), seismic hazard zones are identified and mapped to assist local governments in land use planning. The intent of this publication is to protect the public from the effects of strong ground shaking, liquefaction, landslides, ground failure, or other hazards caused by earthquakes. In addition, CDMG's Special Publications 117, "Guidelines for Evaluating and Mitigating Seismic Hazards in California," provides guidance for the evaluation and mitigation of earthquake-related hazards for projects within designated zones of required investigations.

City of Long Beach Regulations. The City of Long Beach General Plan Seismic Safety Element contains a number of recommendations for siting of structures in seismically active areas.

Goal 2	*Provide an urban environment which is as safe as possible from seismic risk.*
Goal 4	*Encourage development that would be most in harmony with nature and thus less vulnerable to earthquake damage.*
Goal 5	*Strive to encourage urbanization patterns which preserve and/or create greater earthquake safety for residents and visitors.*

Additionally, the City of Long Beach Public Safety Element includes goals related to general hazards and the City of Long Beach Conservation Element provides goals related to the management of soils in within the City.

Pub. Safety Goal 11	*Critically evaluate proposed public or private actions, which may pose safety hazards to residents or visitors.*
Conservation Goal 1	*To minimize those activities which will have a critical or detrimental effect on geologically unstable areas and soils subject to erosion.*

The Long Beach Development Services Department has a list of Best Management Practices that pertain to construction activities, primarily covering ways to reduce pollution form construction activity, compliance with stormwater regulations, prevention of soil erosion, general site maintenance, proper disposal of cleared vegetation, and demolition waste management (City of Long Beach Building Department website, March 2015).

4.5.2 Impact Analysis

a. Methodology and Significance Thresholds. The assessment of geologic impacts is based on a review of project site information and conditions, and information contained in the City of Long Beach General Plan Seismic Safety Element and Conservation Element. For purposes of this EIR, the proposed project would create a significant impact relative to geologic resources if it would result in any of the following conditions:

- *Exposure of people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:*
  - *Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area (Refer to Division of Mines and Geology Special Publication 42) or based on other substantial evidence of a known active or potentially active fault*
  - *Strong seismic ground shaking*
  - *Seismic-related ground failure, including liquefaction*

- *Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse*
- *Be located on an expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?*
- *Result in substantial soil erosion or the loss of topsoil.*

The Initial Study (see Appendix A) determined that the following topics would have a less than significant impact or no impact:

- *Exposure of people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides*
- *Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water.*

b. Project Impacts and Mitigation Measures.

Impact GEO-1 Seismically-induced ground failure or ground shaking could damage structures on the project site, resulting in loss of property and risk to human health. However, the level of risk is not unusual compared to that of the region as a whole, and compliance with applicable standards would reduce risks to acceptable levels. Impacts would be Class III*, less than significant.*

Nearby active and potentially active faults can generate groundshaking that could adversely affect the proposed project. As shown on Figure 4.5-2, the project site is located approximately 300 feet west and 1,900 feet south of the Newport-Inglewood Fault Zone. However, because the fault zone does not cross the project site, the potential for ground rupture is considered low.

The proximity of active faults is such that the area has experienced strong seismically induced ground motion and will likely experience strong seismically induced ground motion in the future. The City's Seismic Safety Element identifies the project site as being located in Seismic Response Area B-4, which is located within Ground Shaking area 3. This area has been identified as having a peak acceleration of 0.17g in 72 years and 0.36g in 475 years. Additionally, the Seismic Hazard Map produced by the CDMG indicates an expected peak acceleration of 0.44g to 0.48g (10 percent probability in 50 years) to occur in the vicinity of the project site and a predominant moment magnitude (M_W) 6.8 earthquake (California Department of Conservation, 1998).

Besides the direct physical damage to structures caused by ground shaking, slopes and inadequately compacted fill material could move and cause additional damage. Gas, water, and electrical lines could be ruptured due to groundshaking, or broken during movement of earth caused by the earthquake, which could jeopardize public safety.

Development of the proposed project would be subject to the requirements of the International Building Code (IBC) and the California Building Code (CBC), which would ensure that the design and construction of new structures are engineered to withstand the expected ground acceleration that may occur on the project site. In addition, pursuant to Long Beach Municipal Code Sec. 18.05.020, the proposed project shall be accompanied by one set of submittal documents, as outlined in Section 18.05.030, for each type of plan examination as determined by the Building Official, and, per Municipal Code Section 18.05.030(A)(14), a soils engineering report and engineering geology report shall be incorporated into the approved grading construction documents, and approved by the designated Building Official. Appropriate design features required therein would be implemented in accordance with Section 18.05.030(A)(14). Adherence to Code requirements would reduce impacts to a less than significant level.

Mitigation Measures. Mitigation beyond adherence to Code requirements is not needed.

Significance After Mitigation. Impacts would be less than significant without mitigation.

Impact GEO-2 The project site is located in an area with the potential for soil liquefaction or settlement. However the level of risk is reduced due to a layer on non-liquefying soils. Therefore, soil related hazards associated with liquefaction or settlement would be a Class II, *significant but mitigable.*

Liquefaction is a condition where the soil undergoes a deformation due to the build-up of high porewater pressures. The possibility of liquefaction occurring depends on the occurrence of a significant earthquake in the vicinity, sufficient groundwater to cause high pore pressures, and on the grain size and density and pressures of the soil. The project site is located within an area designated by the City in the Seismic Safety Element of the General Plan as "Liquefaction Potential Minimal". However, the Seismic Hazards Zones Map published by the CDMG identifies the project site as being located in an area of historical occurrence of liquefaction such that mitigation is required per Public Resources Code Section 2693(c).

The Geotechnical Report (Appendix E) found that the site contains liquefiable layers of soil 30 feet below the surface, at approximately the same depth as the historical high groundwater mark; it was determined that the thickness of non-liquefiable layers above the liquefiable zone should be sufficient to prevent any surface damage or manifestation (i.e. sand boils, ground fissures, etc.) (Integral Partners Funding, LLC). In order to reduce the risk potential due to liquefaction to a less than significant level, the Geotechnical Report recommends that the use of properly designed and constructed post-tensioned or strengthened conventional concrete foundation systems for the proposed dwelling structures.

The areas that tend to be most susceptible to soil settlement are the same areas susceptible to liquefaction. However, damaging settlements can occur during earthquakes even without the presence of liquefaction. In saturated granular soils, water pressure between grains that is built up during earthquakes may lead to settlements after the shaking has stopped and the pressure released (Lee and Albaisa, 1974). Impacts related to the potential for liquefaction or settlement would be potentially significant.

The Geotechnical Report found that settlement as a result of seismic activity, absent the presence of liquefaction, could result in a vertical settlement of ½ to 2 ½ inches (Integral Partners Funding, LLC). However, it is noted that the actual settlement is expected to be lower than these maximums due to the groundwater being depressed below normal historical highs. In order to reduce the potential for damage to the buildings as a result of soil settlement, the Geotechnical Report recommends that the existing fill and near-surface alluvial soils in all the proposed structural areas be over excavated, to a depth of four feet below the existing grade or two feet below the bottoms of the proposed structural footings, whichever is deeper, and replaced with properly compacted fill; the use of properly designed and constructed post-tensioned or strengthened conventional concrete foundation system is also recommended.

Mitigation Measures. The following measures would mitigate potentially significant impacts resulting from soil liquefaction and settlement.

GEO-2(a) **Placement of Compacted Fill.** The existing fill and near surface alluvial soils in all the proposed structural areas shall be over excavated to a depth of four feet below the existing grade or two feet below the bottoms of the proposed structural footings, whichever is deeper, and shall be replaced with properly compacted fill.

GEO-2(b) **Building Foundations.** All building foundation systems shall be properly designed and constructed using either a post-tensioned or strengthened conventional concrete foundation, as determined by the City of Long Beach Building Official.

Significance After Mitigation. Impacts would be less than significant with incorporated mitigation.

Impact GEO-3 The project could result in substantial soil erosion or the loss of topsoil during initial grading and construction. However, compliance with applicable standards and guidelines could reduce the amount of erosion or topsoil loss to acceptable levels. Impacts would be Class III*, less than significant.*

The Long Beach Development Services Department defines soil erosion as the process by which soil particles are removed from the land surface by wind, water, and/or gravity; soil particles removed by stormwater runoff are considered pollutants when they are deposited in local creeks, lakes, and the Pacific Ocean due to the potential negative impacts they can have on aquatic habitats. Additionally, any soil that is left exposed after clearing, grading, or excavation can easily be eroded by wind or water.

Soil erosion as a result of stormwater runoff could potentially have a significant impact on the Dominguez Gap Wetlands, Los Angeles River and San Pedro Bay. The Dominguez Gap Wetlands are designed to naturally treat stormwater runoff to reduce the amount of fecal coliform, nutrients, heavy metals, organic carbons, and oil and greases before it is emptied into the Dominguez Gap Wetlands – West Basin spreading grounds and/or the Los Angeles River (County of Los Angeles, 2008). An increase in soil erosion could impact the efficiency of the

Wetlands treatment process. Additionally, soil erosion could impact the Los Angeles River and San Pedro Bay by increasing the turbidity of the waters, potentially harming aquatic habitats by decreasing the amount of light penetrating the water layers. Impacts related to potential substantial soil erosion or the loss of topsoil would be potentially significant unless mitigation measures were incorporated.

The risk of substantial soil erosion or the loss of topsoil during initial grading and construction from wind, water, and/or gravity can be reduced to less than significant with adherence to the Long Beach Development Services Department's Best Management Practices for construction (City of Long Beach Development Services Department website, March 2015).

Mitigation Measures. Mitigation beyond adherence to the Long Beach Best Management Practices for erosion and sediment control (Special Practices) is not needed. Section 4.8 Hydrology and Water Quality also contains additional regulatory and mitigation measures concerning soil erosion resulting from stormwater runoff.

Significance After Mitigation. Impacts would be less than significant without mitigation.

c. Cumulative Impacts. As discussed in Section 3.3 *Cumulative Projects Setting*, cumulative development in Long Beach, including development of the proposed project, would add dwelling units and non-residential development within the City and surrounding region. Cumulative impacts related to seismically induced ground shaking and other geotechnical hazards would be similar to what is described above for project-specific impacts, and would be addressed on a case-by-case basis through compliance with the Long Beach Municipal Code and site-specific mitigation measures for individual projects. Geologic hazards are specific to individual sites and hazards present on one particular site do not add to or compound the hazards present on another site.

Compliance with, and enforcement of, applicable code requirements and the recommendations of site-specific geotechnical evaluations on a case-by-case basis would reduce cumulative impacts relating to geologic hazards to a less than significant level.

This page intentionally left blank.

4.6 GREENHOUSE GAS EMISSIONS/CLIMATE CHANGE

This section addresses the proposed project's contribution to cumulative impacts to global climate change.

4.6.1 Setting

a. Climate Change and Greenhouse Gases. Climate change is the observed increase in the average temperature of the Earth's atmosphere and oceans along with other substantial changes in climate (such as wind patterns, precipitation, and storms) over an extended period of time. The term "climate change" is often used interchangeably with the term "global warming," but "climate change" is preferred to "global warming" because it helps convey that there are other changes in addition to rising temperatures. The baseline against which these changes are measured originates in historical records identifying temperature changes that have occurred in the past, such as during previous ice ages. The global climate is continuously changing, as evidenced by repeated episodes of substantial warming and cooling documented in the geologic record. The rate of change has typically been incremental, with warming or cooling trends occurring over the course of thousands of years. The past 10,000 years have been marked by a period of incremental warming, as glaciers have steadily retreated across the globe. However, scientists have observed acceleration in the rate of warming during the past 150 years. Per the United Nations Intergovernmental Panel on Climate Change (IPCC, 2013), the understanding of anthropogenic warming and cooling influences on climate has led to a high confidence (95% or greater chance) that the global average net effect of human activities has been the dominant cause of warming since the mid-20th century(IPCC, 2013).

Gases that absorb and re-emit infrared radiation in the atmosphere are called greenhouse gases (GHGs). GHGs are present in the atmosphere naturally, are released by natural sources, or are formed from secondary reactions taking place in the atmosphere. The gases that are widely seen as the principal contributors to human-induced climate change include carbon dioxide (CO_2), methane (CH_4), nitrous oxides (N_2O), fluorinated gases such as hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Water vapor is excluded from the list of GHGs because it is short-lived in the atmosphere and its atmospheric concentrations are largely determined by natural processes, such as oceanic evaporation.

GHGs are emitted by both natural processes and human activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Emissions of CO_2 are largely by-products of fossil fuel combustion, whereas CH_4 results from off-gassing associated with agricultural practices and landfills. Observations of CO_2 concentrations, globally-averaged temperature, and sea level rise are generally well within the range of the extent of the earlier IPCC projections. The recently observed increases in CH_4 and N_2O concentrations are smaller than those assumed in the scenarios in the previous assessments. Each IPCC assessment has used new projections of future climate change that have become more detailed as the models have become more advanced.

Man-made GHGs, many of which have greater heat-absorption potential than CO_2, include fluorinated gases and sulfur hexafluoride (SF_6) (California Environmental Protection Agency [CalEPA], 2006). Different types of GHGs have varying global warming potentials (GWPs). The

GWP of a GHG is the potential of a gas or aerosol to trap heat in the atmosphere over a specified timescale (generally, 100 years). Because GHGs absorb different amounts of heat, a common reference gas (CO_2) is used to relate the amount of heat absorbed to the amount of the gas emissions, referred to as "carbon dioxide equivalent" (CO_2E), and is the amount of a GHG emitted multiplied by its GWP. Carbon dioxide has a 100-year GWP of one. By contrast, methane CH_4 has a GWP of 25, meaning its global warming effect is 25 times greater than carbon dioxide on a molecule per molecule basis (IPCC, 2006).

The accumulation of GHGs in the atmosphere regulates the Earth's temperature. Without the natural heat trapping effect of GHG, Earth's surface would be about 34° C cooler (CalEPA, 2006). However, it is believed that emissions from human activities, particularly the consumption of fossil fuels for electricity production and transportation, have elevated the concentration of these gases in the atmosphere beyond the level of naturally occurring concentrations. The following discusses the primary GHGs of concern.

Carbon Dioxide. The global carbon cycle is made up of large carbon flows and reservoirs. Billions of tons of carbon in the form of CO_2 are absorbed by oceans and living biomass (i.e., sinks) and are emitted to the atmosphere annually through natural processes (i.e., sources). When in equilibrium, carbon fluxes among these various reservoirs are roughly balanced (United States Environmental Protection Agency [U.S. EPA], April 2012). CO_2 was the first GHG demonstrated to be increasing in atmospheric concentration, with the first conclusive measurements being made in the last half of the 20th century. Concentrations of CO_2 in the atmosphere have risen approximately 40% since the industrial revolution. The global atmospheric concentration of CO_2 has increased from a pre-industrial value of about 280 parts per million (ppm) to 391 ppm in 2011 (IPCC, 2007; Oceanic and Atmospheric Association [NOAA], 2010). The average annual CO_2 concentration growth rate was larger between 1995 and 2005 (average: 1.9 ppm per year) than it has been since the beginning of continuous direct atmospheric measurements (1960–2005 average: 1.4 ppm per year), although there is year-to-year variability in growth rates (NOAA, 2010). Currently, CO_2 represents an estimated 82.8% of total GHG emissions (Department of Energy [DOE] Energy Information Administration [EIA], August 2010). The largest source of CO_2, and of overall GHG emissions, is fossil fuel combustion.

Methane. Methane (CH_4) is an effective absorber of radiation, though its atmospheric concentration is less than that of CO_2 and its lifetime in the atmosphere is limited to 10 to 12 years. It has a global warming potential approximately 25 times that of CO_2. Over the last 250 years, the concentration of CH_4 in the atmosphere has increased by 148 percent (IPCC, 2007), although emissions have declined from 1990 levels. Anthropogenic sources of CH_4 include enteric fermentation associated with domestic livestock, landfills, natural gas and petroleum systems, agricultural activities, coal mining, wastewater treatment, stationary and mobile combustion, and certain industrial processes (U.S. EPA, April 2012).

Nitrous Oxide. Concentrations of nitrous oxide (N_2O) began to rise at the beginning of the industrial revolution and continue to increase at a relatively uniform growth rate (NOAA, 2010). N_2O is produced by microbial processes in soil and water, including those reactions that occur in fertilizers that contain nitrogen, fossil fuel combustion, and other chemical processes. Use of these fertilizers has increased over the last century. Agricultural soil management and mobile source

fossil fuel combustion are the major sources of N_2O emissions. The GWP of nitrous oxide is approximately 298 times that of CO_2 (IPCC, 2007).

Fluorinated Gases (HFCS, PFCS and SF_6). Fluorinated gases, such as hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfurhexafluoride (SF_6), are powerful GHGs that are emitted from a variety of industrial processes. Fluorinated gases are used as substitutes for ozone-depleting substances such as chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), and halons, which have been regulated since the mid-1980s because of their ozone-destroying potential and are phased out under the Montreal Protocol (1987) and Clean Air Act Amendments of 1990. Electrical transmission and distribution systems account for most SF_6 emissions, while PFC emissions result from semiconductor manufacturing and as a by-product of primary aluminum production. Fluorinated gases are typically emitted in smaller quantities than CO_2, CH_4, and N_2O, but these compounds have much higher GWPs. SF_6 is the most potent GHG the IPCC has evaluated.

Greenhouse Gas Emissions Inventory. Worldwide anthropogenic emissions of GHGs were approximately 40,000 million metric tons (MMT) CO_2E in 2004, including ongoing emissions from industrial and agricultural sources, but excluding emissions from land use changes (i.e., deforestation, biomass decay) (IPCC, 2007). CO_2 emissions from fossil fuel use accounts for 56.6 percent of the total emissions of 49,000 MMT CO_2E (includes land use changes) and CO_2 emissions from all sources account for 76.7 percent of the total CO_2E emitted. Methane emissions account for 14.3 percent of GHGs and N_2O emissions account for 7.9 percent (IPCC, 2007).

Total U.S. GHG emissions were 6,821.8 MMT CO_2E in 2009 (U.S. EPA, April 2012). Total U.S. emissions have increased by 10.5 percent since 1990; emissions rose by 3.2 percent from 2009 to 2010 (U.S. EPA, April 2012). This increase was primarily due to (1) an increase in economic output resulting in an increase in energy consumption across all sectors; and (2) much warmer summer conditions resulting in an increase in electricity demand for air conditioning. Since 1990, U.S. emissions have increased at an average annual rate of 0.5 percent. In 2010, the transportation and industrial end-use sectors accounted for 32 percent and 26 percent of CO_2 emissions from fossil fuel combustion, respectively. Meanwhile, the residential and commercial end-use sectors accounted for 22 percent and 19 percent of CO_2 emissions from fossil fuel combustion, respectively (U.S. EPA, April 2012).

Based upon the California Air Resources Board (ARB) California Greenhouse Gas Inventory for 2000-2011 (CARB, October 2011), California produced 448 MMT CO_2E in 2011. The major source of GHG in California is transportation, contributing 38 percent of the state's total GHG emissions. Industrial activity is the second largest source, contributing 21 percent of the state's GHG emissions (CARB, October 2012). California emissions are due in part to its large size and large population compared to other states. However, a factor that reduces California's per capita fuel use and GHG emissions, as compared to other states, is its relatively mild climate. The CARB has projected statewide unregulated GHG emissions for the year 2020 will be 507 MMT CO_2E (ARB, August 2013). These projections represent the emissions that would be expected to occur in the absence of any GHG reduction actions.

Potential Effects of Climate Change. Globally, climate change has the potential to affect numerous environmental resources through potential impacts related to future air temperatures and precipitation patterns. Scientific modeling predicts that continued GHG emissions at or above current rates would induce more extreme climate changes during the 21st century than were observed during the 20th century. Long-term trends have found that each of the past three decades has been warmer than all the previous decades in the instrumental record, and the decade from 2000 through 2010 has been the warmest. The global combined land and ocean temperature data show an increase of about 0.89°C (0.69°C–1.08°C) over the period 1901–2012 and about 0.72°C (0.49°C–0.89°C) over the period 1951–2012 when described by a linear trend. Several independently analyzed data records of global and regional Land-Surface Air Temperature (LSAT) obtained from station observations are in agreement that LSAT as well as sea surface tempteratures have increased. In addition to these findings, there are identifiable signs that global warming is currently taking place, including substantial ice loss in the Arctic over the past two decades (IPCC, 2013).

According to the CalEPA's *2010 Climate Action Team Biennial Report*, potential impacts of climate change in California may include loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years (CalEPA, April 2010). While there is growing scientific consensus about the possible effects of climate change at a global and potentially statewide level, current scientific modeling tools are unable to predict what local impacts may occur with a similar degree of accuracy. In general, regional and local predictions are made based on downscaling statewide models (CalEPA, April 2010). Below is a summary of some of the potential effects that could be experienced in California as a result of climate change.

Sea Level Rise. According to *The Impacts of Sea-Level Rise on the California Coast*, prepared by the California Climate Change Center (CCCC) (May 2009), climate change has the potential to induce substantial sea level rise in the coming century. The rising sea level increases the likelihood and risk of flooding. Sea levels are rising faster now than in the previous two millennia, and the rise is expected to accelerate, even with robust GHG emission control measures. The most recent IPCC report (2013) predicts a mean sea–level rise of 11-38 inches by 2100. This prediction is more than 50% higher than earlier projections of 7-23 inches, when comparing the same emissions scenarios and time periods. The previous IPCC report (2007) identified a sea level rise on the California coast over the past century of approximately eight inches. Based on the results of various global climate change models, sea level rise is expected to continue. The California Climate Adaptation Strategy (December 2009) estimates a sea level rise of up to 55 inches by the end of this century.

Air Quality. Higher temperatures, which are conducive to air pollution formation, could worsen air quality in California. Climate change may increase the concentration of ground-level ozone, but the magnitude of the effect, and therefore its indirect effects, are uncertain. If higher temperatures are accompanied by drier conditions, the potential for large wildfires could increase, which, in turn, would further worsen air quality. However, if higher temperatures are accompanied by wetter, rather than drier conditions, the rains would tend to temporarily clear the air of particulate pollution and reduce the incidence of large wildfires, thereby ameliorating the pollution associated with wildfires. Additionally, severe heat accompanied by drier

conditions and poor air quality could increase the number of heat-related deaths, illnesses, and asthma attacks throughout the state (California Energy Commission [CEC], March, 2009).

Water Supply. Analysis of paleoclimatic data (such as tree-ring reconstructions of stream flow and precipitation) indicates a history of naturally and widely varying hydrologic conditions in California and the west, including a pattern of recurring and extended droughts. Uncertainty remains with respect to the overall impact of climate change on future water supplies in California. However, the average early spring snowpack in the Sierra Nevada decreased by about 10 percent during the last century, a loss of 1.5 million acre-feet of snowpack storage. During the same period, sea level rose eight inches along California's coast. California's temperature has risen 1°F, mostly at night and during the winter, with higher elevations experiencing the highest increase. Many Southern California cities have experienced their lowest recorded annual precipitation twice within the past decade. In a span of only two years, Los Angeles experienced both its driest and wettest years on record (California Department of Water Resources [DWR], 2008; CCCC, May 2009).

This uncertainty complicates the analysis of future water demand, especially where the relationship between climate change and its potential effect on water demand is not well understood. The Sierra snowpack provides the majority of California's water supply by accumulating snow during the state's wet winters and releasing it slowly during the state's dry springs and summers. Based upon historical data and modeling DWR projects that the Sierra snowpack will experience a 25 to 40 percent reduction from its historic average by 2050. Climate change is also anticipated to bring warmer storms that result in less snowfall at lower elevations, reducing the total snowpack (DWR, 2008).

Hydrology. As discussed above, climate change could potentially affect: the amount of snowfall, rainfall, and snow pack; the intensity and frequency of storms; flood hydrographs (flash floods, rain or snow events, coincidental high tide and high runoff events); sea level rise and coastal flooding; coastal erosion; and the potential for salt water intrusion. The rate of increase of global mean sea levels over the 2001-2010 decade, as observed by satellites, ocean buoys and land gauges, was approximately 3.2 mm per year, which is double the observed 20th century trend of 1.6 mm per year (World Meteorological Organization [WMO],2013). As a result, sea levels averaged over the last decade were about 8 inches higher than those of 1880 (WMO, 2013). Sea level rise may be a product of climate change through two main processes: expansion of sea water as the oceans warm and melting of ice over land. A rise in sea levels could result in coastal flooding and erosion and could jeopardize California's water supply due to salt water intrusion. Increased CO_2 emissions can cause oceans to acidify due to the carbonic acid it forms. Increased storm intensity and frequency could affect the ability of flood-control facilities, including levees, to handle storm events.

Agriculture. California has a $30 billion annual agricultural industry that produces half of the country's fruits and vegetables. Higher CO_2 levels can stimulate plant production and increase plant water-use efficiency. However, if temperatures rise and drier conditions prevail, water demand could increase; crop-yield could be threatened by a less reliable water supply; and greater air pollution could render plants more susceptible to pest and disease outbreaks. In addition, temperature increases could change the time of year certain crops, such as wine grapes, bloom or ripen, and thereby affect their quality (CCCC, 2006).

Ecosystems and Wildlife. Climate change and the potential resulting changes in weather patterns could have ecological effects on a global and local scale. Increasing concentrations of GHGs are likely to accelerate the rate of climate change. Scientists project that the average global surface temperature could rise by 1.0-4.5°F (0.6-2.5°C) in the next 50 years, and 2.2-10°F (1.4-5.8°C) in the next century, with substantial regional variation. Soil moisture is likely to decline in many regions, and intense rainstorms are likely to become more frequent. Rising temperatures could have four major impacts on plants and animals: (1) timing of ecological events; (2) geographic range; (3) species' composition within communities; and (4) ecosystem processes, such as carbon cycling and storage (Parmesan, 2004; Parmesan, C. and H. Galbraith, 2004).

b. Regulatory Setting. The following regulations address both climate change and GHG emissions.

International Regulations. The United States is, and has been, a participant in the United Nations Framework Convention on Climate Change (UNFCCC) since it was produced in 1992. The UNFCCC is an international environmental treaty with the objective of, "stabilization of GHG concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system." This is generally understood to be achieved by stabilizing global GHG concentrations between 350 and 400 ppm, in order to limit the global average temperature increases between 2 and 2.4°C above pre-industrial levels (IPCC, 2007). The UNFCC itself does not set limits on GHG emissions for individual countries or enforcement mechanisms. Instead, the treaty provides for updates, called "protocols," that would identify mandatory emissions limits.

Five years later, the UNFCC brought nations together again to draft the *Kyoto Protocol* (1997). The Kyoto Protocol established commitments for industrialized nations to reduce their collective emissions of six GHGs (CO_2, CH_4, N_2O, SF_6, HFCs, and PFCs) to 5.2 percent below 1990 levels by 2012. The United States is a signatory of the Kyoto Protocol, but Congress has not ratified it and the United States has not bound itself to the Protocol's commitments (UNFCCC, 2007). The first commitment period of the Kyoto Protocol ended in 2012. Governments, including 38 industrialized countries, agreed to a second commitment period of the Kyoto Protocol beginning January 1, 2013 and ending either on December 31, 2017 or December 31, 2020, to be decided by the Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol at its seventeenth session (UNFCCC, November 2011).

In Durban (17th session of the Conference of the Parties in Durban, South Africa, December 2011), governments decided to adopt a universal legal agreement on climate change as soon as possible, but not later than 2015. Work will begin on this immediately under a new group called the Ad Hoc Working Group on the Durban Platform for Enhanced Action. Progress was also made regarding the creation of a Green Climate Fund (GCF) for which a management framework was adopted (UNFCCC, December 2011; United Nations, September 2012).

Federal Regulations. The United States is currently using a voluntary and incentive-based approach toward emissions reductions in lieu of the Kyoto Protocol's mandatory framework. The Climate Change Technology Program (CCTP) is a multi-agency research and development coordination effort (led by the Secretaries of Energy and Commerce) that is

charged with carrying out the President's National Climate Change Technology Initiative (U.S. EPA, December 2007). However, the voluntary approach to address climate change and GHG emissions may be changing. The United States Supreme Court in *Massachusetts et al. v. Environmental Protection Agency et al*. ([2007] 549 U.S. 05-1120) held that the U.S. EPA has the authority to regulate motor-vehicle GHG emissions under the federal Clean Air Act.
The U.S. EPA issued a Final Rule for mandatory reporting of GHG emissions in October 2009. This Final Rule applies to fossil fuel suppliers, industrial gas suppliers, direct GHG emitters, and manufacturers of heavy-duty and off-road vehicles and vehicle engines, and requires annual reporting of emissions. The first annual reports for these sources were due in March 2011.

On May 13, 2010, the U.S. EPA issued a Final Rule that took effect on January 2, 2011, setting a threshold of 75,000 metric tons (MT) CO_2E per year for GHG emissions. New and existing industrial facilities that meet or exceed that threshold will require a permit after that date. On November 10, 2010, the U.S. EPA published the "PSD and Title V Permitting Guidance for Greenhouse Gases." The U.S. EPA's guidance document is directed at state agencies responsible for air pollution permits under the Federal Clean Air Act to help them understand how to implement GHG reduction requirements while mitigating costs for industry. It is expected that most states will use the U.S. EPA's new guidelines when processing new air pollution permits for power plants, oil refineries, cement manufacturing, and other large pollution point sources.

On January 2, 2011, the U.S. EPA implemented the first phase of the Tailoring Rule for GHG emissions Title V Permitting. Under the first phase of the Tailoring Rule, all new sources of emissions are subject to GHG Title V permitting if they are otherwise subject to Title V for another air pollutant and they emit at least 75,000 MT CO_2E per year. Under Phase 1, no sources were required to obtain a Title V permit solely due to GHG emissions. Phase 2 of the Tailoring Rule went into effect July 1, 2011. At that time new sources were subject to GHG Title V permitting if the source emits 100,000 MT CO_2E per year, or they are otherwise subject to Title V permitting for another pollutant and emit at least 75,000 MT CO_2E per year.

On July 3, 2012 the U.S. EPA issued the final rule that retains the GHG permitting thresholds that were established in Phases 1 and 2 of the GHG Tailoring Rule. These emission thresholds determine when Clean Air Act permits under the New Source Review Prevention of Significant Deterioration (PSD) and Title V Operating Permit programs are required for new and existing industrial facilities.

California Regulations. California Air Resources Board (CARB) is responsible for the coordination and oversight of State and local air pollution control programs in California. Various statewide and local initiatives to reduce California's contribution to GHG emissions have raised awareness about climate change and its potential for severe long-term adverse environmental, social, and economic effects.

Assembly Bill (AB) 1493 (2002), referred to as "Pavley," requires CARB to develop and adopt regulations to achieve "the maximum feasible and cost-effective reduction of GHG emissions from motor vehicles." On June 30, 2009, U.S. EPA granted the waiver of Clean Air Act preemption to California for its greenhouse gas emission standards for motor vehicles beginning with the 2009 model year. Pavley I took effect for model years starting in 2009 to 2016

and Pavley II, which is now referred to as "LEV (Low Emission Vehicle) III GHG" will cover 2017 to 2025. Fleet average emission standards would reach 22 percent reduction by 2012 and 30 percent by 2016. The Advanced Clean Cars program coordinates the goals of the Low Emissions Vehicles (LEV), Zero Emissions Vehicles (ZEV), and Clean Fuels Outlet programs and would provide major reductions in GHG emissions. By 2025, when the rules would be fully implemented, new automobiles would emit 34% fewer GHGs. Statewide CO_2E emissions would be reduced by 3% by 2020 and by 12% by 2025. The reduction increases to 27% in 2035 and even further to a 33% reduction in 2050 (CARB, 2013).

In 2005, former Governor Schwarzenegger issued Executive Order (EO) S-3-05, establishing statewide GHG emissions reduction targets. EO S-3-05 provides that by 2010, emissions shall be reduced to 2000 levels; by 2020, emissions shall be reduced to 1990 levels; and by 2050, emissions shall be reduced to 80 percent of 1990 levels (CalEPA, 2006). In response to EO S-3-05, CalEPA created the Climate Action Team (CAT), which in March 2006 published the Climate Action Team Report (the "2006 CAT Report") (CalEPA, 2006). The 2006 CAT Report identified a recommended list of strategies that the state could pursue to reduce GHG emissions. These are strategies that could be implemented by various state agencies to ensure that the emission reduction targets in EO S-3-05 are met and can be met with existing authority of the state agencies. The strategies include the reduction of passenger and light duty truck emissions, the reduction of idling times for diesel trucks, an overhaul of shipping technology/infrastructure, increased use of alternative fuels, increased recycling, and landfill methane capture, etc.

California's major initiative for reducing GHG emissions is outlined in Assembly Bill 32 (AB 32), the "California Global Warming Solutions Act of 2006," signed into law in 2006. AB 32 codifies the statewide goal of reducing GHG emissions to 1990 levels by 2020 (essentially a 15% reduction below 2005 emission levels; the same requirement as under S-3-05), and requires CARB to prepare a Scoping Plan that outlines the main State strategies for reducing GHGs to meet the 2020 deadline. In addition, AB 32 requires CARB to adopt regulations to require reporting and verification of statewide GHG emissions.

After completing a comprehensive review and update process, CARB approved a 1990 statewide GHG level and 2020 limit of 427 MMT CO_2E. The Scoping Plan was approved by CARB on December 11, 2008, and includes measures to address GHG emission reduction strategies related to energy efficiency, water use, and recycling and solid waste, among other measures. The Scoping Plan includes a range of GHG reduction actions that may include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, and market-based mechanisms.

In early 2013, CARB initiated activities to update the AB 32 Scoping Plan. The 2013 Scoping Plan update will define CARB's climate change priorities and lay the groundwork to reach post-2020 goals set forth in EO S-3-05. The update will highlight California's progress toward meeting the "near-term" 2020 GHG emission reduction goals defined in the original Scoping Plan (2008). It will also evaluate how to align the State's longer-term GHG reduction strategies with other State policy priorities, such as for water, waste, natural resources, clean energy and transportation, and land use (CARB, 2013).

EO S-01-07 was enacted on January 18, 2007. The order mandates that a Low Carbon Fuel Standard ("LCFS") for transportation fuels be established for California to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020.

Senate Bill (SB) 97, signed in August 2007, acknowledges that climate change is an environmental issue that requires analysis in CEQA documents. In March 2010, the California Resources Agency (Resources Agency) adopted amendments to the State CEQA Guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions. The adopted guidelines give lead agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHGs and climate change impacts.

CARB Resolution 07-54 establishes 25,000 MT of GHG emissions as the threshold for identifying the largest stationary emission sources in California for purposes of requiring the annual reporting of emissions. This threshold is just over 0.005 percent of California's total inventory of GHG emissions for 2004.

Senate Bill (SB) 375, signed in August 2008, enhances the state's ability to reach AB 32 goals by directing CARB to develop regional GHG emission reduction targets to be achieved from vehicles for 2020 and 2035. In addition, SB 375 directs each of the state's 18 major Metropolitan Planning Organizations (MPO) to prepare a "sustainable communities strategy" (SCS) that contains a growth strategy to meet these emission targets for inclusion in the Regional Transportation Plan (RTP). On September 23, 2010, CARB adopted final regional targets for reducing GHG emissions from 2005 levels by 2020 and 2035.

The Southern California Association of Governments (SCAG) was assigned targets of an 8 percent reduction in GHGs from transportation sources by 2020 and a 13 percent reduction in GHGs from transportation sources by 2035. In the SCAG region, SB 375 also provides the option for the coordinated development of subregional plans by the subregional councils of governments and the county transportation commissions to meet SB 375 requirements.

In April 2011, Governor Brown signed SB 2X, requiring California to generate 33 percent of its electricity from renewable energy by 2020.

For more information on the Senate and Assembly Bills, Executive Orders, and reports discussed above, and to view reports and research referenced above, please refer to the following websites: www.climatechange.ca.gov and www.arb.ca.gov/cc/cc.htm.

California Environmental Quality Act. Pursuant to the requirements of SB 97, the Resources Agency has adopted amendments to the *State CEQA Guidelines* for the feasible mitigation of GHG emissions or the effects of GHG emissions. As noted previously, the adopted *CEQA Guidelines* provide general regulatory guidance on the analysis and mitigation of GHG emissions in CEQA documents, while giving lead agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHGs and climate change impacts. To date, the South Coast Air Quality Management District (SCAQMD), the Bay Area Air Quality Management District (BAAQMD), the San Luis Obispo Air Pollution Control District (SLOAPCD), and the San Joaquin Air Pollution Control District (SJVAPCD) have adopted quantitative significance thresholds for GHGs.

4.6.2 Impact Analysis

a. Methodology and Significance Thresholds. Pursuant to the requirements of SB 97, the Resources Agency adopted amendments to the *State CEQA Guidelines* for the feasible mitigation of GHG emissions or the effects of GHG emissions in March 2010. These guidelines are used in evaluating the cumulative significance of GHG emissions from the proposed project.

According to the adopted CEQA Guidelines, impacts related to GHG emissions from the proposed project would be significant if the project would:

- *Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; and/or*
- *Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.*

The vast majority of individual projects do not generate sufficient GHG emissions to create a project-specific impact through a direct influence to climate change; therefore, the issue of climate change typically involves an analysis of whether a project's contribution towards an impact 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 projects, other current projects, and probable future projects (CEQA Guidelines, Section 15355).

The SCAQMD threshold, which was adopted in December 2008, considers emissions of over 10,000 metric tons carbon dioxide equivalent (CO_2E)/year to be significant. However, the SCAQMD's threshold applies only to stationary sources and is intended to apply only when the SCAQMD is the CEQA lead agency.

In the latest guidance provided by the SCAQMD's GHG CEQA Significance Threshold Working Group in September 2010, SCAQMD has considered a tiered approach to determine the significance of residential and commercial projects. The draft-tiered approach is outlined in the meeting minutes, dated September 29, 2010.

Tier 1 - If the project is exempt from further environmental analysis under existing statutory or categorical exemptions, there is a presumption of less than significant impacts with respect to climate change. If not, then the Tier 2 threshold should be considered.

Tier 2 - Consists of determining whether or not the project is consistent with a GHG reduction plan that may be part of a local general plan, for example. The concept embodied in this tier is equivalent to the existing concept of consistency in CEQA Guidelines section 15064(h)(3), 15125(d) or 15152(a). Under this Tier, if the proposed project is consistent with the qualifying local GHG reduction plan, it is not significant for GHG emissions. If there is not an adopted plan, then a Tier 3 approach would be appropriate.

Tier 3 - Establishes a screening significance threshold level to determine significance. The Working Group has provided a recommendation of 3,000 tons of CO_2e per year for commercial projects.

Although not formally adopted by the SCAQMD, the Tier 3 threshold of 3,000 metric tons of CO_2E/year is used to gauge the significance of the project's impact to climate change.

Study Methodology. Calculations of CO_2, CH_4, and N_2O emissions are provided to identify the magnitude of potential project effects. The analysis focuses on CO_2, CH_4, and N_2O because these make up 98.9 percent of all GHG emissions by volume (IPCC, 2007) and are the GHG emissions that the project would emit in the largest quantities. Fluorinated gases, such as HFCs, PFCs, and SF_6, were also considered for the analysis. However, the potential for future occupants of the proposed industrial structures is unknown at this time and to forecast emissions of fluorinated gases would be necessarily speculative. Emissions of all GHGs are converted into their equivalent weight in CO_2 (CO_2E). Minimal amounts of other main GHGs (such as chlorofluorocarbons [CFCs]) would be emitted; however, these other GHG emissions would not substantially add to the calculated CO_2E amounts. Calculations are based on the methodologies discussed in the California Air Pollution Control Officers Association (CAPCOA) *CEQA and Climate Change* white paper (January 2008) and included the use of the California Climate Action Registry (CCAR) General Reporting Protocol (January 2009).

On-Site Operational Emissions. Operational emissions from energy use (electricity and natural gas use) for the project were estimated using the California Emissions Estimator Model (CalEEMod) 2011 Version 2011.1.1 software program (see Appendix 4.2 for calculations). The default values on which CalEEMod are based include the CEC-sponsored California Commercial End Use Survey (CEUS) and Residential Appliance Saturation Survey (RASS) studies. CalEEMod provides operational emissions of CO_2, N_2O and CH_4. This methodology is considered reasonable and reliable for use, as it has been subjected to peer review by numerous public and private stakeholders, and in particular by the CEC. It is also recommended by CAPCOA (January 2008).

Emissions associated with area sources, including consumer products, landscape maintenance, and architectural coating were calculated in CalEEMod and utilize standard emission rates from CARB, U.S. EPA, and district supplied emission factor values (CalEEMod User Guide, 2011).

Emissions from waste generation were also calculated in CalEEMod and are based on the IPCC's methods for quantifying GHG emissions from solid waste using the degradable organic content of waste (CalEEMod User Guide, 2011). Waste disposal rates by land use and overall composition of municipal solid waste in California was primarily based on data provided by the California Department of Resources Recycling and Recovery (CalRecycle).

Emissions from water and wastewater usage calculated in CalEEMod were based on the default electricity intensity from the CEC's 2006 Refining Estimates of Water-Related Energy Use in California using the average values for Northern and Southern California.

Direct Emissions from Mobile Combustion. Emissions of CO_2 and CH_4 from transportation sources for the proposed project were quantified using CalEEMod. Because CalEEMod does not calculate N_2O emissions from mobile sources, N_2O emissions were quantified using the California

Climate Action Registry General Reporting Protocol (January 2009) direct emissions factors for mobile combustion (see Appendix C for calculations). The estimate of total daily trips associated with the proposed project was based on the standard Institute of Transportation Engineers (ITE) vehicle trip rates and was calculated and extrapolated to derive total annual mileage in CalEEMod. Emission rates for N_2O emissions were based on the vehicle mix output generated by CalEEMod and the emission factors found in the California Climate Action Registry General Reporting Protocol.

A limitation of the quantitative analysis of emissions from mobile combustion is that emission models, such as CalEEMod, evaluate aggregate emissions, meaning that all vehicle trips and related emissions assigned to a project are assumed to be new trips and emissions generated by the project itself. Such models do not demonstrate, with respect to a regional air quality impact, what proportion of these emissions are actually "new" emissions, specifically attributable to the project in question. For most projects, the main contributor to regional air quality emissions is from motor vehicles; however, the quantity of vehicle trips appropriately characterized as "new" is usually uncertain as traffic associated with a project may be relocated trips from other locales. In other words, vehicle trips associated with the project may include trips relocated from other existing locations. Therefore, because the proportion of "new" versus relocated trips is unknown, the VMT estimate generated by CalEEMod is used as a conservative, "worst-case" estimate.

Construction Emissions. Although construction activity is addressed in this analysis, CAPCOA does not discuss whether any of the suggested threshold approaches (as discussed below in *GHG Cumulative Significance*) adequately address impacts from temporary construction activity. As stated in the *CEQA and Climate Change* white paper, "more study is needed to make this assessment or to develop separate thresholds for construction activity" (CAPCOA, 2008). Nevertheless, air districts such as the SCAQMD (2011) have recommended amortizing construction-related emissions over a 30-year period in conjunction with the proposed project's operational emissions.

Construction of the proposed project would generate temporary GHG emissions primarily due to the operation of construction equipment and truck trips. Site preparation and grading typically generate the greatest amount of emissions due to the use of grading equipment and soil hauling. CalEEMod was used to estimate emissions associated with the construction period, based on parameters such as the duration of construction activity, area of disturbance, and anticipated equipment use during construction. Complete results from CalEEMod and assumptions can be viewed in Appendix C.

b. Project Impacts and Mitigation Measures.

Impact GHG-1 **Development that could potentially occur under the proposed project would generate additional GHG emissions beyond existing conditions. However, GHG emissions would not exceed proposed SCAQMD significance thresholds. Impacts would therefore be Class III, *less than significant.***

GHG emissions for potential buildout of the proposed project site were calculated using CalEEMod based on the project's construction schedule and the type of development proposed. The following summarizes the project's overall GHG emissions (see Appendix C for full CalEEMod worksheets).

Construction Emissions. The project construction plan indicates that construction would occur in phases over approximately four years beginning in 2015. Based on the CalEEMod results, construction activity facilitated by the proposed project would generate an estimated 1,425 metric tons of CO_2E (as shown in Table 4.6-1). Amortized over a 30-year period (the assumed life of the project), construction facilitated by the project would generate an estimated 47.5 metric tons of CO_2E per year.

Table 4.6-1
Estimated Construction Emissions of Greenhouse Gases

Construction Year	CO_2E (Metric Tons
2015	299
2016	533
2017	352
2018	241
Total	**1,425 metric tons**
Amortized over 30 years	**47.5 metric tons per year**

See Appendix C for calculations and for GHG emission factor assumptions.

Operational Indirect and Stationary Direct Emissions.

Area Source Emissions. CalEEMod was used to calculate direct sources of air emissions located at the project site. Area source emissions associated with the proposed project would result from landscaping maintenance activities and use of natural gas hearths. As shown in Table 4.6-2, landscaping and use of natural gas hearths associated with the project would generate approximately 38.75 metric tons of CO_2E per year.

Table 4.6-2
Estimated Annual Area Source Greenhouse Gas Emissions

Emission Source	Annual Emissions CO_2E
Landscaping	2.25 metric tons
Natural Gas Hearths	36.5
Total	**38.75 metric tons**

See Appendix C for calculations and for GHG emission factor assumptions.

Energy Use. Operation of the proposed new buildings would consume both electricity and natural gas. The generation of electricity through combustion of fossil fuels typically yields CO_2, and to a smaller extent, N_2O and CH_4. Annual electricity and natural gas emissions can be calculated using default values from the CEC sponsored CEUS and RASS studies, which are built into CalEEMod.

As shown in Table 4.6-3, electricity consumption associated with the project would generate approximately 274.5 metric tons of CO_2E per year. Natural gas use would generate approximately 209.5 metric tons CO_2E per year. Thus, overall energy use at the project site would generate approximately 484 metric tons CO_2E per year.

Table 4.6-3
Estimated Annual Energy-Related Greenhouse Gas Emissions

Emission Source	Annual Emissions CO_2E
Electricity	274.5 metric tons
Natural Gas	209.5 metric tons
Total	**484 metric tons**

See Appendix C for calculations and for GHG emission factor assumptions.

Solid Waste Emissions. It is anticipated that the development facilitated by the proposed project would generate approximately 151.3 tons of solid waste per year according to CalEEMod. As shown in Table 4.6-4, based on this estimate, solid waste associated with the project would generate approximately 68.8 metric tons of CO_2E per year.

Table 4.6-4
Estimated Annual Solid Waste Greenhouse Gas Emissions

Emission Source	Annual Emissions CO_2E
Solid Waste	68.8 metric tons

See Appendix C for calculations and for GHG emission factor assumptions.

*Water Use Emissions***.** It is anticipated that the project would use approximately 11.8 million gallons of water per year, based on CalEEMod water demand assumptions. Based on the amount of electricity generated to supply this amount of water, as shown in Table 4.6-5, this element of the project would generate approximately 50.1 metric tons of CO_2E per year.

Table 4.6-5
Estimated Greenhouse Gas Emissions from Water Use

Emission Source	Annual Emissions CO_2E
Water Use	50.1 metric tons

See Appendix C for calculations and for GHG emission factor assumptions.

Transportation Emissions. Mobile source GHG emissions were estimated using the project's traffic study (March 2015) and by the total vehicle miles traveled (VMT) estimated in CalEEMod. Based on the CalEEMod estimate, the proposed project would generate an estimated 4,263,707 annual VMT.

Table 4.6-6 shows the estimated mobile emissions of GHGs for the project based on the estimated annual VMT. As noted above, the CalEEMod model does not calculate N_2O emissions related to mobile sources. As such, N_2O emissions were calculated based on the project's VMT using calculation methods provided by the California Climate Action Registry General Reporting Protocol (January 2009). As shown in Table 4.6-6, the project would result in approximately 1,924 metric tons of CO_2E associated with mobile emissions.

Table 4.6-6
Estimated Annual Mobile Emissions of Greenhouse Gases

Emission Source	Annual Emissions CO_2E
Mobile Emissions (CO_2 & CH_4) [1]	1,831 metric tons
Mobile Emissions (N_2O) [2]	93.1 metric tons
Total	**1,924.1 metric tons**

[1] *See Appendix C for calculations in CalEEMod Model output from Air Quality Analysis*

Combined Construction, Stationary and Mobile Source Emissions. Table 4.6-7 combines the construction, operational and mobile GHG emissions associated with onsite development for the proposed project. Construction emissions associated with construction activity (approximately 1,748 metric tons CO_2E) are amortized over 30 years (the anticipated life of the project). For the proposed project, the combined annual emissions would total 2,613.25 metric tons CO_2E/year. This total represents less than 0.001 percent of California's total 2009 emissions of 453 million metric tons and is less than the 3,000 tons per year threshold of significance.

Table 4.6-7
Combined Annual Emissions of Greenhouse Gases

Emission Source	Annual Emissions CO_2E
Construction	47.5 metric tons
Operational	
Area	38.75 metric tons
Energy	484 metric tons
Solid Waste	68.8 metric tons
Water	50.1 metric tons
Mobile	1,924.1 metric tons
Total	**2,613.25 metric tons**

Sources: See Appendix C for calculations and for GHG emission factor assumptions.

The majority of the project's GHG emissions are associated with vehicular travel (74 percent). As noted above, mobile emissions are in part a redirection of existing travel to other locations and so are to some extent already a part of the total California GHG emissions.

Implementation of the proposed project would generate GHG emissions beyond existing conditions. However, because the total amount of GHG emissions would be lower than the 3,000 metric tons per year threshold, impacts from GHG emissions would be less than significant.

Mitigation Measures. The proposed project would generate less than 3,000 metric tons of CO_2E per year; therefore, mitigation is not necessary.

Significance after Mitigation. Impacts would be less than significant without mitigation.

Impact GHG-2 The proposed project would be consistent with the Climate Action Team GHG reduction strategies and the SCAG Sustainable Communities Strategy. Impacts related to consistency with GHG plans and policies would therefore be Class III, *less than significant.*

The proposed project would be generally consistent with applicable regulations or plans addressing GHG reductions. As indicated above, the CAT published the Climate Action Team Report to Governor Schwarzenegger and the Legislature (the "2006 CAT Report") in March 2006. The CAT Report identifies a recommended list of strategies that the State could pursue to reduce climate change greenhouse gas emissions. The CAT strategies are recommended to reduce GHG emissions at a statewide level to meet the goals of the Executive Order S-3-05. These are strategies that could be implemented by various State agencies to ensure that the Governor's targets are met and can be met with existing authority of the State agencies.

The SCAG SCS contains a number of strategies that relate to the operations of SCAG and regional land use planning. Since such strategies lie beyond the scope of individual development projects, only those strategies applicable to the proposed project are addressed.

The City of Long Beach adopted a Sustainable City Action Plan in 2010. This plan contains goals intended to support sustainable development within the City. Implementation of this plan would contribute to a reduction in the City's overall GHG emissions.

Tables 4.6-8 through 4.6-10 illustrate that the proposed project would be consistent with the GHG reduction strategies set forth by the 2006 CAT Report and the SCAG SCS. Therefore, additional mitigation measures would not be required.

Table 4.6-8
Project Consistency with Applicable Climate Action Team Greenhouse Gas Emission Reduction Strategies

Strategy	***Project Consistency***
California Air Resources Board	
Vehicle Climate Change Standards AB 1493 (Pavley) required the state to develop and adopt regulations that achieve the maximum feasible and cost-effective reduction of climate change emissions emitted by passenger vehicles and light duty trucks. Regulations were adopted by the CARB in September 2004.	**Consistent** The vehicles that travel to and from the project site on public roadways would be in compliance with CARB vehicle standards that are in effect at the time of vehicle purchase.
Diesel Anti-Idling The CARB adopted a measure to limit diesel-fueled commercial motor vehicle idling in July 2004.	**Consistent** Current State law restricts diesel truck idling to five minutes or less. Diesel trucks operating from and making deliveries to the project site are subject to this state-wide law. Construction vehicles are also subject to this regulation.
Hydrofluorocarbon Reduction 1) Ban retail sale of HFC in small cans. 2) Require that only low GWP refrigerants be used in new vehicular systems. 3) Adopt specifications for new commercial refrigeration. 4) Add refrigerant leak-tightness to the pass criteria for vehicular inspection and maintenance programs. 5) Enforce federal ban on releasing HFCs.	**Consistent** This strategy applies to consumer products. All applicable products would be required to comply with the regulations that are in effect at the time of manufacture.
Alternative Fuels: Biodiesel Blends ARB would develop regulations to require the use of 1 to 4% biodiesel displacement of California diesel fuel.	**Consistent** The diesel vehicles such as construction vehicles that travel to and from the project site on public roadways could utilize this fuel once it is commercially available.
Alternative Fuels: Ethanol Increased use of E-85 fuel.	**Consistent** Residents living at the project site could choose to purchase flex-fuel vehicles and utilize this fuel , which is currently available at locations in Norwalk northeast of the project site.

Table 4.6-8
Project Consistency with Applicable Climate Action Team Greenhouse Gas Emission Reduction Strategies

Strategy	***Project Consistency***
Heavy-Duty Vehicle Emission Reduction Measures Increased efficiency in the design of heavy duty vehicles and an education program for the heavy duty vehicle sector.	**Consistent** The heavy-duty vehicles for construction activities that travel to and from the project site on public roadways would be subject to all applicable CARB efficiency standards that are in effect at the time of vehicle manufacture.
Achieve 50% Statewide Recycling Goal Achieving the State's 50% waste diversion mandate as established by the Integrated Waste Management Act of 1989, (AB 939, Sher, Chapter 1095, Statutes of 1989), will reduce climate change emissions associated with energy intensive material extraction and production as well as methane emission from landfills. A diversion rate of 48% has been achieved on a statewide basis. Therefore, a 2% additional reduction is needed.	**Consistent** According to data provided by CalRecycle, the City of Long Beach met its target disposal rates for both per resident and per employee metrics. Based on data for 2013 (the most recent year for which approved data is available), the City's per resident disposal rate was 3.9 pounds per day (ppd), half of the City's 7.6 ppd target. The City has implemented more than 40 programs designed to sustain these disposal rates.
Zero Waste – High Recycling Efforts to exceed the 50% goal would allow for additional reductions in climate change emissions.	**Consistent** As described above it is anticipated that the proposed project would participate in waste diversion programs. The project would also be subject to all applicable State and City requirements for solid waste reduction as they change in the future.
Department of Forestry	
Urban Forestry A new statewide goal of planting 5 million trees in urban areas by 2020 would be achieved through the expansion of local urban forestry programs.	**Consistent** Landscaping for new structures would result in additional planted trees throughout the project site.
Department of Water Resources	
Water Use Efficiency Approximately 19% of all electricity, 30% of all natural gas, and 88 million gallons of diesel are used to convey, treat, distribute and use water and wastewater. Increasing the efficiency of water transport and reducing water use would reduce greenhouse gas emissions.	**Consistent** The new proposed structures would be required to be consistent with CalGreen standards. As such, the proposed project would be equipped with low-flow plumbing fixtures, reducing water use.
Energy Commission (CEC)	
Building Energy Efficiency Standards in Place and in Progress Public Resources Code 25402 authorizes the CEC to adopt and periodically update its building energy efficiency standards (that apply to newly constructed buildings and additions to and alterations to existing buildings).	**Consistent** The proposed project would need to comply with the standards of Title 24 that are in effect at the time of development. The project would be equipped with equipment (e.g. HVAC systems), lighting fixtures, and lighting that meets Title 24 requirements.

Table 4.6-8
Project Consistency with Applicable Climate Action Team Greenhouse Gas Emission Reduction Strategies

Strategy	*Project Consistency*
Appliance Energy Efficiency Standards in Place and in Progress Public Resources Code 25402 authorizes the Energy Commission to adopt and periodically update its appliance energy efficiency standards (that apply to devices and equipment using energy that are sold or offered for sale in California).	**Consistent** Under State law, appliances that are purchased for the project - both pre- and post-development – would be consistent with energy efficiency standards that are in effect at the time of manufacture.
Fuel-Efficient Replacement Tires & Inflation Programs State legislation established a statewide program to encourage the production and use of more efficient tires.	**Consistent** Residents living at the project site could purchase tires for their vehicles that comply with state programs for increased fuel efficiency.
Municipal Utility Energy Efficiency Programs/Demand Response Includes energy efficiency programs, renewable portfolio standard, combined heat and power, and transitioning away from carbon-intensive generation.	*Not applicable*, but project development would not preclude the implementation of this strategy by municipal utility providers.
Municipal Utility Renewable Portfolio Standard California's Renewable Portfolio Standard (RPS), established in 2002, requires that all load serving entities achieve a goal of 20% of retail electricity sales from renewable energy sources by 2017, within certain cost constraints.	*Not applicable*, but the project would not preclude implementation of this strategy by Southern California Edison.
Municipal Utility Combined Heat and Power Cost effective reduction from fossil fuel consumption in the commercial and industrial sector through the application of on-site power production to meet both heat and electricity loads.	*Not applicable* since this strategy addresses incentives that could be provided by utility providers such as Southern California Edison and The Gas Company.
Alternative Fuels: Non-Petroleum Fuels Increasing the use of non-petroleum fuels in California's transportation sector, as recommended as recommended in the CEC's 2003 and 2005 Integrated Energy Policy Reports.	**Consistent** Residents living at the project site could choose to purchase flex-fuel vehicles and utilize this fuel, which is currently available at locations in Norwalk located approximately 8 miles northeast of the project site.
Green Buildings Initiative Green Building Executive Order, S-20-04 (CA 2004), sets a goal of reducing energy use in public and private buildings by 20% by the year 2015, as compared with 2003 levels. The Executive Order and related action plan spell out specific actions state agencies are to take with state-owned and -leased buildings. The order and plan also discuss various strategies and incentives to encourage private building owners and operators to achieve the 20% target.	**Consistent** As discussed, the project would be required to be constructed in compliance with the standards of Title 24 that are in effect at the time of development. The 2013 Title 24 standards, which took effect on July 1, 2014, improve nonresidential energy efficiency by 30 percent compared to the current 2008 standards.

Table 4.6-8
Project Consistency with Applicable Climate Action Team Greenhouse Gas Emission Reduction Strategies

Strategy	***Project Consistency***
Business, Transportation and Housing	
Smart Land Use and Intelligent Transportation Systems (ITS) Smart land use strategies encourage jobs/housing proximity, promote transit-oriented development, and encourage high-density residential/commercial development along transit corridors. ITS is the application of advanced technology systems and management strategies to improve operational efficiency of transportation systems and movement of people, goods and services. The Governor is finalizing a comprehensive 10-year strategic growth plan with the intent of developing ways to promote, through state investments, incentives and technical assistance, land use, and technology strategies that provide for a prosperous economy, social equity and a quality environment. Smart land use, demand management, ITS, and value pricing are critical elements in this plan for improving mobility and transportation efficiency. Specific strategies include: promoting jobs/housing proximity and transit-oriented development; encouraging high density residential/commercial development along transit/rail corridor; valuing and congestion pricing; implementing intelligent transportation systems, traveler information/traffic control, incident management; accelerating the development of broadband infrastructure; and comprehensive, integrated, multimodal/intermodal transportation planning.	**Consistent** The project site is accessible via existing bus transit facilities. For example, Long Beach Transit bus route 111 has a stop at the West Del Amo Avenue and North Long Beach Avenue intersection approximately ½ mile northeast of the site.
Public Utilities Commission (PUC)	
Accelerated Renewable Portfolio Standard The Governor has set a goal of achieving 33% renewable in the State's resource mix by 2020. The joint PUC/Energy Commission September 2005 Energy Action Plan II (EAP II) adopts the 33% goal.	*Not applicable*, but project development would not preclude the implementation of this strategy by energy providers.
California Solar Initiative The solar initiative includes installation of 1 million solar roofs or an equivalent 3,000 MW by 2017 on homes and businesses, increased use of solar thermal systems to offset the increasing demand for natural gas, use of advanced metering in solar applications, and creation of a funding source that can provide rebates over 10 years through a declining incentive schedule.	**Consistent** The proposed project does not include solar power generation. However, the project does not preclude the installation of photovoltaic systems in the future.

Table 4.6-9
Project Consistency with Applicable SCAG SCS Greenhouse Gas Emission Reduction Strategies

Strategy	*Project Consistency*
Land Use Actions and Strategies	
Encourage the use of range-limited battery electric and other alternative fueled vehicles through policies and programs, such as, but not limited to, neighborhood oriented development, complete streets, and Electric (and other alternative fuel) Vehicle Supply Equipment in public parking lots.	**Consistent** Residents living at the project site could choose to purchase flex-fuel vehicles and utilize this fuel, which is currently available at locations in Norwalk approximately 8 miles northeast of the project site.
Support projects, programs, policies and regulations that encourage the development of complete communities, which includes a diversity of housing choices and educational opportunities, jobs for a variety of skills and education, recreation and culture, and a full-range of shopping, entertainment and services all within a relatively short distance.	**Consistent** The proposed project is a single family residential development located in an urbanized area and in proximity to existing residential and commercial development. Existing public transit facilities are located approximately ½ mile northeast of the project site. The proposed project would be generally consistent with efforts to provide diverse housing choices with recreational opportunities. It is does not include a commercial or educational element. It is assumed residents would use other modes of transportation including non-auto (e.g., walking, bicycles) and public transportation.
Transportation Network Actions and Strategies	
Prioritize transportation investments to support compact infill development that includes a mix of land uses, housing options, and open/park space, where appropriate, to maximize the benefits for existing communities, especially vulnerable populations, and to minimize any negative impacts.	**Consistent** The proposed project is located in an area surrounded by existing development, and would add residential uses. As such, the project would be infill development.
Explore and implement innovative strategies and projects that enhance mobility and air quality, including those that increase the walkability of communities and accessibility to transit via non-auto modes, including walking, bicycling, and neighborhood electric vehicles (NEVs) or other alternative fueled vehicles.	**Consistent** The proposed project is located in an urbanized area and in proximity to existing residential commercial development. Existing public transit facilities are located ½ mile northeast of the project site. The project site would be walkable and pedestrian access to the existing transit would be provided.
Collaborate with local jurisdictions to plan and develop residential and employment development around current and planned transit stations and neighborhood commercial centers.	**Consistent** The proposed project is located in an urbanized area and in proximity to existing public transit facilities. The proposed project would be consistent with efforts to support the use of public transportation.
Develop first-mile/last-mile strategies on a local level to provide an incentive for making trips by transit, bicycling, walking, or neighborhood electric vehicle or other ZEV options.	**Consistent** The proposed project is located in an urbanized area and in proximity to existing residential and commercial development. Existing public transit facilities are located near the project site. The proposed project would provide a pedestrian connection to the existing developed areas to the north as well as access to transit.
Transportation Demand Management Actions and Strategies	
Support work-based programs that encourage emission reduction strategies and incentivize active transportation commuting or ride-share modes.	Not applicable; however, occupants of the project site could participate in ridesharing or other commuting programs intended to reduce emissions from motor vehicles.

Table 4.6-9
Project Consistency with Applicable SCAG SCS
Greenhouse Gas Emission Reduction Strategies

Strategy	***Project Consistency***
Encourage the development of telecommuting programs by employers through review and revision of policies that may discourage alternative work options.	Not applicable; however, occupants of the project site could telecommute as appropriate.
Clean Vehicle Technology Actions and Strategies	
Develop a Regional PEV Readiness Plan with a focus on charge port infrastructure plans to support and promote the introduction of electric and other alternative fuel vehicles in Southern California.	*Not applicable*, but project development would not preclude implementation of this strategy.

Table 4.6-10
Project Consistency with Applicable
Long Beach Sustainable City Action Plan Goals

Goal	***Project Consistency***
Buildings and Neighborhoods	
At least 5 million square feet of privately developed LEED certified (or equivalent) green buildings by 2020	**Consistent** The proposed project is not currently designed to qualify for LEED certification. However, the project includes sustainability features that would be compatible with the general LEED certification principles such as being infill development and being located in proximity to transit stops. The proposed project would not conflict with the implementation of this goal.
Plant at least 10,000 trees in Long Beach by 2020	**Consistent** Landscaping for new structures would result in additional planted trees throughout the project site, thus moving the City toward this target.
50% of Long Beach residents work in Long Beach by 2020	**Consistent** The proposed project would provide residences for Long Beach residents.
Energy	
Reduce community electricity use by 15% by 2020 Reduce community natural gas use by 10% by 2020	**Consistent** The proposed project would comply with the most recent Title 24 energy efficiency requirements, which would increase energy efficiency. The 2014 Title 24 standards improve nonresidential energy efficiency by 30 percent.
Facilitate the development of at least 8 Megawatts of solar energy within the community (private rooftops) by 2020.	**Consistent** Current project designs do not include, but do not preclude, the installation of photovoltaic electricity generation systems on project roofs. The project would not impair the implementation of this goal.

Table 4.6-10
Project Consistency with Applicable
Long Beach Sustainable City Action Plan Goals

Goal	***Project Consistency***
Transportation	
Increase public transit ridership by 25% by 2016 Increase bike ridership from 1% to 10% by 2016	**Consistent** The proposed project is infill development in an area served by existing public transit lines and within ½ mile of existing transit stops.
Annual reduction in average pounds of solid waste generated per person per day	**Consistent** According to data provided by CalRecycle, the City of Long Beach met its target disposal rates for both per resident and per employee metrics. Based on data for 2013 (the most recent year for which approved data is available), the City's per resident disposal rate was 3.9 pounds per day (ppd), half of the City's 7.6 ppd target and the City's per employee disposal rate was 11.8 ppd, less than half of the 25.1 ppd target. The City has implemented more than 40 programs designed to sustain these disposal rates. The proposed project would participate in City programs intended to continue solid waste diversion.

As indicated in tables 4.6-8 through 4.6-10, the proposed project would not conflict with applicable CAT strategies, SCAG'S SCS GHG emission reduction strategies, and the Long Beach Sustainable City Action Plan Goals.

Mitigation Measures. The proposed project would not conflict with the 2006 CAT Report and the SCAG SCS; therefore, no mitigation is necessary.

Significance after Mitigation. Impacts would be less than significant without mitigation.

c. Cumulative Impacts. As discussed in Section 3.0, *Environmental Setting*, cumulative development in Long Beach, including development facilitated by the proposed project, would add dwelling units and non-residential development that would generate GHGs from vehicle trips and other sources. Analyses of GHGs are cumulative in nature, as they affect the accumulation of greenhouse gases in the atmosphere. Projects falling below the impact thresholds discussed above would have a less than significant impact, both individually and cumulatively. As indicated in Impact GHG-1, GHG emissions associated with the proposed project would be less than significant and the project's contribution to cumulative impacts are therefore also cumulatively less than significant.

This page intentionally left blank.

4.7 HAZARDS AND HAZARDOUS MATERIALS

This section analyzes potential impacts resulting from the transport, use, or disposal of hazardous materials and the potential for project development to 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. This section also analyzes the potential hazards associated with the development of new residential uses in proximity to the Perry Lindsey Middle School, which is the only school within ¼ mile of the project site.

4.7.1 Setting

a. Existing Conditions. Improper use, storage, transport, and disposal of hazardous materials and waste may result in harm to humans, surface and groundwater degradation, air pollution, fire, and explosion. The risk of hazardous materials exposure can come from a range of sources. These may include institutional uses, commercial/industrial uses, hazardous materials transport, abandoned industrial sites (commonly known as brownfields) and household uses. Each potential source of hazardous material exposure within the project site is described below.

Historical Uses. The project site was utilized as a Boy Scouts of America campground from the early 1940s until the early part of the current decade. A Phase I Environmental Site Assessment (ESA) was conducted for the Will J. Reid Boy Scout Camp in July 2013. The Phase I ESA revealed no evidence of recognized environmental conditions (RECs), historical RECs (HRECs), or *de minimis* conditions in connection with the project site and recommends no further environmental investigation at the site at this time (Haley & Aldrich, July 2013). The Phase I ESA is included as Appendix F of this EIR.

Based on review of historical references available for the project site and interviews with the Key Site Manager, the Phase I ESA determined that buildings on-site were constructed prior to 1979 and, thus, asbestos may be present in construction materials. The presence of asbestos in on-site structures is not a REC, but it is an environmental issue that may affect worker safety, particularly during demolition. The United States Environmental Protection Agency (USEPA) defines asbestos containing material (ACM) as material containing greater than one percent asbestos. Both the National Emission Standards for Hazardous Air Pollutants and the South Coast Air Quality Management District (SCAQMD) require that ACM classified as friable or which may become friable be identified and removed prior to demolition activities. Under SCAQMD rules, an asbestos survey and notification to the SCAQMD would be required prior to demolition. Additionally, there is the likelihood that lead-based paints were applied to the structures based on the construction date. Although, by definition, the potential presence of lead-based paint at the project site is not considered a REC (see *Regulatory Setting* below), it is another environmental issue that may affect worker safety; therefore, a lead-based paint survey may be appropriate prior to demolishing building materials at the project site (Haley & Aldrich, July 2013).

Although not considered a REC, the Phase I ESA also identified a groundwater well located adjacent to the meeting trailer near the central portion of the project site that may act as a conduit to the subsurface and underlying groundwater. The Phase I ESA recommends that if the future use of the site does not include the maintenance and use of this groundwater supply

well, the well should be properly abandoned according to local and state regulations (Haley & Aldrich, July 2013).

Perry Lindsey Middle School. The project site is located approximately 0.25 miles south of Perry Lindsey Middle School, which is the only school within ¼ mile of the project site. Perry Lindsey Middle School enrolls 861 students in grades 6th through 8th and is in session from September through June (Karen Abrahamson, October 2014).

b. Regulatory Setting. Federal, state, and/or local government laws define hazardous materials as substances that are toxic, flammable/ignitable, reactive, or corrosive. Extremely hazardous materials are substances that show high or chronic toxicity, carcinogenic or bio-accumulative properties, and/or persistence in the environment, or that are water reactive. Hazardous materials impacts are normally a result of project related activities disturbing or otherwise encountering such materials in subsurface soils or groundwater during site grading or dewatering.

Use, Storage, and Handling of Hazardous Materials. Numerous federal, state, and local regulations regarding use, storage, transportation, handling, processing and disposal of hazardous materials and waste have been adopted since the passage of the federal Resource Conservation and Recovery Act (RCRA) of 1976. The goal of RCRA is to assure adequate tracking of hazardous materials from generation to proper disposal. California Fire Codes (CFC) Articles 79, 80 et al., which augment RCRA, are the primary regulatory guidelines used by the City to govern the storage and use of hazardous materials. The CFC also serves as the principal enforcement document from which corresponding violations are determined.

Pursuant to SB 1082 (1993), the State of California has adopted regulations to consolidate six hazardous materials management programs under a single, local agency. As the Los Angeles County Certified Unified Program Agency (CUPA), the Los Angeles County Fire Department (LACFD) has jurisdiction in the City of Long Beach. Serving as the CUPA, the LACFD conducts inspections of businesses that handle hazardous materials, generate hazardous waste, treat hazardous waste and/or maintain underground storage tanks. The CUPA administers the following programs:

- *Hazardous Waste Generator Program*
- *Hazardous Materials Release Response Plans and Inventory Program*
- *California Accidental Release Prevention Program (Cal-ARP)*
- *Underground Storage Tanks Program*
- *Aboveground Storage Tanks Program*
- *California Fire Code Business Plan*

The LACFD also provides emergency response services for hazardous materials incidents within the City. However, depending on the situation and location of a hazardous waste incident, agencies other than the LACFD, such as the Long Beach Fire Department, would also help provide emergency response.

Soil Contamination. Regulatory agencies such as USEPA set forth guidelines that list at what point concentrations of certain contaminants pose a risk to human health. The USEPA combines current toxicity values of contaminants with exposure factors to estimate what the maximum concentration of a contaminant can be in environmental media before it is a risk to human health. These concentrations set forth by the EPA are termed Preliminary Remediation Goals (PRGs) for various pollutants in soil, air, and tap water. PRG concentrations can be used to screen pollutants in environmental media, trigger further investigation, and provide initial cleanup goals.

The Regional Water Quality Control Board (RWQCB) uses site-specific information on a case-by-case basis to determine the need for remediation of gasoline and volatile organic compound (VOC) contaminated soils and acceptable clean up standards for particular constituents.

Groundwater Contamination. Both the USEPA and the California Department of Health Services (DHS) regulate the concentration of various chemicals in drinking water. The DHS thresholds are generally stricter than the USEPA thresholds. Primary maximum contaminant levels (MCLs) are established for a number of chemical and radioactive contaminants (Title 22, Division 4, Chapter 15, California Code of Regulations). MCLs are often used by regulatory agencies to determine cleanup standards when groundwater is affected with contaminants.

Recognized Environmental Conditions. A "Recognized Environmental Condition" (REC) is defined pursuant to the American Society of Testing and Materials (ASTM) as the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include *de minimis* conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

Lead and Asbestos. SCAQMD Rule 1403, Asbestos Emissions from Demolition/Renovation Activities, would apply to demolition activity within the project site. Compliance with SCAQMD Rule 1403 requires that the owner or operator of any demolition or renovation activity have an asbestos survey performed prior to demolition.

Lead-based materials exposure is regulated by California Occupational Safety and Health Administration (CalOSHA) regulations. California Code of Regulations, §1532.1, requires testing, monitoring, containment, and disposal of lead-based materials such that exposure levels do not exceed CalOSHA standards.

City of Long Beach Regulations. The City of Long Beach General Plan Public Safety Element contains recommendations for reducing hazards to the public.

Goal 3 Provide an urban environment, which is as safe from all types of hazards as possible.

Goal 4 Effectively utilize natural or man-made landscape features to increase public protection from potential hazards.

4.7.2 Impact Analysis

a. Methodology and Thresholds of Significance. This analysis is based on review of the Phase I ESA (July 2013) conducted for the Will J. Reid Boy Scout Camp to assess the potential presence of hazardous materials and contamination sources within the project site. For the purpose of this analysis, a significant impact would occur if the proposed project would:

a) *Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;*

b) *Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;*

c) *Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances or waste within one-quarter mile of an existing or proposed school;*

The Initial Study (see Appendix A) determined that the proposed project would not be located on a site included on a list of hazardous material sites pursuant to Government Code Section 65962.5, result in a hazard from a public airport or private airstrip within two miles of the project site, conflict with an adopted emergency response plan, or expose people or structures to a significant risk involving wildfire. Potential impacts under these impact criteria have therefore already been determined to be less than significant and are not discussed herein. The analysis that follows focuses on the remaining impact criteria listed above.

b. Project Impacts and Mitigation Measures.

Impact HAZ-1 Development of the proposed residential community would not involve the routine storage, transport, use or disposal of hazardous materials. It would require the demolition of existing structures that could contain asbestos or lead based paints, the release of which has the potential to adversely affect human health and safety. The project site is also located within ¼ mile of a school. However, compliance with existing regulations would reduce potential impacts to a Class III, *less than significant*, level.

The proposed project would involve subdividing the project site and developing it into a gated residential community. The proposed residential uses do not involve the routine transport, use or disposal of hazardous substances, other than minor amounts typically used for maintenance and landscaping. However, construction of the project would involve demolition of the existing structures on the project site from its former use as the Will J. Reid Boy Scout Camp. These structures, due to their age, may contain asbestos and lead-based paints and materials (Haley & Aldrich, July 2013). As can be seen in Figure 2-2, the closest of these existing on-site structures to neighboring residences are located at the eastern corner of the project site, directly abutting the property line of neighboring residences. In addition, the project site is located approximately 0.25 miles south of Perry Lindsey Middle School, which is the only school within ¼ mile of the project site. The removal of any asbestos-containing materials would be required to comply with all applicable existing rules and regulations, including SCAQMD Rule

1403 (Asbestos Demolition and Renovation Activities). In addition, the proposed project would be required to comply with CalOSHA regulations regarding lead-based materials. The California Code of Regulations, §1532.1, requires testing, monitoring, containment, and disposal of lead-based materials, such that exposure levels do not exceed CalOSHA standards.

The Phase I ESA revealed no evidence of RECs, HRECs, or *de minimis* conditions in connections with the project site and recommends no further environmental investigation at the site at this time. Although not considered a REC, the Phase I ESA identified a groundwater well located adjacent to the meeting trailer near the central portion of the project site that may act as a conduit to the subsurface and underlying groundwater. The well provided non-potable water used for irrigation at the project site and is no longer being used at the project site since the City of Long Beach claimed water rights to the well.

Permanently abandoned wells that have not been properly destroyed pose a serious threat to water quality. They are frequently forgotten and become dilapidated with time, and thus can become conduits for ground water quality degradation. In addition, such wells also pose a serious direct physical accident hazard because humans and animals can fall into wells left open at the surface (California Department of Water Resources, 1991). The Phase I ESA recommends that if the future use of the site does not include the maintenance and use of this groundwater supply well, the well should be properly abandoned according to local and state regulations (Haley & Aldrich, July 2013).

The California Health and Safety Code, Division 104, Part 9.5, regulates abandoned excavations, including abandoned wells. Specifically Section 115700 (e) states: "At a minimum, permanently inactive wells shall be destroyed in accordance with standards developed by the Department of Water Resources pursuant to Section 13800 of the Water Code and adopted by the State Water Resources Control Board or local agencies in accordance with Section 13801 of the Water Code. Minimum standards recommended by the department and adopted by the state board or local agencies for the abandonment or destruction of groundwater monitoring wells or class 1 hazardous injection wells shall not be construed to limit, abridge, or supersede the powers or duties of the department, in accordance with Section 13801 of the Water Code." In fulfillment of its responsibilities under the provisions of the Water Code, the Department of Water Resources published the California Well Standards (Bulletin 74-81 and 74-90) which regulate the destruction of water wells throughout the State of California. Furthermore, Section 115700 (a) states: "Every person owning land in fee simple or in possession thereof under lease or contract of sale who knowingly permits the existence on the premises of any abandoned mining shaft, pit, well, septic tank, cesspool, or other abandoned excavation dangerous to persons legally on the premises, or to minors under the age of 12 years, who fails to cover, fill, or fence securely that dangerous abandoned excavation and keep it so protected, is guilty of a misdemeanor." Therefore, the project applicant would be required to properly abandon the water well consistent with Section 13800 and 13801 of the Water Code and the California Well Standards Bulletins.

With adherence to all applicable rules and regulations established by federal, state and local agencies, impacts resulting from the routine storage, transport, use, or disposal of hazardous materials, the release of hazardous materials under reasonably foreseeable upset and accident conditions, and from hazards related to abandoned wells on the project site, would be less than significant.

Mitigation Measures. Compliance with the above-specified regulations would reduce impacts to a less than significant level; therefore, no mitigation is necessary.

Significance After Mitigation. Impacts would be less than significant without mitigation.

c. Cumulative Impacts. Cumulative development in Long Beach, as discussed in Section 3.0, *Environmental Setting*, could have the potential to place people in areas with risk of accidents involving hazardous materials and health hazards associated with hazardous materials by developing and/or redeveloping areas that may have previously been contaminated. However, as analyzed in this section of the EIR, implementation of the proposed project would not result in significant impacts related to human exposure to hazardous materials, and the projects listed in Table 3-1, *Planned and Pending Projects,* do not include any nearby projects that would have the potential to produce significant hazards or hazardous materials impacts that would directly interact with those of the proposed project in a way that would produce a cumulatively significant impact. Hazard evaluations for other cumulative projects would need to be completed on a case-by-case basis. If lead or asbestos are found to be present in buildings planned for demolition or renovation, or in the case that soil and groundwater contamination were found to be present on sites of planned and future development, these conditions would require appropriate mitigation and compliance with existing applicable local, state and federal regulations. Compliance with applicable regulations and implementation of appropriate remedial action on contaminated sites, would reduce cumulative impacts to a less than significant level.

4.8 HYDROLOGY AND WATER QUALITY

This section analyzes the potential for the proposed project to adversely affect hydrology and water quality. This section is partially based on a surface drainage study prepared for the project (Preliminary Hydrology Study for Vesting Tentative Tract Map 72608 prepared by Kimley-Horn, June, 2014), incorporated herein by reference (Appendix G), and reviewed by the City's Public Works Department.

4.8.1 Setting

a. Project Site Hydrology. The project site is located within the Coastal Plain of the Los Angeles Basin within the City of Long Beach, California and is located east of the Los Angeles River, south of West 48th Street. The project site is directly adjacent to the Dominguez Gap Barrier Basin and Wetlands on the west. The project site is also located directly across from the confluence of Compton Creek and the Los Angeles River. The southern boundary of the property abuts the Union Pacific (UP) Railroad right-of-way, which contains an elevated berm that is an approximate average height of 25-30 feet above the project site. A single existing box storm culvert crosses the railroad right-of-way to drain the site into the concrete storm channel of LADWP Project No. 130 (Project 130) on the south side of the UP Railroad tracks.

The project site was previously developed as a Boy Scout Camp, and consisted of a parking lot, pool, lodging, and a recreation hall; however, the project site is no longer used as a Boy Scout camp and these structures, while still on the project site, have been abandoned and would all be demolished and removed from the site under the proposed project. For this reason, the approximately 10.5-acre site was considered undeveloped for the purpose of sizing the drainage basin for the project. The site consists of two relatively flat areas, separated by a moderate slope.

b. Surface Drainage. As described in the Preliminary Hydrology Study (Appendix G), surface drainage on the project site flows from the northern edge of the site toward the center of the site into a depressed elevation that acts as a drainage conveyance to an existing storm culvert under the UP railroad tracks, which in turn connects to the Project 130 channel improvements on the south side of the UP Railroad tracks. This "depressed elevation" is at an elevation of 30 feet, with the storm culvert at an invert elevation of 32 feet above sea level. The Project 130 channel improvements allow a maximum water surface elevation of 31.8 feet, and the connection point to the site's storm culvert is at 25.1 feet. The June 2014 Kimley Horn Preliminary Hydrology Study found that even with the site's connection point being lower than Project 130's designed water elevation, the proposed project will not see channel flows enter onto the site unless the Project 130 channel flows exceed its design elevation of 31.8 feet, and reach 32 or more feet above sea level.

c. Flood Hazard Zones and Dam Inundation. Potential flood hazards may result from overflow of natural watercourses and man-made drainage systems due to excessive and unusual storm run-off. The City of Long Beach's existing storm drain system and flood control facilities generally have sufficient capacity to provide developed areas with adequate protection from flooding. The project site is located in Federal Emergency Management Agency (FEMA) flood Zone X , which is an area with a 0.2 percent annual chance of flood and is not within the 100-year flood zone. The project site is also protected by two FEMA certified levees: one that

parallels and separates the Los Angeles River and the Dominguez Gap Barrier Basin and Wetlands, and the other that parallels and separates the Dominguez Gap Barrier Basin and Wetlands eastern border from the project site.

According to the Long Beach General Plan – Public Safety Element, three flood control dams lie upstream from Long Beach: the Sepulveda Basin, Hansen Basin, and the Whittier Narrows Basin. Since the project lies adjacent to the Los Angeles River, the failure of either the Sepulveda or Hansen Basins could potentially affect the site; however, the Public Safety Element states that if either of these two basins failed, the flood waters are expected to dissipate due to their distance from the City, more than 30 miles, and the intervening low and flat ground.

d. Regulatory Setting.

Federal. The federal Water Pollution Control Act, also known as the Clean Water Act (CWA), is the principle statute governing water quality. The statute's goal is to end all discharges entirely and to restore, maintain, and preserve the integrity of the nation's waters. It mandates permits for wastewater and stormwater discharges, requires states to establish site-specific water quality standards for navigable bodies of water, and regulates other activities that affect water quality, such as dredging and filling wetlands.

Water quality standards mandated by the CWA consist of four basic elements:

- *Designated uses of the water body (e.g., recreation, water supply, aquatic life, agriculture);*
- *Water quality criteria to protect designated uses (numeric pollutant concentrations and narrative requirements);*
- *An anti-degradation policy to maintain and protect existing uses and high quality waters; and*
- *General policies addressing implementation issues (e.g., low flows, variances, mixing zones).*

Water quality regulation requires states and tribes to establish a three-tiered anti-degradation program. Anti-degradation implementation procedures identify the steps and questions that must be addressed when regulated activities are proposed that may affect water quality. The specific steps to be followed depend upon which tier or tiers of the anti-degradation program apply.

For stormwater discharges into an existing waterway, water quality control is governed by a National Pollutant Discharge Elimination System (NPDES) Permit. The major CWA section that applies to activities potentially occurring as part of onsite development is NPDES Section 402. Section 402 (33 U.S.C. 1342 and 40 CFR 122) establishes a permitting system for the discharge of any pollutant (except dredge and fill material) into waters of the United States. An NPDES permit is required for all point source discharges of pollutants to surface waters. A point source is a discernible, confined, and discrete conveyance, such as a pipe, ditch, or channel.

The major purpose of the NPDES program is to protect human health and the environment by protecting the quality of water. California's primary statute governing water quality and water pollution is the Porter-Cologne Water Quality Control Act of 1970 (Porter-Cologne Act). The Porter-Cologne Act grants the State Water Resources Control Board (SWRCB) and the Regional Water Quality Control Boards (RWQCBs) broad powers to protect water quality and is the primary vehicle for implementation of California's responsibility under the federal CWA. The Porter- Cologne Act grants the SWRCB and RWQCBs the authority and responsibility to adopt plans and policies, to regulate discharges to surface and groundwater, to regulate waste disposal sites, and to require cleanup of discharges of hazardous materials and other pollutants. Each regional board is required to adopt a water quality control plan or basin plan that reflects the regional differences in existing water quality, the beneficial uses of the region's ground and surface water, and local water quality conditions and problems. The boards implement the permit provisions (Section 402) and certain planning provisions (Sections 205, 208, and 303) of the CWA. This means that the state issues one discharge permit for purposes of both state and federal law. Under state law, the permit is officially called Waste Discharge Requirement. Under federal law, the permit is officially called an NPDES General Permit.

As the basic federal regulatory and enforcement tool under the CWA, the NPDES program incorporates specific discharge limitations to ensure that water quality standards are met for stormwater discharges from municipal storm sewer systems (MS4s) and industrial sites. The NPDES program was established by the Environmental Protection Agency (EPA). Congress amended the CWA in 1987 to require the implementation of a two-phased program to address other stormwater discharges. Phase I**,** established by EPA in November 1990, requires NPDES permits for stormwater discharges from construction sites disturbing greater than five acres of land. After Phase I implementation, the EPA recognized that smaller construction projects (those disturbing less than five acres) were also contributing substantially to pollutant discharges. In response, the EPA instituted NPDES Phase II in December 1999 with the regulations becoming effective in February 2000. Phase II requires NPDES permits for stormwater discharges from construction sites disturbing between one and five acres of land. The Phase II NPDES Program is intended to reduce adverse impacts to water quality and aquatic habitat by instituting the use of controls on the unregulated sources of stormwater discharges that have the greatest likelihood of causing continued environmental degradation. Stormwater discharges from urbanized areas are a concern because of the high concentration of pollutants found in these discharges.

The Construction General Permit (CGP) was updated on July 1, 2010. Two new elements were included in the new CGP. First, a Stormwater Pollution Prevention Plan (SWPPP) must be written, amended, and certified by a *Qualified SWPPP Developer* (QSD). Second, construction projects will be assigned a *Risk Level* (Risk Level 1 – 3) based on site characteristics for erosion potential, threat to "receiving waters," and the time of year that the project activity would occur. The project Risk Level determines compliance requirements set forth in the permit.

Concentrated development in urbanized areas substantially increases impervious surfaces, such as city streets, driveways, parking lots, and sidewalks, on which pollutants from human activities settle and remain until a storm event washes them into nearby storm drains. Common pollutants may include sediment, nutrients, bacteria and viruses, oil and grease, organic compounds, and gross pollutants such as trash. Stormwater runoff picks up, transports, and

discharges these pollutants, untreated, to waterways via storm drain systems. These discharges can result in the loss of wildlife habitat, reduced aesthetic value, and contamination of recreational waterways that can threaten public health.

The CWA requires that states submit plans to the EPA, defining water quality standards in order to achieve designated beneficial uses. States designate uses for all water body segments and then set water quality criteria necessary to protect these uses. In addition, each state identifies waters failing to meet standards for specific pollutants. If the state determines that waters are impaired for one or more constituents, and the standards cannot be met through point source controls, the CWA requires establishing Total Maximum Daily Loads (TMDLs) that will achieve applicable standards. TMDLs represent the allowable pollutant load from all sources (point, non-point, and natural) for a given watershed.

The Safe Drinking Water Act (SDWA) was established in 1974 to protect the quality of drinking water in the U.S. This law focuses on all waters actually or potentially designated for drinking use, whether from above ground or underground sources. It establishes maximum contaminant levels (MCLs) for a broad range of chemical compounds and other constituents (approximately 86 constituents in water) deemed hazardous to human health. Primary MCLs are health-based and Secondary MCLs are related to aesthetic qualities of water, such as taste and appearance. As such, MCLs form the basis of drinking water quality regulations.

State. In addition to standards and regulations established by the federal program, California adopted a number of other more stringent legislative acts in order to further strengthen state water quality standards. These acts include the Porter-Cologne Water Quality Act, California Water Code, Title 23 of the California Code of Regulations, and the California Oceans Plan. Within California, the State Water Resources Control Board (SWRCB) is responsible for developing and implementing water quality control policy. SWRCB is the agency designated by the EPA for administering applicable Federal CWA program, which include adopting water quality standards for state waters. Nine Regional Water Quality Control Boards (RWQCBs) administer these federal programs, including NPDES compliance. The Los Angeles Regional Water Quality Control Board (LARWQCB) oversees water quality permitting in the City of Long Beach. While federal regulations allow two permitting options for stormwater discharges (individual permits and General Permits), the SWRCB has elected to adopt only one statewide General Permit that applies to all stormwater discharges associated with construction activity, except from those on Tribal Lands, in the Lake Tahoe Hydrologic Unit, and those performed by the California Department of Transportation (Caltrans). This General Permit requires all dischargers where construction activity disturbs one acre or more to:

1. *Develop and implement a Stormwater Pollution Prevention Plan (SWPPP) which specifies Best Management Practices (BMPs) that will prevent all construction pollutants from contacting stormwater and with the intent of keeping all products of erosion from moving off-site into receiving waters.*
2. *Eliminate or reduce non-stormwater discharges to storm sewer systems and other waters of the nation.*
3. *Perform inspections of all BMPs.*

On March 28, 2014, the LARWQCB, made effective Order No. R4-2014-0024. This Order renews the municipal NPDES Permit (NPDES No. CAS004003) for waste discharge requirements for the municipal separate storm sewer system discharges from the City of Long Beach. Under the Permit, the City of Long Beach is designated as the Principal Permittee.

In compliance with the Permit, the Permittee implemented the Standard Urban Storm Water Mitigation Plan (SUSMP) with the ultimate goal of accomplishing the requirements of the Permit and reducing the amount of pollutants in stormwater and urban runoff. One specific requirement of the SUSMP is the Storm Water Pollution Prevention Plan (SWPPP). The SWPPP outlines the necessary Best Management Practices (BMPs) that must be incorporated into design plans for certain categories of development and/or redevelopment. Section 13260(a)(I) of the California Water Code (CWC) addresses waste discharges that could affect the State's waters. It requires that any person discharging wastes or proposing to discharge wastes that could affect the quality of State waters, into other than a community wastewater collection system, must file a Report of Waste Discharge with the RWQCB. The RWQCB would then prescribe requirements for the discharge or proposed discharge of wastes in accordance with provisions in Section 13260(1) of the CWC.

Los Angeles County. Mosquito vectors are controlled by the Greater Los Angeles County Vector Control District. Property owners within the Los Angeles County Region are required to work with the Vector Control District to ensure that ideal conditions for mosquito breeding do not arise on their property.

City of Long Beach. The City of Long Beach General Plan Conservation Element advocates the continued conservation of water and protection of water quality, as identified in Water Resource Management Goal 2: "To enforce existing ordinances and develop new ordinances and promote continuing research directed toward achieving the required stringent water quality standards which regulate waste water effluent discharge to ocean waters, bays and estuaries, fresh waters and groundwater."

The Long Beach Municipal Code (LBMC) Section 18.61.050 requires construction plans to include construction and erosion and sediment control best management practices. LBMC Section 18.61.40 specifies design and implementation of post-construction controls to mitigate stormwater pollution.

The Long Beach Storm Water Management Program requires that all new construction and redevelopment, that exceeds the permit thresholds, receive a Municipal Separate Storm Sewer System (MS4) permit that complies with all applicable Federal, State, and Regional plans, polices, and statues. The Permit is required so as to reduce the discharges of pollutants in storm water to the maximum extent practicable.

4.8.2 Impact Analysis.

a. Methodology and Significance Thresholds. To analyze hydrological conditions on the project site, hydrological information was collected from the City of Long Beach General Plan, hydrology and water quality maps, the LBMC, the State Water Resources Control Board, the Los Angeles Regional Water Quality Control Board, and the June 2014 Kimley Horn

Preliminary Hydrology Study. Information was compared to CEQA thresholds to determine impacts related to flooding, surface water quantity and quality, and ground water quantity and quality.

In accordance with Appendix G of the *CEQA Guidelines*, on-site development would have a significant hydrology/water quality impact if it would cause any of the following:

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 or the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)*

c) *Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site*

d) *Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site*

e) *Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff*

f) *Otherwise substantially degrade water quality*

The following topics were determined to have no impact or a less than significant impact in the Initial Study prepared for this project. These topics are therefore not further discussed in this EIR.

g) *Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map*

h) *Place within a 100-year flood hazard area structures which would impede or redirect flood flows*

i) *Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam*

j) *Result in inundation by seiche, tsunami, or mudflow*

The Army Corp of Engineers conducted a periodic inspection of the Los Angeles River/Rio Hondo Diversion 1 Levee System that protects the project site and determined that it was preforming at an Unacceptable level (Army Corp of Engineers, 2013). The Unacceptable rating in the report is defined as:

> *The Periodic Inspection has identified one (or more) System Components which are rated Unacceptable and require immediate correction. An engineering determination has concluded that the Unacceptable System Components identified seriously impair the*

functioning of the levee system, would prevent the system from performing as intended, and pose unacceptable risk to public safety.

The Army Corp of Engineers states that a levee can receive an Unacceptable rating if one or more inspection items are rated as Unacceptable and would prevent the segment/system from performing as intended, or a serious deficiency noted in past inspections has not been corrected within the established timeframe, not to exceed two years (Army Corp of Engineers, March 2015). However, even though the levee received the Unacceptable rating, the project site remains within Zone X of the FEMA flood zone maps, which locates it in within the 500-year flood zone but outside of the 100-year flood hazard zone. Additionally, since the Los Angeles River/Rio Hondo Levee System has retained its eligibility as a protective levee, the site continues to be protected by a levee from the Los Angeles River and Compton Creek.

The Long Beach Public Safety Element identifies two flood control dams upstream from the City along the Los Angeles River: the Sepulveda and Hansen Basins. However due to their distance from the City, approximately 30 miles, and flat topography, the City expects that any flood waters as a result of their failures would be dissipate before reaching the City, therefore the proposed project would not be subject to a significant risk of flooding due to dam or levee failure. The project site is not located within a tsunami hazard zone (California Department of Conservation, March 2009), nor is it located sufficiently close to a large body of water in which seiches are of significant concern, and the site is not subject to landslides or mudflows as indicated in the Geology and Soils Section 4.5.

b. Project Impacts and Mitigation Measures.

Impact HWQ-1 During project grading and construction and long-term operation of the project, the soil surface would be subject to erosion and the downstream watershed could be subject to temporary sedimentation and discharges of various pollutants. However, features have been incorporated into the project to minimize these effects and the project would be required to comply with the NPDES General Construction Permit, which would result in a Class III, *less than significant impact*.

Grading during construction of the project would alter existing drainages and alter existing patterns of surface flow within the grading envelope. Figure 4.8-1 shows the hydrology watershed map of the site with the proposed development (Kinley Horn, June 2014). This map shows the proposed subdivision and a schematic of how the proposed project will drain including directions of flow and flow rates. Grading and other construction activities have the potential to generate soil erosion and to increase sediment loads in stormwater runoff. Also, spills, leakage, or improper handling and storage of substances, such as oils, fuels, chemicals, metals, and other substances from vehicles, equipment, and materials used during the construction could cause pollutants to be present in stormwater runoff and impact downstream water bodies.

The applicant would be required to comply with the National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Construction and Disturbance Activities (held by the City) by obtaining a Construction General Permit Order No. 2009-0009-DWQ from the State of California since the proposed project would disturb more than one acre. The construction operator is also required to submit a Notice of Intent (NOI) certifying that they have met the permit's eligibility conditions and that they will comply with the permit's effluent limits and other requirements (United States Environmental Protection Agency, 2014).

Pursuant to Section 18.61.40 of the City of Long Beach Municipal Code:

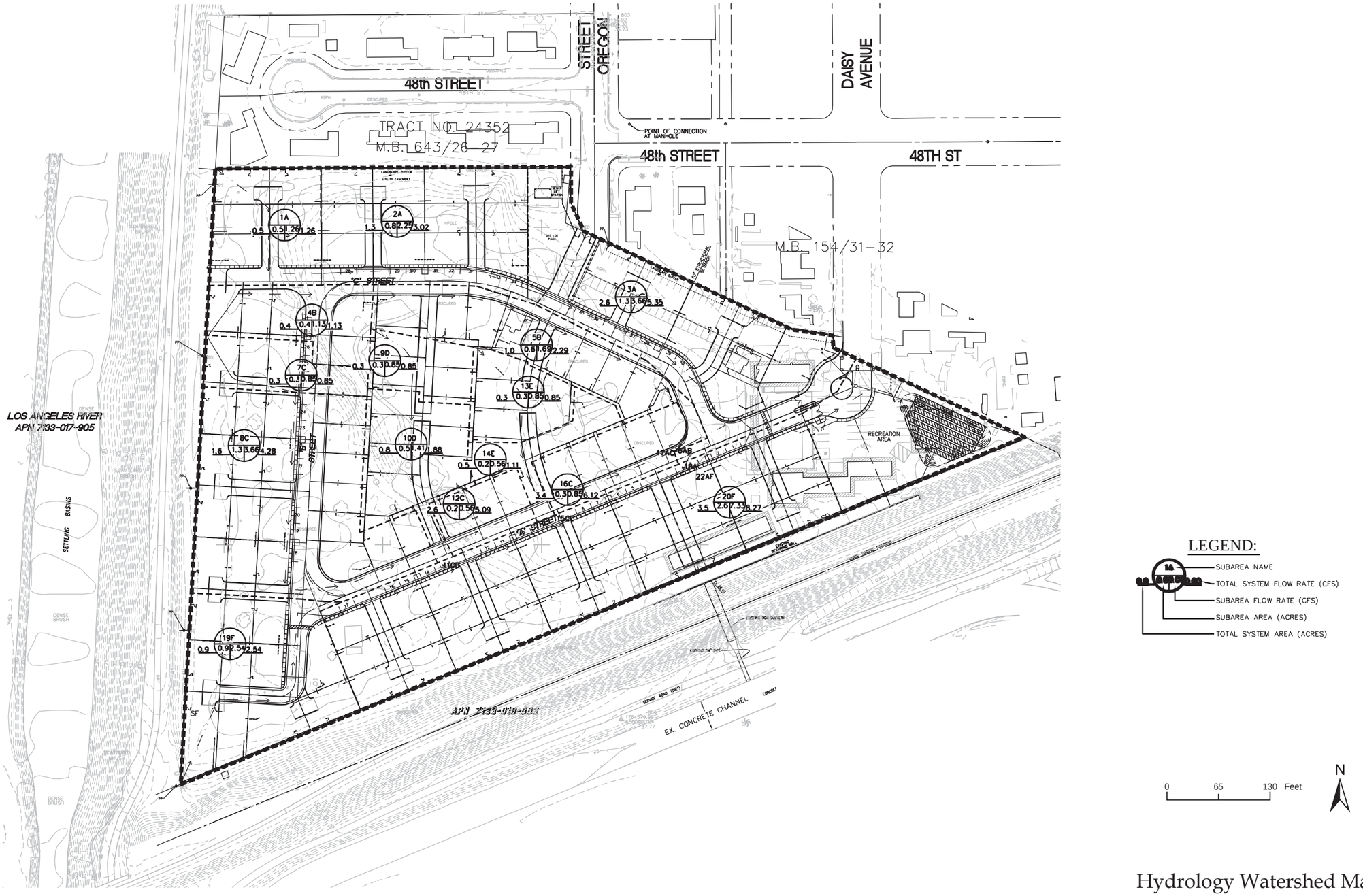
> *"New development projects and redevelopment projects in the City subject to design and implementation of post-construction controls to mitigate storm water pollution, prior to completion of the projects, shall apply if required in the NPDES and Standard Urban Storm Water Mitigation Plan (SUSMP) Regulations Manual."*

The SUSMP for the City provides regulations on the implementation of the NPDES permit. The intent of the regulations, according LBMC Sec. 18.61.010, is to effectively prohibit non-storm water discharges into the storm drain system or receiving waters, and to require source control BMPs [Best Management Practices] to prevent or reduce the discharge of pollutants into the storm water to the maximum extent possible. Additionally, under the State's Construction General Permit Order No. 2009-0009-DWQ, a Stormwater Pollution Prevention Plan (SWPPP) is to be created, per the State Water Resources Control Board (SWRCB), effective July 1, 2010. The SWPPP specifies Best Management Practices (BMPs) that would prevent all construction pollutants from contacting stormwater, with the intent of keeping all products of erosion from moving off-site into receiving waters; eliminating or reducing non stormwater discharges to storm sewer systems and other waters of the nation; and implementing a monitoring program that incorporates procedures to determine whether BMPs are effectively protecting on and off-site water quality.

Further, the contractor would be required to complete and submit a Stormwater Pollution and Prevention Plan (SWPPP) to both the Regional Water Quality Control Board (RWQCB) and the City of Long Beach in addition to a Notice of Intent (NOI) to comply with the state construction activity storm water permit.

Determination of compliance requirements is made by a Qualified SWPPP Developer (QSD). The QSD must be a:

- *Licensed Engineer, Geologist, or Landscape Architect with the State of California,*
- *Certified Hydrologist,*
- *Professional in Storm Water Quality (CPSWQ), or*
- *Certified Professional in Erosion and Sediment Control (CPESC).*



Hydrology Watershed Map

Drawing Source: Kimley-Horn and Assoc. Inc., June 2014.

Figure 4.8-1

The QSD will evaluate the project and assign a Risk Level (Risk Level 1 – 3) based on site characteristics for erosion potential, threat to "receiving waters," and the time of year that the project activity would occur. The project Risk Level determines compliance requirements set forth in the permit. BMPs will be applied based on the Risk Level of the project and the site characteristics. Strategies to control the quality of runoff may include the following methods, depending on the site characteristics and the scope of the project.

- ***Erosion Control:*** *Measures that prevent erosion and keep soil particles from entering stormwater, lessening the eroded sediment that must be trapped, both during and at completion of construction. Feasible methods might include hydroseeding or using non-toxic soil binders.*
- ***Sediment Control:*** *Feasible methods of trapping eroded sediments so as to prevent a net increase in sediment load in stormwater discharges from the site. Strategies to reduce sediment loading might include the use of silt fences, hay bales, or sand bags around storm drain inlets.*
- ***Site Management:*** *Methods to manage the construction site and construction activities in a manner that prevents pollutants from entering stormwater, drainage systems or receiving waters. Strategies to maintain the construction site may include watering active construction areas two or more times per day to reduce airborne soil particles, sweeping adjacent streets to reduce soil tracked onto streets by construction vehicles, anti-tracking pads at site exits to prevent the offsite transport of materials, and pollutant containment areas for construction related equipment and processes that generate pollutants, such as construction staging areas.*
- ***Materials and Waste Management:*** *Methods to manage construction materials and wastes that prevent their entry into stormwater, drainage systems, or receiving waters. Feasible methods to manage materials and waste may include provision of designated recycling and disposal areas for general waste, construction waste and industrial wastes such as concrete dust, cutting slurry, motor oil and lubricants.*

Proof of compliance with the General Permit, including the SWPPP and SUSMP, would be required pursuant to Chapter 18.61 of the LBMC, prior to the issuance of grading, building, or occupancy permits. Therefore, impacts related to stormwater quality during construction and long-term operation of the project would be less than significant.

Mitigation Measures. Compliance with the SWPPP and SUSMP required under the NPDES General Permit would ensure that temporary impacts during construction, and potential long term impacts from ongoing residential activities, to erosion/sedimentation and water quality are less than significant. No additional mitigation is necessary.

Significance After Mitigation. Impacts would be less than significant with implementation of standard water quality control requirements.

Impact HWQ-2 The proposed project would alter the existing drainage pattern on the project site. However, runoff from the project site would not exceed the capacity of the off-site storm drain system due to the required on-site retention basin limiting stormwater runoff to pre-development levels. Therefore, impacts would be Class III, *less than significant.*

The proposed grading and storm drain system would alter the over land flow of water within the development footprint, including the lower portions of existing drainages. Stormwater within the development would be collected and conveyed via the proposed four on-site three-foot wide Catch Basin inlets. The site has the potential to produce approximately 16.2 cubic feet per second (cfs) of storm water runoff during a 25-year 24-hour event, and 18.9 cfs during a 50-year 24-hour event. As shown in Table 4.8-1, each catchment basin would be capable of holding 7.58 cfs of stormwater runoff, which gives the combined on-site retention level of 30.32 cfs; this allows the site to have a 1.6 factor of safety when faced with a 50-year 24-hour storm event (Kimley Horn, June 2014).

Table 4.8-1
Storm Event Safety Factor Capacity

24-hour Storm Event	Cubic Feet per Second Produced	Total Catchment Basin Capacity	Safety Factor Capacity
25-Year	16.2	30.32	1.87
50-Year	18.9	30.32	1.60

Source: Kimley Horn, June 2014

Therefore, impacts related to stormwater quality during long-term operation of the project would be less than significant.

Mitigation Measures. Compliance with the basin design based on the Los Angeles County Hydrology Manual Section 4.2 Capital Flood Protection and Section 4.3 Urban Flood Protection and with the volume size of the retention basin standards set by the State of California Regional Water Quality Control Board Los Angeles Region Waste Discharge Requirements for Municipal Separate Storm Sewer System Discharges from the City of Long Beach, Los Angeles County, and Long Beach Development Services Low Development Design Manual will reduce the risks resulting from altering the existing drainage to less than significant levels.

Significance After Mitigation. Impacts would be less than significant without mitigation.

Impact HWQ-3 The proposed project would increase impervious surfaces on the site and could interfere with groundwater recharge. However, the adjacent Dominguez Gap Basin and Wetlands were designed to absorb stormwater runoff and recharge groundwater supplies. Impacts would be Class III, *less than significant*.

The project site is predominantly unpaved, with the exception of a parking lot and building pads. The proposed project includes constructing private roads, 131 single family residences

and community building in the future, which will result in approximately 56% of the site being covered in impervious surfaces, potentially decreasing groundwater recharge.

The proposed project is designed to provide a 0.48 acre foot retention and infiltration basin on site with a potential soil infiltration rate of 0.2442 cubic feet per second per square foot (cfs/sf), or approximately 176.91 acre feet per year (Kimley Horn, June 2014); the exact size of the basin shall be approved by the City of Long Beach through its site plan review and approval authority. Additionally, any stormwater runoff that exceeds the capacity of the four catchment basins and retention basin would be diverted into the Project 130 storm channel, which then empties into the Dominguez Gap Basin and Wetlands. The Basin and Wetlands were designed by the Los Angeles County Flood Control District and Public Works Department to naturally treat (i.e. pollutant removal) up to 0.40 cfs, and allow for up to 450 acre feet per year of water to infiltrate into the underground aquifer. Runoff from the project site would therefore still percolate into groundwater supplies from both the on-site retention basin and the off-site Dominguez-Gap Basin and Wetlands, therefore the proposed project would not substantially interfere with groundwater recharge.

The project would be required to connect to the Metropolitan Water District of Southern California (MWD) for water service and would not be using groundwater to provide potable water to the project. Therefore, the project would not substantially deplete groundwater resources from groundwater withdrawals. Impacts would be less than significant.

Mitigation Measures. Impacts would be less than significant; therefore, mitigation is not required.

Significance After Mitigation. Impacts would be less than significant without mitigation.

c. Cumulative Impacts. The project site is located within an urbanized area with a high percentage of impervious surfaces. Any new development within the surrounding area could potentially increase the amount of surface water entering area drainages, therefore increasing the potential for increased flood hazard risks to life and property, as well as increasing the potential for increased environmental and habitat harm. However, all new development that meet or exceeds the Stormwater Permit thresholds will be required to comply with current NPDES and MS4 requirements, which will help to reduce and slow the amount of stormwater runoff as a result of new development. The City of Long Beach also has Best Management Practices, offered through the Development Services and Public Works departments, to help reduce the amount of pollution resulting from stormwater runoff for all new development and redevelopment. Hydrological and Water quality issues affect both specific individual sites and the region as a whole, and hazards present on one particular site could potentially add to or compound the hazards present on another site; however, compliance with, and enforcement of, applicable code requirements and the recommendations of site-specific hydrological evaluations on a case by case basis would help to reduce the cumulative impacts relating to hydrological and water quality hazards to a less than significant level.

This page intentionally left blank.

4.9 LAND USE AND PLANNING

This section analyzes the proposed project's consistency with relevant policies of applicable local and regional plans, including the City of Long Beach General Plan and the City of Long Beach Municipal Code, as well as a general land use compatibility discussion.

4.9.1 Setting

a. Citywide Land Use Patterns. The City of Long Beach is located in the coastal plain of the Los Angeles Basin, within the southeastern portion of Los Angeles County. The entire incorporated area of the City is approximately 53 square miles. The City shares its boundaries with eight other incorporated cities in Los Angeles County: Signal Hill (which it completely surrounds), Los Angeles, Carson, Compton, Paramount, Bellflower, Lakewood, and Hawaiian Gardens; as well as several unincorporated "islands" of Los Angeles County, the largest of which is known as Rancho Dominguez. The City also shares its boundary on the southeast with the following incorporated cities located within Orange County: Cypress, Los Alamitos, and Seal Beach; and an unincorporated area of Orange County between Los Alamitos and Seal Beach known as Rossmoor. Land subdivision began in the areas that were later to become Long Beach in the late 19th century, the City incorporated in 1908, and it continued to develop through various cycles of booms, busts, and steady development throughout the 20th century. The City of Long Beach is now a mature, highly urbanized community, with approximately 99% of its land area developed (City of Long Beach, 2013). Land uses in the city encompass a wide variety of urban uses including residential neighborhoods; the concentration of civic and tourist-oriented uses in the City's downtown; commercial developments in the downtown and in shopping centers and commercial strips throughout the city; industrial areas such as the Port of Long Beach; and public and institutional uses such as parks, schools, and universities such as Cal State Long Beach.

b. Site and Surrounding Land Uses. The project site was previously developed as a Boy Scout Camp, including an amphitheater, deck, five buildings, two tool sheds, a mobile home, and a parking lot, but the Boy Scout Camp is no longer in use and the site, although still containing these structures and improvements, is currently unused. The project site is bordered by single family residences to the north and east. The Los Angeles River, Dominguez Gap Wetlands, and bicycle and pedestrian paths run along the western boundary of the site. Industrial uses and the Long Beach Freeway are located on the opposite side of the Los Angeles River. The Union Pacific Railroad (UPRR) runs along the southern portion of the project site along an elevated berm. The Virginia County Club is located on the opposite side of the UPRR.

c. Regulatory Setting. The City of Long Beach regulates land use within the incorporated City boundaries through its General Plan and Municipal Code. These regulatory documents establish policies that apply citywide and to specific subareas within the City. The General Plan currently designates the project site as Open Space and Park (LUD 11). The General Plan Land Use Element describes the Open Space and Park designation as follows:

> *This district is quite diverse, compressing into one general category the numerous types of land and water acres that remain "open." Thus, open space is defined as any area of land or water that is essentially unimproved and largely devoted to an undeveloped or*

> *unconstructed type of use. Land that has been graded or planted, has a walking/ bicycling/skating path or nominal roadway system or surface parking thereon, is considered open space.*

The project site's current zoning designation is Institutional (I). The Municipal Code (Section 21.34.010) describes the purpose of the I district as follows:

> *The Institutional (I) district is established to create, preserve and enhance areas for public and institutional land uses and to provide restrictions to minimize the effect of such uses on surrounding uses.*

The portions of the City of Long Beach Zoning Map covering the project site and its surroundings are shown in Figure 2-6 in Section 2.0, *Project Description*.

General Plan. California requires that every city and county prepare a comprehensive General Plan that guides decision making and implementation related to land use, zoning, redevelopment, environmental justice, planning, and general decision making of the jurisdiction into the future. Each General Plan must include seven required elements: land use, circulation, housing, conservation, open-space, noise, and safety. Additionally, other, optional elements may also be included in a General Plan, such as air quality, capital improvements/ public development, energy, flood management, geothermal, parks and recreation, and water.

The City of Long Beach General Plan incorporates the seven mandated elements (with the circulation element being named the Mobility Element) as well as a seismic safety element, historic preservation element, scenic routes element, air quality element, and a local coastal program (LCP) element. The City adopted an extensive update of the Land Use section of its General Plan in 1990, with the most recent updates adopted in April 1997. A summary of policy topics from each General Plan Elements (with the year in parentheses indicating the year of adoption or latest revision to that Element) is provided below.

Land Use (1997): Generally, the goals and policies of this element are intended to develop a long-term plan for the direction and development of the land within the jurisdiction. At its core, the Land Use Element links the remaining six elements together because it dictates the long-range use of the land. This element contains the following policy topics specifically applicable to the proposed project:

- *Managed Growth*
- *New Housing Construction*
- *Neighborhood Emphasis*
- *Facilities Maintenance*
- *Functional Transportation*

Mobility Element (Circulation) (2013): Generally, the goals and policies of the Mobility Element are intended to address the sustainability related to the movement of people, goods, energy, water, sewage, storm drainage, and communication. This element contains the following policy topics and goals specifically applicable to the proposed project:

- *The Mobility of People*
  - *Goal No. 1: Create an Efficient, Balanced, Multimodal Mobility Network*
- *The Mobility of Resources*
  - *Maintain and Improve Existing Infrastructure Systems*

*Housing (2014):*The City of Long Beach 2013-2021 Housing Element (adopted January 2014) of the General Plan describes the city's existing and projected housing needs, identifies the City's capacity for new housing, and indicates how the City will meet its regional housing need allocation (RHNA) for the period based on its land supply and development capacity. The Housing Element identifies strategies and programs that focus on: (1) providing housing assistance and preserving publicly assisted units; (2) addressing the unique housing needs of special needs residents; (3) retaining and improving the quality of existing housing and neighborhoods; (4) providing increased opportunities for the construction of high quality housing; (5) mitigating government constraints to housing investment and affordability; (6) providing increased opportunities for home ownership; and (7) ensuring fair and equal housing opportunity. The future residential development potential of the City of Long Beach as analyzed in the Housing Element of the City's General Plan, is 7,270 new dwelling units by 2021 (City of Long Beach, January 2014). This element contains the following goals specifically applicable to the proposed project:

- *Goal 4: Provide Increased Opportunities for the Construction of High Quality Housing*

Conservation (1973): Generally, the goals and policies of the Conservation Element provide direction related to natural resources to prevent waste, destruction, or neglect. This element contains the following policy topics specifically applicable to the proposed project:

- *Water Resources Management*
- *Soils Management*
- *Mineral Resources*
- *Wildlife and Vegetation Management*
- *Goals for Other Resources*

Open-Space (2002): Generally, the goals and policies of the Open Space Element are intended to demonstrate the City's continuing commitment to open space preservation and enhancement, and natural resource conservation. This element contains the following policy topics specifically applicable to the proposed project:

1. *Open Space for the Preservation of Natural Resources*
2. *Open Space for the Managed Production of Resources*
3. *Open Space for Public Health and Safety*
4. *Open Space for Outdoor Recreation & Recreation Facilities*

Noise (1975): Generally, the goals and policies of the Noise Element are intended to restrict excessive noise levels from both mobile and stationary sources, either existing or proposed, from impacting the community. This element contains the following policy topics specifically applicable to the proposed project:

- *Land Use Planning*
- *Noise Environment*
- *Transportation Noise*
- *Construction and Industrial Noise*
- *Population and Housing Noise*
- *Public Health and Safety*

Public Safety (1975): Generally, the goals and recommendations of the Public Safety Element are intended to reduce the potential impact of property damage, injury, death, or dislocation resulting from a hazard. This element contains goals in the following areas specifically applicable to the proposed project:

- *Development Goals*
- *Protection Goals*
- *Remedial Action Goals*

This element also contains in-depth discussions of hazards in the following topic areas:

- *Fire Protection*
- *Geologic Hazards*
- *Crime Prevention*
- *Utilities Hazards*
- *Industrial/Transportation Hazards*
- *Disaster Operations*

This element also contains a list of "Immediate Action Recommendations" and "Advance Planning Recommendations", although these recommendations are not adopted goals or policies.

Seismic Safety Element (1988): Generally, the goals and recommendations of the Seismic Safety Element are intended to address the threat of seismic impact in relation to the safety of

people, property, and social and economic stability. This element contains the following policy topics specifically applicable to the proposed project:

- *Development Goals*
- *Protection Goals*
- *Remedial Action Goals*

This element, like the Public Safety Element, also contains a list of "Immediate Action Recommendations" and "Advance Planning Recommendations", although these recommendations are not adopted goals or policies.

Air Quality Element (1996): Generally, the goals and policies of the Air Quality Element are intended to safeguard the health of the public by minimizing the potential impacts of chronic exposure to air pollutants. This element contains goals, policies, and actions in the following topic areas specifically applicable to the proposed project:

- *Topic 2: Ground Transportation*
- *Topic 5: Land Use*
- *Topic 6: Particulate Emissions*
- *Topic 7: Energy Conservation*

Historic Preservation Element (2010): Generally, the goals and policies of the Historic Preservation Element are intended to protect historically important entities while integrating historical preservation efforts into City procedures and interdepartmental decision making processes. This element contains policies designed to implement the following goals specifically applicable to the proposed project:

- *Goal 2: Protect historic resources from demolition and inappropriate alterations through the use of the City's regulatory framework, technical assistance, and incentives.*
- *Goal 3: Maintain and expand the inventory of historic resources in Long Beach.*

Long Beach 2010: The Strategic Plan. The 2010 *Strategic Plan* outlines 26 long-range goals and policies established for the City of Long Beach in five topic areas: Our Community of Neighborhoods; Our Children and Schools; A Safe and Secure City; Economic Opportunity for All; and A Healthy Environment, A Sustainable City. Most of these goals and policies call for the City and other governmental entities to take actions such as developing programs and policies and engaging in intergovernmental cooperation, rather than requiring action on the part of private development such as the proposed project. However, among these five topic areas, the following have some direct applicability to the project:

- *Our Community and Neighborhoods*
  - *Goal 4: Support neighborhood efforts to create beauty and pride*
  - *Goal 5: Improve the quality and availability of housing*

- *A Healthy Environment, A Sustainable City*
  - *Goal 2: Enhance open space*
  - *Goal 4: Improve air quality*

Long Beach Sustainable City Action Plan. The City's 2010 *Sustainable City Action Plan* outlines 45 long-range sustainability goals established for the City of Long Beach in seven topic areas: Buildings and Neighborhoods, Energy, Green Economy & Lifestyle, Transportation, Urban Nature, Waste Reduction, and Water. Many of these goals relate to actions to be taken by the City itself, or do not directly apply to the proposed project. However, among these seven topic areas, the following have some direct applicability to the project:

- *Buildings and Neighborhoods*
  - *Goal 2: At least 5 million square feet of privately developed LEED certified (or equivalent) green buildings by 2020*
  - *Goal 6: Plant at least 10,000 trees in Long Beach by 2020*
  - *Goal 10: By 2020, at least 30% of Long Beach residents use alternative transportation to get to work*
- *Energy*
  - *Goal 5: Reduce community electricity use by 15% by 2020*
  - *Goal 6: Reduce community natural gas use by 10% by 2020*
  - *Goal 7: Facilitate the development of at least 8 Megawatts of solar energy within the community (private rooftops) by 2020*
- *Transportation*
  - *Goal 4: Increase public transit ridership by 25% by 2016*
  - *Goal 7: Increase bike ridership from 1% to 10% by 2016*
- *Urban Nature*
  - *Goal 1: Create 8 acres of open space per 1,000 residents by 2020*
- *Water*
  - *Goal 1: Reduce per capita use of potable water, exceeding the State mandate to achieve a demand reduction of 20% in per capita water use by the year 2020*
  - *Goal 3: Facilitate the development of 50 green roofs communitywide by 2016*

Municipal Code. The City of Long Beach Municipal Code (LBMC) codifies regulations implementing the City's General Plan. Title 21, *Zoning* of the LBMC includes numerous regulations governing development within the City. Title 21 divides the City into zoning districts and provides development standards for each district, including permitted uses, density and intensity of uses, building height, and other standards for development and activity.

4.9.2 Impact Analysis

a. Methodology and Significance Thresholds. According to the City's adopted CEQA checklist, which corresponds to Appendix G of the State CEQA Guidelines, impacts are considered significant if implementation of the proposed project would:

- *Physically divide an established community*
- *Conflict with any applicable land use plan, policy, or regulation of any agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect*
- *Conflict with any applicable habitat conservation plan or natural community conservation plan*

As discussed in the Initial Study (Appendix A), the proposed project would have no impact related to division of an established community or from conflict with a habitat conservation plan or a natural community conservation plan. As such, these issues are not discussed further in this EIR. This section therefore focuses on assessing the proposed project's consistency with applicable land use policies and regulations.

b. Project Impacts and Mitigation Measures.

Impact LU-1 With implementation of the mitigation measures identified throughout this EIR, the proposed project would be potentially consistent with applicable policies of the City's adopted General Plan, Strategic Plan, and Sustainable City Plan. This is a Class II, *significant but mitigable* impact.

The project applicant has requested changes to the project site's land use and zoning designations. The General Plan land use designation is proposed to be changed from the Open Space and Parks land use district (LUD No. 11) to the Townhomes land use district (LUD 3A). The zoning is proposed to be changed from Institutional (I) to a new residential use zoning district to be created or amended as part of this entitlement that would allow the features proposed under the project.

As described in the analysis of the "Reduced Density Alternative"(Subsection 6.2 of Section 6.0, *Alternatives*), the proposed zone change would allow an approximate doubling of residential density on the project site compared to existing zoning. Although the proposed project would increase the allowed residential density on the project site, the proposed uses would be consistent with the description of the proposed land use designation of Townhomes (LUD 3A) contained in the Land Use Element of the City's General Plan:

> *The Townhomes District implements a policy to provide the opportunity to create single-family lifestyles with higher dwelling unit densities than are permitted in LUD No. 1 or No. 2, for any number of reasons, such as: to furnish more affordable housing; to stimulate recycling; to diversify lifestyle choices; and to create opportunity for architectural variety and neighborhood beautification.*

> *The building style encouraged by this district is aggregates of dwelling units aligned in attached rows or arranged in regular and irregular clusters (possibly with vertically overlapping elements) in such a manner as to provide a separate exterior entrance to each dwelling unit. Parking for the units may be incorporated within the residential buildings or in separate parking compounds. Cluster designs may provide secured perimeters and common access points.*
>
> *The true utility of this district is only realized through the accumulation of a number of adjacent lots, or on large unsubdivided or resubdivided parcels. Densities, therefore, are assigned on the basis of the number of units per acre rather than the number of units per lot, and are referenced in the zoning regulations. The maximum permitted density shall be 25 du/ac.*

The proposed project would involve construction of 131 dwelling units on the 10.56-acre project site, for a density of 12.4 units per acre, approximately half the maximum density permitted under the proposed land use designation. The project would also be consistent with many of the other qualities mentioned in the description of LUD 3A above. For example, it would stimulate recycling (in this case assumed to mean recycling of land from one use to another), diversify lifestyle choices, and create opportunity for architectural variety and neighborhood beautification. The proposed project is also consistent with the concepts of physical development described above, such as clustering of units into tightly-arranged groups, secured perimeters, and common access points. As discussed in Table 4.9-1, the proposed project would be potentially consistent with applicable goals, objectives, and policies of the Long Beach General Plan, in addition to the intent and parameters of the proposed Townhomes land use designation.

City of Long Beach General Plan Consistency Review. Table 4.9-1 contains a discussion of the proposed project's potential consistency with applicable goals and policies of the Long Beach General Plan. Consistent with the scope and purpose of this EIR, the discussion focuses on those General Plan goals and policies that relate to avoiding or mitigating environmental impacts, and an assessment of whether any inconsistency with these goals and policies creates a significant physical impact on the environment. The ultimate determination of whether the proposed project is consistent with the General Plan lies with the decision-making bodies (Planning Commission and City Council), and therefore goals and policies in Table 4.9-1 are determined to be either "potentially consistent" or "potentially inconsistent". Only goals and policies relevant and applicable to the proposed project are included. Goals and policies that are redundant between elements are omitted, as well as goals and policies that call for City actions that are independent of review and approval or denial of the proposed project.

Table 4.9-1
City of Long Beach General Plan Policy Consistency

General Plan Goal or Policy	Discussion
AESTHETICS	
Land Use Element Facilities Maintenance: Long Beach will maintain its physical facilities and public rights-of-way at a high level of functional and aesthetic quality, manifesting the pride of the citizens in their City and ensuring that future generations need not bear the burden of deferred maintenance.	Potentially Consistent. The proposed project would involve landscaping in public rights-of-way in order to ensure high aesthetic quality of these facilities. The applicant would also be required, as a part of the Conditions of Approval of the project, to provide for extension of sidewalk, curb and gutter in certain locations on Daisy Avenue and Oregon Avenue adjacent to the project site where they do not currently exist. The project's Conditions of Approval also require that the applicant provide for new street trees in these locations to replace any street trees that are removed as part of these sidewalk, curb and gutter extensions.
Conservation Element Overall Goal 2: To create and maintain a productive harmony between man and his environment through conservation of natural resources and protection of significant areas having environmental and aesthetic value.	Potentially Consistent. The project site is currently vacant and relatively unmaintained and has low habitat value and visual quality. The proposed project would change the visual character of the project site to highly developed and would improve the visual character of the site by providing housing, infrastructure, and landscaping in harmony with areas surrounding the site. The proposed project would not impact natural or scenic resources.
Open Space and Recreation Element Policy 1.2: Protect and improve the community's natural resources, amenities and scenic values including nature centers, beaches, bluffs, wetlands and water bodies.	Potentially Consistent. As discussed in Impact AES-2 in Section 4.1, Aesthetics, the project site does not contain any scenic resources such as nature centers, beaches, bluffs, wetlands, or water bodies. While the Dominguez Gap Wetlands and Los Angeles River are adjacent to the project site, they would remain as scenic resources in the area after completion of the proposed project.
AIR QUALITY	
Air Quality Element Goal 6: Minimize particulate emissions from the construction and operation of roads and buildings, from mobile sources, and from the transportation, handling and storage materials. • *Policy 6.1: Control Dust. Further reduce particulate emissions from roads, parking lots, construction sites, unpaved alleys, and port operations and related uses.*	Potentially Consistent. Project construction would generate temporary air pollutant emissions. However, as discussed in Section 4.2, *Air Quality*, particulate emissions would be below thresholds. The proposed project would adhere to SCAQMD Rule 403 regarding control of fugitive dust during construction. In addition, operation of the project, including mobile and area source emissions, would not exceed SCAQMD construction particulate matter thresholds or Local Significance Thresholds (LSTs) for particulate matter.
Air Quality Element Goal 7: Reduce emissions through reduced energy consumption. • *Policy 7.1: Energy Conservation. Reduce energy consumption through conservation improvements and requirements.*	Potentially Consistent. The proposed project would comply with the energy conservation requirements of the California Green Buildings Standards Code

Table 4.9-1
City of Long Beach General Plan Policy Consistency

General Plan Goal or Policy	Discussion
BIOLOGICAL RESOURCES	
Conservation Element Wildlife Management Goal 1: To promote measures and plans which protect and preserve distinctive types of vegetation including mammals, birds, marine organisms and especially endangered species.	Potentially Consistent. The proposed project involves development of single-family residences. The project site is disturbed from previous uses and contains non-native grasses and native and non-native trees. As discussed Section 4.3, *Biological Resources*, with mitigation measures BIO-1(a) and BIO-1(b) the proposed project would not impact sensitive species or habitats.
Conservation Element Vegetation Management Goal 1: To provide controls for land supporting distinctive native vegetation, wildlife species which can be used for ecologic, scientific and educational purposes.	Potentially Consistent. The project site has been disturbed by previous uses and does not contain distinctive native vegetation or wildlife species.
Conservation Element Vegetation Management Goal 3: To locate, define, and protect other beneficial natural habitats in and about the City.	Potentially Consistent. The project site does not contain any riparian habitat, jurisdictional drainages/wetlands, suitable habitat for special-status plant species, or migratory corridors as identified in local or regional plans, policies, and regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.
CULTURAL RESOURCES	
HPE Goal 2: Protect historic resources from demolition and inappropriate alterations through the use of the City's regulatory framework, technical assistance, and incentives. • *Policy 2.5: The City shall enforce historic preservation codes and regulations.* • *Policy 2.6: The City shall implement and promote incentives for historic preservation.* • *Policy 2.7: The City shall encourage and support public, quasi-public, and private entities in local preservation efforts, including the designation of historic resources and the preservation of designated resources.*	Potentially Consistent. As discussed in Section 4.4, Cultural Resources, a cultural resources survey was conducted for the proposed project. The Scout Park was evaluated and recommended not eligible for listing the California Register of Historical Resources. The proposed project would not impact historic resources or conflict with historic preservation codes or regulations.
HPE Goal 5: Integrate historic preservation policies into City's community development, economic development, and sustainable-city strategies. • *Policy 5.2: The City shall consider historic preservation as a basis for neighborhood improvement and community development* • *Policy 5.3: The City shall consider historic preservation goals and policies when making community and economic development decisions and determining sustainable-city strategies.* • *Policy 5.7: The City shall promote historic preservation as a sustainable land use practice.*	

Table 4.9-1
City of Long Beach General Plan Policy Consistency

General Plan Goal or Policy	Discussion
GEOLOGY AND SOILS	
Seismic Safety Element Development Goal 2: Provide an urban environment which is as safe as possible from seismic risk.	Potentially Consistent. As discussed in Section 4.6, *Geology and Soils*, the project site is located in an area with the potential for soil liquefaction or settlement. However, compliance with existing regulations and building codes would minimize seismic hazards.
Seismic Safety Element Development Goal 4: Encourage development that would be most in harmony with nature and thus less vulnerable to earthquake damage.	Potentially Consistent. The project site is located on an area that is relatively flat and has been previously disturbed and developed. The project site is not subject to earthquake-induced landslide risk. The proposed project would not substantially alter the topography of the site. Although all of southern California is subject to risk from seismic groundshaking, compliance with existing seismic building regulations will make the structures less vulnerable to earthquake damage.
Seismic Safety Element Development Goal 5: Strive to encourage urbanization patterns which preserve and/or create greater earthquake safety for residents and visitors.	Potentially Consistent. As discussed in Section 4.6, *Geology and Soils*, compliance with existing regulations would minimize seismic hazards and associated hazards related to soils. As discussed in the Initial Study (Appendix A), the proposed project would not conflict with adopted emergency response plan. In addition, as discussed in Impact T-2 in Section 4.13, *Transportation and Traffic,* the proposed project would increase emergency access to the site.
Public Safety Goal 11: Critically evaluate proposed public or private actions, which may pose safety hazards to residents or visitors.	Potentially Consistent. The proposed project involves private residential development. As discussed in Section 4.6, *Geology and Soils*, and Section 4.7, *Hazards and Hazardous Materials,* the proposed project would not pose safety hazards to residents or visitors.
Conservation Element Goal 1: To minimize those activities which will have a critical or detrimental effect on geologically unstable areas and soils subject to erosion.	Potentially Consistent. The proposed project involves residential uses on a relatively flat project site in an area that is not subject to unusual geologic hazards. As discussed in Impact GEO-3 in Section 4.6, *Geology and Soils,* with adherence to standard requirements, erosion during construction would not significantly impact nearby waterways.
HAZARDS AND HAZARDOUS MATERIALS	
Public Safety Element Development Goal 3: Provide an urban environment, which is as safe from all types of hazards as possible.	Potentially Consistent. As discussed in Section 4.7, *Hazards and Hazardous Materials*, the proposed project's impacts with regard to hazards and hazardous materials would be less than significant. The proposed project would not involve the routine storage, transport, use or disposal of hazardous materials.
Public Safety Element Protection Goal 4: Effectively utilize natural or man-made landscape features to increase public protection from potential hazards.	Potentially Consistent. The project site abuts the rail tracks located along the south end of the project site. Rail tracks may pose a safety hazard for residents if residents wander onto the tracks, but the railroad tracks at this site are located on top of an elevated berm that is an approximate average height of 25-30 feet above the project site. The project site is also separated from these

Table 4.9-1
City of Long Beach General Plan Policy Consistency

General Plan Goal or Policy	Discussion
	tracks by fencing, and would continue to be separated from the project site by fencing after construction of the proposed project. In addition, public access to the tracks would not be provided as part of the proposed project. Therefore, the proposed project would not result in any hazardous design feature related to the adjacent rail tracks.
HYDROLOGY AND WATER QUALITY	
Conservation Element Water Resource Management Goal 2: To enforce existing ordinances and develop new ordinances and promote continuing research directed toward achieving the required stringent water quality standards which regulate waste water effluent discharge to ocean waters, bays and estuaries, fresh waters and groundwater.	Potentially Consistent. The proposed project would comply with existing City ordinances regarding stormwater and water quality including: • LBMC Section 18.61.050 requiring construction plans to include construction and erosion and sediment control best management practices. • LBMC Section 18.61.40 regarding design and implementation of post-construction controls to mitigate stormwater pollution.
LAND USE AND PLANNING	
Land Use Element Goal: Managed Growth – Long Beach accepts the population and economic growth anticipated through the Year 2000, and intends to guide that growth to have an overall beneficial impact upon the City's quality of life.	Potentially Consistent. The proposed project involves development of new residences in order to accommodate population growth in the City.
Land Use Element Goal: New Housing Construction – Long Beach encourages the development of 24,000 new housing units through the year 2000, with emphasis on filling the gaps which exist or are anticipated in certain sectors of the City's housing market. In the immediate future, the emphasis should be on for-sale housing for first-time homebuyers and upon upscale residential development in and around the downtown area.	Potentially Consistent. The proposed project involves the development of 131 single family homes. The applicant is proposing to cater to new families, second time homebuyers, move-down buyers, and "empty nesters."
Land Use Element Goal: Neighborhood Emphasis – Long Beach recognizes the strong neighborhood to be the essential building block of a City-wide quality living environment, and will assist and support the efforts of residents to maintain and strengthen their neighborhoods.	Potentially Consistent. The proposed project involves development of a new neighborhood with a small pocket park and a recreation center. The project is designed to create a strong neighborhood with a quality living environment.
Land Use Element Goal: Facilities Maintenance – Long Beach will maintain its physical facilities and public rights-of-way at a high level of functional and aesthetic quality, manifesting the pride of the citizens in their city and ensuring that future generations need not bear the burden of deferred maintenance.	Potentially Consistent. The proposed project would involve landscaping in roadway rights-of-way and extension of sidewalk, curb and gutter, and addition of street trees in certain locations on Daisy Avenue and Oregon Avenue adjacent to the project site. The private roadways, open space, and community amenities would be managed and maintained by a Homeowner's Association (HOA).

Table 4.9-1
City of Long Beach General Plan Policy Consistency

General Plan Goal or Policy	Discussion
Land Use Element Goal: Functional Transportation- Long Beach will maintain or improve the current ability to move people and goods to and from development centers while preserving and protecting residential neighborhoods.	Potentially Consistent. The project would place residential neighborhoods near five transit lines that could be used to travel to and from development centers. The project would provide residential development that does not conflict with surrounding land uses and neighborhoods, the nearest of which are single family residences to the north and east of the site.
NOISE	
Noise Element – Transportation Noise Goal 2: Discouraging within transportation noise zones the development of noise sensitive uses that cannot be sufficiently insulated against externally generated noise at a reasonable cost.	Potentially Consistent. As discussed in Impact N-4 in Section 4.10, *Noise*, noise and vibration from the UP railroad and Interstate 710 would not exceed City noise standards or thresholds at the proposed residences with incorporation of Mitigation Measure N-5, which requires minimum STC ratings for windows and sliding glass doors of residential units on the project site facing Interstate 710 or the railroad tracks.
Noise Element – Population and Housing Goal 3: To reduce the level of noise generated by the population into the environment of the City.	Potentially Consistent. As discussed in Impact N-2 in Section 4.10, *Noise*, onsite operations associated with the proposed residences would generate noise. However, operational noise would not exceed City noise standards or thresholds.
Noise Element – Population and Housing Goal 6: To require better sound deadening design on new housing units where acoustical problems could develop.	Potentially Consistent. The proposed residences would be constructed utilizing the California Building Code requirements for sound insulation. This would insulate residents from external noise. Additionally, Mitigation Measure N-5 requires minimum STC ratings for windows and sliding glass doors of residential units on the project site facing Interstate 710 or the railroad tracks.
Noise Element – Population and Housing Goal 7: To reduce the level of incoming and outgoing noise into and from residential dwellings within the City.	Potentially Consistent. Proposed residences would be built to the standards of the California Building Code to reduce the level of incoming and outgoing noise into and from the residences. Additionally, Mitigation Measure N-5, requires minimum STC ratings for windows and sliding glass doors of residential units on the project site facing Interstate 710 or the railroad tracks. Lastly, noise associated with operation of the proposed project would not exceed City standards.
POPULATION AND HOUSING	
Housing Element Policy 4.1: Provide adequate sites, zoned at the appropriate densities and development standards, to facilitate the housing production and affordability goals set forth in the 2014-2021 RHNA.	Potentially Consistent. The proposed project involves re-zoning and re-designating the project site to residential uses. The proposed project would facilitate housing production.
Housing Element Policy 4.2: Encourage a balance of rental and homeownership opportunities, including high quality apartments, townhomes, condominiums, and single-family homes to accommodate the housing needs of needs of all socioeconomic segments of the community, including large families.	Potentially Consistent. The proposed project would involve development of 131 owner-occupied single-family residences and associated amenities.

Table 4.9-1
City of Long Beach General Plan Policy Consistency

General Plan Goal or Policy	Discussion
Housing Element Policy 4.3: Encourage new high quality rental and ownership housing through the implementation of design review guidelines, and architectural and green building standards	Potentially Consistent. The proposed project would involve development of 131 owner-occupied, single-family residences and associated amenities. As discussed under Impact AES-3 in Section 4.1, *Aesthetics*, review of elevations and renderings from the applicant's submittal package show that the proposed project would generally have a high level of visual character and quality and would not conflict with adopted policies of the City of Long Beach related to visual character and quality. The proposed project would be subject to Site Plan Review and approval, and review and approval of a Tentative Tract Map, which would help ensure that it would be consistent with all applicable architectural and green building standards of the City.
Housing Element Policy 4.4: Finalize an ordinance for Planning Commission/City Council consideration to encourage adaptive reuse of existing structures for residential purposes.	Potentially Consistent. The applicability of this policy to the proposed project is limited because this policy calls for an action on the part of the City, not private property owners or developers. While the proposed project would replace rather than reuse the structures currently existing on the project site, it would involve adaptive reuse of a currently vacant site for residential purposes.
Housing Element Policy 4.5: Encourage residential development along transit corridors, in the downtown and close to employment, transportation and activity centers; and encourage infill and mixed-use developments in designated districts.	Potentially Consistent. The proposed project involves residential uses near transit corridors including the 710 freeway, Metro Blue Line, and several bus routes including routes along Del Amo Boulevard and Long Beach Boulevard.
Housing Element Policy 4.8: Support the development of housing that is technology-friendly and designed to meet the housing needs of the emerging information and technology industry workforce.	Potentially Consistent. The proposed project would involve the creation of new housing that could meet the needs of the technology industry workforce.
PUBLIC SERVICES	
Public Safety Element Development Goal 7. Assure continued safe accessibility to all urban land uses throughout the City.	Potentially Consistent. The project site would be accessible via Daisy Avenue. In addition, a connection to Oregon Avenue would be available in case of emergencies. The proposed project would have safe and adequate access (see Section 4.13, *Transportation and Traffic*).
Public Safety Element Development Goal 9. Encourage development that would augment efforts of other safety-related Departments of the City (i.e., design for adequate access for firefighting equipment and police surveillance).	Potentially Consistent. The proposed project would provide adequate fire and police access (see Section 4.13, *Transportation and Traffic*).
Public Safety Element Protection Goal 1. Use safety precautions as one means of preventing blight and deterioration.	Potentially Consistent. The proposed project would be a gated community. Upkeep would be provided by the HOA. The proposed project would comply with applicable fire and safety requirements regarding security and access.
Public Safety Element Protection Goal 10. Provide the maximum feasible level of public safety protection services.	Potentially Consistent. As discussed in Section 4.12, *Public Services and Recreation,* the proposed project would not increase demands for fire or police services such that new fire or police facilities would be needed.

Table 4.9-1
City of Long Beach General Plan Policy Consistency

General Plan Goal or Policy	Discussion
RECREATION	
Housing Element Policy 3.5: Continue to improve streets and drainage, sidewalks and alleys, green spaces and parks, street trees, and other public facilities, amenities and infrastructure.	Potentially Consistent. The applicant would be required, as part of the Conditions of Approval of the project, to provide for extension of sidewalk, curb and gutter in certain locations on Daisy Avenue and Oregon Avenue adjacent to the project site where they do not currently exist. The project's Conditions of Approval also require that the applicant provide for new street trees in these locations to replace any street trees that are removed as part of these sidewalk, curb and gutter extensions. The Conditions of Approval also require the applicant to construct a new park at the southwest corner of Del Amo Boulevard and Oregon Avenue.
Open Space Element Policy 2.1: Reserve, at a minimum, the existing amount of open space for community gardens and strive to create more.	Potentially Consistent. The project site is currently zoned for open space, but was never used as a community garden. Rather, it was previously used as a Boy Scout Camp. The proposed project would involve re-zoning the site for residential uses. Assuming that the project is approved, the proposed project would no longer be designated as open space.
Policy 4.1. Create additional recreation open space and pursue all appropriate available funding to enhance recreation opportunities.	Potentially Consistent. The proposed project would provide recreational opportunities including a pocket park and a recreation center with a pool, spa, and clubhouse. The Conditions of Approval of the project also require the applicant to construct a new park at the southwest corner of Del Amo Boulevard and Oregon Avenue.
Policy 4.6: With the help of the community, plan and maintain park facilities at a level acceptable to the constituencies they serve.	Potentially Consistent. The pocket park and recreational facilities included in the proposed project would be maintained by the HOA. The applicant would construct the new park at the southwest corner of Del Amo Boulevard and Oregon Avenue, but the park would be owned and maintained by the City.
Policy 4.9: Encourage the provision of non-City-owned recreation resources to supplement what the City is able to provide.	Potentially Consistent. The proposed project would provide recreational opportunities including a pocket park and a recreation center with a pool, spa, and clubhouse. These recreation resources would be owned and maintained by the HOA, not the City.
Policy 4.10: Require all new developments to provide usable open space tailored to the recreational demands they would otherwise place on public resources.	Potentially Consistent. The project would include 157,941 square feet (34%) of landscaped and open space area. This open space would include a small pocket park; a recreation center with a pool, spa, and clubhouse; and private access to the pedestrian/ bicycle path along the Los Angeles River.
TRANSPORTATION AND TRAFFIC	
MOP Policy 1-1: To improve the performance and visual appearance of Long Beach's streets, design streets holistically using the "complete streets approach" which considers walking, those with mobility constraints, bicyclists, public transit users, and various other modes of mobility in parallel.	Potentially Consistent. On-site circulation would be provided by a primary loop road connecting the whole of the site. Pedestrian walkways would be provided along the outer edge of the internal loop road. The roadway loop would provide opportunities for bicyclists, pedestrians, and those with mobility constraints to access the community center and pocket park.

Table 4.9-1
City of Long Beach General Plan Policy Consistency

General Plan Goal or Policy	Discussion
MOP Policy 1-9: Increase mode shift of transit, pedestrians, and bicycles	Potentially Consistent. The project site is located near the Metro Blue Line and several bus lines along Del Amo Boulevard and Long Beach Boulevard.
MOP Policy 1-18: Focus development densities for residential and nonresidential uses around the eight Metro Blue Line stations within City boundaries.	Potentially Consistent. The proposed project involves residential development approximately one mile from the Metro Blue Line stop at Del Amo Boulevard and Sante Fe Avenue, although this station is outside City boundaries.
MOP Policy 4-1: Consider effects on overall mobility and various travel modes when evaluating transportation impacts of new developments or infrastructure projects.	Potentially Consistent. As discussed in Section 4.13, *Transportation and Traffic,* the proposed project would not have a significant negative impact on area intersections, pedestrian, bicycle, or public transit facilities.
MOG Policy 15-3: Consider pickup and delivery activities associated with various land uses when approving new development, implementing projects, and improving highways, streets, and bridges.	Potentially Consistent. The proposed project involves residential uses. Pickup and delivery activities would be typical of residential uses (i.e.: trash hauling, moving truck, mail delivery) and would not negatively affect the City's transportation system.
UTILITIES AND SERVICE SYSTEMS	
Public Safety Element Development Goal 6: Encourage transportation systems, utilities, industries, and similar uses to locate and operate in a manner consistent with public safety goals.	Potentially Consistent. The proposed project would involve new roadways, an on-site stormwater detention system, and wastewater infrastructure upgrades (see Mitigation Measure U-2). All roadways and utilities would comply with all applicable safety requirements.
Mobility Element MOR Policy 19-1: Plan for and provide appropriate levels and types of infrastructure based on the desired character of each neighborhood or district.	Potentially Consistent. As described in Section 4.14, *Utilities and Service Systems*, the proposed project would be served by existing water and wastewater facilities. With implementation of Mitigation Measure U-2, existing infrastructure would be adequate to serve the proposed project. The proposed project would provide an on-site storm drainage system that would be designed to capture and treat runoff from the project site. The drainage basin would be located at the northeastern corner of the site and would be landscaped to fit the neighborhood character.
MOR Policy 19-2: Ensure that development is appropriate in scale with current and planned infrastructure capabilities.	Potentially Consistent. As described in Section 4.14, *Utilities and Service Systems*, the proposed project would be served by existing water and wastewater facilities. With implementation of Mitigation Measure U-2, existing infrastructure would be adequate to serve the proposed project.
MOR Policy 19-3: Promote water-efficient fixtures and appliances to reduce water demand.	Potentially Consistent. The proposed residences would be required to comply with the California Building Code requirements regarding water-efficient, low-flow fixtures.
MOR Policy 19-4: Expand the use of water recycling and graywater systems to treat and recycle wastewater and further reduce water demand related to irrigation of landscaped areas.	Potentially Consistent. Although the applicant-submitted site plans do not currently indicate use of graywater systems, the project design does not preclude the development of such a system, and the City could investigate the feasibility of requiring such a system for this development through the Site Plan Review and approval process.

Table 4.9-1
City of Long Beach General Plan Policy Consistency

General Plan Goal or Policy	Discussion
MOR Policy 19-5: Implement low-impact development techniques to reduce and improve the quality of stormwater runoff.	Potentially Consistent. The proposed project would provide an on-site stormwater detention basin that would filter and treat stormwater before it enters the storm water system or percolates into the groundwater aquifer.

City of Long Beach Strategic Plan Consistency Review. Table 4.9-2 discusses the proposed project's potential consistency with applicable goals of the City's 2010 *Strategic Plan*. Consistent with the scope and purpose of this EIR, the discussion primarily focuses on those *Strategic Plan* goals that relate to avoiding or mitigating environmental impacts, and an assessment of whether any inconsistency with these goals creates a significant physical impact on the environment. The ultimate determination of whether the proposed project is consistent with the *Strategic Plan* lies with the decision-making bodies (Planning Commission and City Council), and therefore goals in Table 4.9-2 are determined to be either "potentially consistent" or "potentially inconsistent". Only goals relevant and applicable to the proposed project are included. Goals that call for City actions that are independent of review and approval or denial of the proposed project are omitted.

Table 4.9-2
City of Long Beach Strategic Plan Policy Consistency

Strategic Plan Goal or Policy	Discussion
Our Community of Neighborhoods	
Goal 4: Support neighborhood efforts to create beauty and pride	Potentially Consistent. The proposed project would involve development of a new, secure neighborhood of 131 single-family homes with a park and recreation center. The private roadways, open space, and community amenities would be managed and maintained by an HOA. The Conditions of Approval of the project also require the applicant to construct a new park at the southwest corner of Del Amo Boulevard and Oregon Avenue.
Goal 5: Improve the quality and availability of housing	Potentially Consistent. The proposed project would involve development of 131 new, market-rate single-family residences. As discussed under Impact AES-3 in Section 4.1, *Aesthetics*, review of elevations and renderings from the applicant's submittal package show that the proposed project would generally have a high level of visual character and quality and would not conflict with adopted policies of the City of Long Beach related to visual character and quality. The proposed project would be subject to Site Plan Review and approval, and review and approval of a Tentative Tract Map, which would help ensure that it would be consistent with all applicable architectural and building standards of the City.

Table 4.9-2
City of Long Beach Strategic Plan Policy Consistency

Strategic Plan Goal or Policy	Discussion
A Healthy Environment/A Sustainable City	
Goal 2: Enhance open space	Potentially Consistent. The project site is currently zoned for open space. However, the site is not used as it contains a former Boy Scout Camp that is not in operation. The proposed project would involve development of a residential subdivision. The project would include 157,941 square feet (34%) of landscaped and open space area. This open space would include a pocket park; a recreation center with a pool, spa, and clubhouse; and private access to the pedestrian/ bicycle path along the Los Angeles River.
Goal 4: Improve air quality	Potentially Consistent. The proposed project would involve generation of construction and operational air pollution emissions. However, all emissions would be under SCAQMD thresholds with incorporation of mitigation described in Section 4.2, *Air Quality.*

City of Long Beach Sustainable City Action Plan Consistency Review. The proposed project's consistency with the *Sustainable City Action Plan* (City of Long Beach, February, 2010) is analyzed in Table 4.9-3. Consistent with the scope and purpose of this EIR, the discussion primarily focuses on those *Sustainable City Action Plan* goals that relate to avoiding or mitigating environmental impacts, and an assessment of whether any inconsistency with these goals creates a significant physical impact on the environment. The ultimate determination of whether the proposed project is consistent with the *Sustainable City Action Plan* lies with the decision-making bodies (Planning Commission and City Council), and therefore goals in Table 4.9-3 are determined to be either "potentially consistent" or "potentially inconsistent". Only goals relevant and applicable to the proposed project are included. Goals that call for City actions that are independent of review and approval or denial of the proposed project are omitted.

Table 4.9-3
Project Consistency with Applicable
Long Beach Sustainable City Action Plan Goals

Sustainable City Action Plan Goal	Project Consistency
Buildings and Neighborhoods	
Goal 2: At least 5 million square feet of privately developed LEED certified (or equivalent) green buildings by 2020.	Potentially Consistent. The proposed project is not currently designed to qualify for LEED certification. However, one of the project objectives (see Section 2.5 of this EIR) is to utilize sustainability features to encourage efficient use of the project site through building and landscape designs and orientations which recognize the climatic conditions in the area. These sustainability features would be compatible with the general aims of LEED certification. The project would also be a form of infill development, and would be located near public transit stops. For these reasons, the proposed project would not conflict with the implementation of this goal.

Table 4.9-3
Project Consistency with Applicable
Long Beach Sustainable City Action Plan Goals

Sustainable City Action Plan Goal	Project Consistency
Goal 6: Plant at least 10,000 trees in Long Beach by 2020	Potentially Consistent. The project would include 157,941 square feet (34%) of landscaped and open space area. Landscaping for new homes would result in additional planted trees throughout the project site.
Goal 10: By 2020, at least 30% of Long Beach residents use alternative transportation to get to work.	Potentially Consistent. The project would place residential neighborhoods near five transit lines that could be used to travel to and from development centers and other work places.
Energy	
Goal 5: Reduce community electricity use by 15% by 2020 *Goal 6: Reduce community natural gas use by 10% by 2020.*	Potentially Consistent. The proposed project would be required to comply with the most recent Title 24 energy efficiency requirements, which would increase energy efficiency.
Goal 7: Facilitate the development of at least 8 Megawatts of solar energy within the community (private rooftops) by 2020.	Potentially Consistent. Current project designs do not include, but also do not preclude, the installation of photovoltaic electricity generation systems on project roofs. The proposed project would not impair the implementation of this goal.
Transportation	
Goal 4: Increase public transit ridership by 25% by 2016.	Potentially Consistent. The project would place residential neighborhoods near five transit lines that could be used to travel to and from development centers and other work places.
Goal 7: Increase bike ridership from 1% to 10% by 2016.	Potentially Consistent. The Los Angeles River and bicycle path runs along the western boundary of the project site and would be easily accessible from the residences via a private access.
Urban Nature	
Goal 1: Create 8 acres of open space per 1,000 residents by 2020.	Potentially Consistent. The project would include 157,941 square feet (3.63 acres, equaling 34% of the project site) of landscaped and open space area.
Water	
Goal 1: Reduce per capita use of potable water, exceeding the State mandate to achieve a demand reduction of 20% in per capita water use by the year 2020.	Potentially Consistent. While the proposed project does not include any features specifically designed to reduce water consumption, it consists of relatively high-density development, which involves a lower amount of landscaping, and thus water use, per capita than low density development. Additionally, as discussed in Impact U-2 in Section 4.14, *Utilities and Service Systems* of this EIR, the proposed project would be required to comply with any additional restrictions on water use that the City implements, which may include additional restrictions on landscape irrigation and promotion of non-potable water use, such as grey water,
Goal 3: Facilitate the development of 50 green roofs communitywide by 2016.	Potentially Consistent. Current project designs do not include, but also do not preclude, the creation of green roofs. The proposed project would therefore not impair the implementation of this goal.

Table 4.9-3
Project Consistency with Applicable
Long Beach Sustainable City Action Plan Goals

Sustainable City Action Plan Goal	Project Consistency
Waste	
Goal 1: Annual reduction in average pounds of solid waste generated per person per day.	Potentially Consistent. According to data provided by CalRecycle (Cal Recycle website, March 2015), the City of Long Beach met its target disposal rates for both per resident and per employee metrics. The City has implemented more than 40 programs designed to sustain its disposal rates. The proposed project would comply with City programs intended to continue solid waste diversion.

Mitigation Measures. The proposed project, with adherence to existing regulations as well as mitigation measures identified in other sections of this EIR (specifically, mitigation measures BIO-1(a), BIO-1(b), and N-5), would be potentially consistent with the City's General Plan, *Strategic Plan*, and *Sustainable City Action Plan*. Impacts would be less than significant with incorporated mitigation.

Significance After Mitigation. With adherence to existing regulations as well as the mitigation measures identified in this EIR, impacts would be less than significant with incorporated mitigation.

c. Cumulative Impacts. Cumulative development in and around the project area in accordance with the City's General Plan would incrementally modify land use patterns and the general setting of the area. As shown in Table 3-1 in Section 3.0, *Environmental Setting*, one other residential project is planned in the vicinity of the project on another undeveloped parcel in the City of Carson, located approximately one miles west of the project site. Planned cumulative development would incrementally increase overall development intensity throughout the area, while incrementally reducing the amount of undeveloped land. However, similar to the proposed project, land use and policy consistency impacts associated with individual projects can be addressed on a case-by-case basis and cumulative significant impacts would not occur. Moreover, because the project's impacts related to land use compatibility and consistency with local plans and goals would be less than significant (as discussed above), the project's contribution to cumulative land use impacts would not be cumulatively considerable.

4.10 NOISE AND VIBRATION

This section addresses the impact of the noise and vibration generated by the proposed project on nearby noise-sensitive land uses, as well as the effect of current and future noise and vibration levels on the proposed project land uses.

4.10.1 Setting

a. Overview of Sound Measurement. Noise level (or volume) is generally measured in decibels (dB) using the A-weighted sound pressure level (dBA). The A-weighting scale is an adjustment to the actual sound power levels to be consistent with that of human hearing response, which is most sensitive to frequencies around 4,000 Hertz (about the highest note on a piano) and less sensitive to low frequencies (below 100 Hertz).

Sound pressure level is measured on a logarithmic scale with the 0 dB level based on the lowest detectable sound pressure level that people can perceive (an audible sound that is not zero sound pressure level). Based on the logarithmic scale, a doubling of sound energy is equivalent to an increase of 3 dB, and a sound that is 10 dB less than the ambient sound level has no effect on ambient noise. Because of the nature of the human ear, a sound must be about 10 dB greater than the reference sound to be judged as twice as loud. In general, a 3 dB change in community noise levels is noticeable, while 1-2 dB changes generally are not perceived. Quiet suburban areas typically have noise levels in the range of 40-50 dBA, while those along arterial streets are in the 50-60+ dBA range. Normal conversational levels are in the 60-65 dBA range, and ambient noise levels greater than 65 dBA can interrupt conversations.

Noise levels typically attenuate (or drop off) at a rate of 6 dBA per doubling of distance from point sources such as industrial machinery. Noise from lightly traveled roads typically attenuates at a rate of about 4.5 dBA per doubling of distance. Noise from heavily traveled roads typically attenuates at about 3 dBA per doubling of distance.

In addition to the instantaneous measurement of sound levels, the duration of sound is important since sounds that occur over a long period of time are more likely to be an annoyance or cause direct physical damage or environmental stress. One of the most frequently used noise metrics that considers both duration and sound power level is the equivalent noise level (Leq). The Leq is defined as the single steady A-weighted level that is equivalent to the same amount of energy as that contained in the actual fluctuating levels over a period of time (essentially, the average noise level). Typically, Leq is summed over a one-hour period.

The time period in which noise occurs is also important since noise that occurs at night tends to be more disturbing than that which occurs during the daytime. Two commonly used noise metrics – the Day-Night average level (Ldn) and the Community Noise Equivalent Level (CNEL) - recognize this fact by weighting hourly Leqs over a 24-hour period. The Ldn is a 24-hour average noise level that adds 10 dBA to actual nighttime (10 PM to 7 AM) noise levels to account for the greater sensitivity to noise during that time period. The CNEL is identical to the Ldn, except it also adds a 5 dBA penalty for noise occurring during the evening (7 PM to 10 PM).

b. Vibration. Vibration is a unique form of noise because its energy is carried through buildings, structures, and the ground, whereas noise is simply carried through the air. Thus, vibration is generally felt rather than heard. The ground motion caused by vibration is measured as particle velocity in inches per second and is referenced as vibration decibels (VdB) in the U.S. Policies and standards related to ground-borne vibration are provided in Section 8.80.200 of the LBMC, where operating or permitting the operation of any device that creates vibration above the vibration perception threshold of an individual at or beyond the property boundary of the source, if on private property, or at 150 feet from the source if on a public space or public right-of-way, is a code violation. Section 8.80.200(g) is described in more detail below under *Regulatory Setting.*

The vibration velocity level threshold of perception for humans is approximately 65 VdB. A vibration velocity of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels for many people (Federal Transit Administration, May 2006). The vibration thresholds established by the Federal Transit Administration (FTA) are 65 VdB for buildings where low ambient vibration is essential for interior operations (such as hospitals and recording studios), 72 VdB for residences and buildings where people normally sleep, including hotels, and 75 VdB for institutional land uses with primary daytime use (such as churches and schools). The threshold for the proposed project is 72 VdB for residences and hotels during hours when people normally sleep, as these are the only sensitive receptors in the vicinity of the project site. In terms of ground-borne vibration impacts on structures, the FTA states that ground-borne vibration levels in excess of 100 VdB would damage fragile buildings and levels in excess of 95 VdB would damage extremely fragile historic buildings.

The FTA's Transit Noise and Vibration Impact Assessment, (May 2006) was utilized to assess potential vibration impact from the adjacent rail line. The FTA Manual provides recommended vibration thresholds, and reference data for assessing probable ground-borne vibration near railroad or other fixed guide-way transportation systems. The FTA Manual recommends a residential vibration velocity standard in decibels of 80 VdB where there are fewer than 70 vibration events per day. RK Engineering Group, Inc. prepared a Noise Impact Study for the project in 2013 (see Appendix H). According to the Noise Impact Study, the projected future track utilization would be approximately 16 freight events per day.

c. Sensitive Receptors. Noise exposure goals for various types of land uses reflect the varying noise sensitivities associated with those uses. Residences, hospitals, schools, guest lodging, and libraries are most sensitive to noise intrusion and therefore have more stringent noise exposure targets than manufacturing or agricultural uses that are not subject to effects such as sleep disturbance. Noise sensitive land uses near the project area include residences directly north and northeast of the project site. The nearest residences are located within five feet of the project site boundary.

d. Regulatory Setting. Chapter 8.80 of the Long Beach Municipal Code provides regulations regarding noise levels in the City. Section 8.80.160 sets exterior noise level limits for districts identified in the municipal code. The project site is located in District 1. The following exterior noise level standards would therefore apply to the project site:

- *Daytime (7:00 AM – 10:00 PM): 50 dBA*
- *Nighttime (10:00 PM – 7:00 AM) 45 dBA*

Section 8.80.150 states that the noise standards provided in Section 8.80.160 shall be applied as follows:

> *No person shall operate or cause to be operated any source of sound at any location within the incorporated limits of the City or allow the creation of any noise on property owned, leased, occupied, or otherwise controlled by such person, which causes the noise level when measured from any other property, either incorporated or unincorporated, to exceed:*
>
> 1) *The noise standard for that land use district as specified in Table A in Section 8.80.160 for a cumulative period of more than thirty (30) minutes in any hour; or*
> 2) *The noise standard plus five (5) decibels for a cumulative period of more than fifteen (15) minutes in any hour; or*
> 3) *The noise standard plus ten (10) decibels for a cumulative period of more than five (5) minutes in any hour; or*
> 4) *The noise standard plus fifteen (15) decibels for a cumulative period of more than one (1) minute in any hour; or*
> 5) *The noise standard plus twenty (20) decibels or the maximum measured ambient, for any period of time.*

Section 8.80.170 of the Long Beach Municipal Code sets interior noise levels for specific types of development, as shown in Table 4.10-1.

Table 4.10-1
City of Long Beach Interior Noise Level Standards

Land Use	Time Interval	Allowable Noise Level (dBA)
Residential	10:00 PM – 7:00 AM	35
	7:00 AM – 10:00 PM	45
School	7:00 AM – 10:00 PM (While school is in session)	45
Hospital, designated quiet zones, and noise sensitive zones	Anytime	40

Source: Long Beach Municipal Code Sec. 8.80.170

Section 8.80.202 of the Long Beach Municipal Code sets restrictions on construction activities as follows:

- *No person shall operate or permit the operation of any tools or equipment used for construction, alteration, repair, remodeling, drilling, demolition or any other related building activity which produce loud or unusual noise which annoys or disturbs a reasonable person of normal sensitivity between the hours of 7:00 PM and 7:00 AM the following day on weekdays or federal holidays, except for emergency work authorized by the Building Official.*

- *No person shall operate or permit the operation of any tools or equipment used for construction, alteration, repair, remodeling, drilling, demolition or any other related building activity which produce loud or unusual noise which annoys or disturbs a reasonable person of normal sensitivity between the hours of 7:00 PM on Friday and 9:00 AM on Saturday and after 6:00 PM on Saturday, except for emergency work authorized by the Building Official.*

- *No person shall operate or permit the operation of any tools or equipment used for construction, alteration, repair, remodeling, drilling, demolition or any other related building activity at any time on Sunday, except for emergency work authorized by the Building Official or except for work authorized by permit issued by the Noise Control Officer.*

The Long Beach Municipal Code 8.80.200(n) requires that air conditioning equipment generate noise levels of no more than 55 dBA at any point on a neighboring property line. This standard would apply to all air conditioning and refrigerating equipment.

The Long Beach General Plan Noise Element provides outdoor and indoor noise standards for different types of land uses, as summarized in Table 4.10-2.

Table 4.10-2
City of Long Beach General Plan Noise Level Standards

Land Use	Outdoor			Indoor (Ldn)
	Peak	L10	L50	
Residential (7:00 AM–10:00 PM)	70	55	45	45
Residential (10:00 PM–7:00 AM)	60	45	35	35
Commercial (any time)	75	65	55	-
Industrial (any time)	85	70	60	-

Source: Long Beach General Plan Noise Element.

The Long Beach General Plan Noise Element also contains the following goal related to transportation noise.

Goal 2: Discouraging within transportation noise zones the development of noise sensitive uses that cannot be sufficiently insulated against externally generated noise at a reasonable cost.

The Long Beach General Plan Noise Element contains the following goal related to population and housing.

Goal 3 To reduce the level of noise generated by the population into the environment of the City.

Goal 6 To require better sound deadening design on new housing units where acoustical problems could develop.

Goal 7 To reduce the level of incoming and outgoing noise into and from residential dwellings within the City.

The California Department of Health Services establishes noise criteria for various land uses. Noise exposure for a residential land use is "normally acceptable" when the CNEL at exterior residential locations is equal or below 60 dBA, "conditionally acceptable" when the CNEL is between 60 to 70 dBA, "normally unacceptable" when the CNEL is between 70 to 75 dBA, and "clearly unacceptable" when the CNEL is greater than 75 dBA.

Section 8.80.200(g) of the Long Beach Municipal Code regulates vibration as follows:

Operating or permitting the operation of any device that creates vibration which is above the vibration perception threshold of an individual at or beyond the property boundary of the source if on private property or at one hundred fifty feet (150') (forty-six (46) meters) from the source if on a public space or public right-of-way. For the purposes of this subsection, "vibration perception threshold" means the minimum ground or structure-borne vibrational motion necessary to cause a normal person to be aware of the vibration by such directed means as, but not limited to, sensation by touch or visual observation of moving objects. The perception threshold shall be presumed to be .001 g's in the frequency range 0 – 30 hertz and .003 g's in the frequency range between thirty and one hundred hertz.

e. Existing Noise Sources. The most common sources of noise in the project site vicinity are transportation sources, including railroad noise from the tracks directly south of the project site, aircraft noise and traffic on surrounding roads, including the Interstate 710 west of the project site. Motor vehicle noise is of concern because it is characterized by a high number of individual events, which often create sustained noise levels. Ambient noise levels would be expected to be highest during the daytime and rush hour unless congestion slows speeds substantially. Existing noise sources within the project site consist of one residence currently in use by the on-site caretaker. To determine ambient noise levels at nearby sensitive receptors, five15-minute noise measurements were taken between 4:00 p.m. and 6:00 p.m. (peak hour) on September 24, 2014 and November 3, 2014, using an ANSI Type II integrating sound level meter (refer to Appendix I for noise measurement data). Table 4.10-3 lists the ambient noise levels measured at the locations shown on Figure 4.10-1.

Table 4.10-3
Noise Measurements

Measurement Number	Measurement Location	Distance to Nearest Sensitive Receptor	Distance from Centerline of Roadway	Sample Time	Leq (dBA)
1	Center of project site	280 ft	280 ft	4:35 p.m. – 4:50 p.m.	58.8
2	Daisy Avenue, south of W. 48th Street	25 ft	25 ft	4:54 p.m. – 5:09 p.m.	55.1
3	W. 48th St between Daisy Ave and Pacific Ave	15 ft	25 ft	5:13 p.m. – 5:28 p.m.	60.6
4	Daisy Avenue, between W. 49th St and W 48th St	25 ft	25 ft	5:31 p.m. – 5:46 p.m.	53.4
5	West Del Amo Boulevard, east of Oregon Avenue	35 ft	60 ft	5:05 p.m. – 5:20 p.m.	72.8

Source: Measurements 1 through 4 were taken on November 3, 2014 and Measurement 5 was taken on September 24, 2014.
All measurements were taken using ANSI Type II Integrating sound level meter.
Refer to Figure 4.10-1 for noise measurement locations.
Refer to the Appendix H for noise monitoring data sheets

Long Beach Municipal Airport is located approximately 2.25 miles southeast of the project site, but the project site is outside its Airport Influence Area (Los Angeles County Airport Land Use Commission, 2003).

Fehr & Peers prepared the Transportation Impact Analysis Final Report for the project and analyzed local roadway segments and intersections in the surrounding roadway network and provided average daily trip (ADT) rates and peak hour trips (see Appendix J). Using the trip data, existing traffic-generated noise levels along these segments was estimated using the Federal Highway Administration (FHWA) Traffic Noise Model (TNM) Look-Up Tables (FHWA, April 2004). Table 4.10-4 shows existing traffic-generated noise levels along local roadways and the surrounding roadway network compared to measured noise levels shown in Table 4.10-3.

Imagery provided by Google and its licensors © 2014.

Project Boundary

Noise Measurement Locations

0 200 400 Feet

N

Noise Measurement Locations

Figure 4.10-1

Table 4.10-4
Existing Traffic-Generated Noise

Roadway Segment	Modeled Noise Level (dBA) CNEL	Measured Noise Level Leq (dBA)
Local Roadways[1]		
W. 48th St between Oregon Ave and Daisy Ave	48.1	NA
Daisy Ave between Del Amo Blvd and W. 49th St	54.1	NA
Daisy Ave between W. 49th St and W 48th St	48.4	53.4
Daisy Ave south of W. 48th St	41.7	55.1
W. 48th St between Daisy Ave and Pacific Ave	49.9	60.6
Pacific Ave between Del Amo Blvd and Pleasant St	53.6	NA
W. 48th St between Pacific Ave and Virginia Ave	51.4	NA
W. Arbor St between Virginia Ave and Long Beach Blvd	50.4	NA
W. 48th St between Virginia Ave and Long Beach Blvd	52.4	NA
W. 49th west of Long Beach Blvd	56.7	NA
Surrounding Roadway Network[2]		
Del Amo Blvd between Susana Rd and Daisy Ave	72.7	72.8
Del Amo Blvd between Daisy Ave and Long Beach Blvd	72.5	NA
Del Amo Blvd east of Long Beach Blvd	72.2	NA
Long Beach Blvd south of Arbor St	67.4	NA
Long Beach Blvd north of Del Amo Blvd	67.0	NA

1. Estimates of noise generated by traffic at 35 feet from the roadway centerline.
2. Estimates of noise generated by traffic at 50 feet from the roadway centerline.
Refer to Appendix I for these estimates. Calculated using the FHWA TNM Lookup Tables.

Modeled noise levels range from 41.7 dBA to 56.7 dBA on local roadways. The highest modeled noise level on local roadways was identified for W. 49th Street west of Long Beach Boulevard. Measured noise on local roadways exceeds the modeled noise levels at the same locations because traffic on segments of lightly-travelled local roadways is not the primary noise source in these locations. Modeled noise takes into account local traffic, but does not account for other noise sources such as traffic noise on other nearby street segments, Interstate 710, and plane overflights. For example, in the case of the three measurement locations on Daisy Avenue and W. 48th Street, these other noise sources were substantial contributors to the measured noise levels. Modeled noise levels range from 67.0 dBA to 72.7 dBA on the surrounding roadway network. In this case, the measured noise on Del Amo Boulevard was similar to the modeled noise because the primary source of noise at that location was traffic on Del Amo Boulevard. With the exception of Daisy Avenue south of W. 48th Street, all of the modeled noise levels shown in Table 4.10-4 currently exceed either the City's District 1 daytime or nighttime exterior noise standards of 50 dBA and 45 dBA, respectively. In the case of Daisy Avenue south of W. 48th Street, the measured noise level, which, as discussed above, is a more accurate indicator of actual noise levels in this location, also exceeds this threshold.

RK Engineering Group, Inc. prepared a Noise Impact Study for the project in 2013 (see Appendix H). The Noise Impact Study includes a traffic source noise and railroad source noise analysis to project the expected noise and vibration impacts of traffic noise and railroad

operations on the proposed project. Interstate 710 is located approximately 1,300 feet west of the project site. The Noise Impact Study estimates that residences closest to Interstate 710 would experience an exterior noise level of 48.9 dBA CNEL. The track is located uphill from the project site and an approximately 10 foot high wall is located about 25 feet from the railroad tracks separating it from the project site. The Noise Impact Study estimates that exterior noise levels from passing trains at the residential units closest to the railroad (approximately 100 feet from the tracks) would be 57.6 dBA CNEL, and that vibration levels from passing trains would range from 70 to 74 VdB.

4.10.2 Impact Analysis

a. Methodology and Thresholds of Significance.

Methodology. The analysis of noise impacts considers the effects of both temporary construction-related noise and long-term noise associated with operation of the proposed project. Construction noise estimates are based upon noise levels reported by the Federal Transit Administration (FTA), Office of Planning and Environment (FTA, May 2006), and the distance to nearby sensitive receptors. Reference noise levels from that document were then used to estimate noise levels at nearby sensitive receptors based on a standard noise attenuation rate of 6 dBA per doubling of distance (line-of-sight method of sound attenuation for point sources of noise). Construction noise level estimates do not account for the presence of intervening structures or topography, which could reduce noise levels at receptor locations. Therefore, the noise levels presented herein represent a conservative, reasonable worst-case estimate of actual construction noise.

To determine ambient noise levels at nearby sensitive receptors, Rincon Consultants, Inc. took five 15-minute noise measurements between 4:00 p.m. and 6:00 p.m. (peak hour) on September 24, 2014 and November 3, 2014, using an ANSI Type II integrating sound level meter (see Figure 4.10-1 above for noise measurement locations relative to the project site; see Appendix I for noise measurement data). These locations were selected to represent ambient noise levels experienced by sensitive receptors near the project site. At each location, consideration was given to site-specific characteristics, and the sound level meter was placed away from walls and topographic features which might skew noise measurements. The noise measurements recorded the equivalent noise level (Leq) at each location.

Rincon calculated noise levels associated with existing and future traffic along local roadways using the TNM Look-Up Tables (FHWA, April 2004) (noise modeling data sheets can be viewed in Appendix I) and the Transportation Impact Analysis Final Report (see Appendix J and Section 4.13, *Transportation and Traffic*). Roadway noise level estimates do not account for any intervening barriers or topography that may shield individual receptors from the noise source. Therefore, the levels presented represent a conservative estimate of the noise levels that would be experienced at individual receptor locations.

The future interior noise level for the proposed residences was calculated in the Noise Impact Study. The interior noise level is the difference between the projected exterior noise level at the structure's façade and the noise reduction provided by the structure itself. Typical building construction will provide a conservative 12 dBA noise level reduction with a "windows open"

condition and a conservative 20 dBA noise level reduction with "windows closed." The Noise Impact Study estimated the interior noise level by subtracting the building shell design from the estimated exterior noise level of the project site.

Significance Thresholds. Pursuant to Appendix G of the *CEQA Guidelines*, potentially significant impacts would occur if the project would result in any of the following conditions:

- *Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;*
- *Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels;*
- *A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;*
- *A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;*
- *For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels; and/or*
- *For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels.*

As discussed in the Initial Study (Appendix A), the project site is not located in the vicinity of a private airstrip nor is it located within two miles of an airport or within an airport land use plan. Impacts related to airport noise would therefore be less than significant and are not further discussed in this section. The EIR analyzes potential impacts from temporary (i.e., construction-related) noise increases, including potential vibration impacts, under Impact N-1, and permanent operational noise increases under impact N-2.

Existing off-site development would primarily be affected by potential increased noise associated with increased traffic volumes attributable to the project at various study roadway segments. Impacts to existing development are considered significant if project-generated traffic results in exposure of sensitive receptors to unacceptable noise levels. Federal recommendations were used to determine whether increases in roadway noise would be considered significant where existing noise levels already exceed City thresholds. The level of significance changes with increasing noise exposure, such that smaller changes in ambient noise levels result in significant impacts at higher existing noise levels. Table 4.10-5 shows the significance thresholds for increases in traffic related noise levels caused either by the project alone or by cumulative development.

Impacts related to operational on-site activities and traffic noise would be significant if project-related activities create noise exceeding the noise standards shown in Table 4.10-1. Construction noise is significant if it would occur during hours when construction activity is prohibited under the Long Beach Municipal Code (see *Regulatory Setting* above).

Table 4.10-5
Significance of Changes in Operational Roadway Noise Exposure

Existing Noise Exposure (dBA Ldn or Leq)	Allowable Noise Exposure Increase (dBA Ldn or Leq)
45-50	7
50-55	5
55-60	3
60-65	2
65-74	1
75+	0

Source: Federal Transit Administration (FTA). Transit Noise and Vibration Impact Assessment. May 2006.

b. Project Impacts and Mitigation Measures.

Impact N-1 Construction-related activities associated with the proposed project would intermittently generate high noise levels and groundborne vibration on and adjacent to the site. This is a Class III, *less than significant* impact.

Short-term noise impacts associated with construction may adversely affect adjacent residential uses. The grading/excavation phase of project construction tends to create the highest construction noise levels because of the operation of heavy equipment. As shown in Table 4.10-6, the maximum noise level associated with heavy equipment at construction sites can range from about 74 to 85 dBA at 50 feet from the source, depending upon the types of equipment in operation at any given time and phase of construction (FTA, 2006). During grading operations, equipment is dispersed in various portions of the site in both time and space. Due to site and equipment limitations, only a limited amount of equipment can operate near a given location at a particular time.

Construction noise levels would diminish at approximately 6 dBA per doubling of distance. Table 4.10-7 shows typical maximum construction noise levels at various distances from construction activity. Based upon an assumed average construction noise level of 85 dBA at a distance of 50 feet from the source, the maximum average noise levels would be 51 dBA at a distance of 2,500 feet. The nearest residences are located adjacent to the project site boundary. As shown in Table 4.10-3, ambient noise on the project site was measured at approximately 58.8 dBA. A five to six foot solid wall borders the project site and would attenuate construction noise by up to 10 dBA. When the loudest piece of construction equipment is near the project site boundary, noise levels at receptors located 10 feet away would be approximately 89 dBA after accounting for the wall's attenuating effects. However, stationary construction equipment would be located near the center of the project site and mobile construction equipment would only temporarily be immediately adjacent to the project boundaries. Residences would experience a temporary increase in noise during construction of the proposed project. Because

these residences would be located within 2,500 feet of construction activity, construction noise levels could exceed the City's exterior noise standard of 50 dBA during daytime hours.

Table 4.10-6
Typical Construction Equipment Noise Levels

Equipment	Acoustical Usage Factor (%)[1]	Measured Lmax (dB at 50 feet)
Augur Drill Rig	20	84
Backhoe	40	78
Compactor (ground)	20	83
Dozer	40	82
Dump Truck	40	76
Excavator	40	81
Flat Bed Truck	40	74
Front End Loader	40	79
Generator	50	81
Grader	40	83
Pickup Truck	40	75
Pneumatic Tools	50	85
Roller	20	80
Scraper	40	84
Warning Horn	5	83
Welder/Torch	40	74

Source: FTA, 2006.

[1] *The average fraction of time each piece of construction equipment is operating at full power (i.e., its loudest condition) during a construction operation.*

Development of the proposed 131-unit development would result in short-term construction noise. The sensitive receptors nearest to construction noise sources would be residences bordering the northern and northeastern portions of the site, which would be exposed to construction-phase noise from grading and construction activities. The Long Beach Noise Ordinance prohibits construction outside daytime hours; therefore, construction noise would not be significant at these receptors because activities would occur outside hours when people normally sleep.

Project construction activities would result in some vibration that may be felt on properties in the immediate vicinity of the project site, as commonly occurs with construction projects. Table 4.10-8 identifies various vibration velocity levels for different types of construction equipment. Project construction would not involve the use of pile drivers, but could involve the use of bulldozers and jackhammers on the project site. Additionally, loaded trucks carrying

construction materials would operate on the project site and some surrounding streets during construction.

Table 4.10-7
Typical Maximum Construction Noise Levels at Various Distances from Project Construction (dBA)

Distance from Construction	Maximum Noise Level at Receptor (no Pile-Driving)
10 feet	99
50 feet	85
100 feet	79
250 feet	71
500 feet	65
775 feet	61
1,000 feet	59
2,500 feet	**51**

Source: FTA, 2006.

Table 4.10-8
Vibration Source Levels for Construction Equipment

Equipment	Approximate VdB					
	10 Feet	40 Feet	75 Feet	100 Feet	200 Feet	300 Feet
Large Bulldozer	97	79	73	69	60	55
Loaded Trucks	93	77	71	68	59	54
Jackhammer	87	71	65	61	52	47
Small Bulldozer	66	49	43	40	31	26

Source: FTA, 2006.

Vibration levels would be 97 VdB at residences 10 feet from construction equipment, which is above the vibration threshold established by the FTA of 72 VdB for residences and buildings where people normally sleep. In terms of ground-borne vibration impacts on structures, vibration levels would not be greater than FTA's threshold of 100 VdB for damage to fragile buildings. The Long Beach Noise Ordinance prohibits construction outside daytime hours; therefore, construction vibration would not be significant at these receptors because activities would occur outside hours when people normally sleep.

Mitigation Measures. Because impacts would be less than significant, no mitigation is required.

Significance After Mitigation. Impacts would be less than significant without mitigation.

Impact N-2 Onsite operations of the proposed project would generate noise levels that may periodically be audible to existing land uses near and within the project area. However, operational noise is not expected to exceed City noise standards or thresholds. This is a Class III, *less than significant* impact.

Noise levels would increase as a result of ongoing activities associated with the proposed residential structures. Noise generated by ventilation and air conditioning (HVAC) units), deliveries, and trash hauling activities would be expected.

Much of the noise generated by residential activities would be intermittent in nature and would be typical of residential neighborhoods. Therefore, exceedances of City standards normally would not be anticipated. Any periodic violations of City Noise Ordinance standards would be subject to Code enforcement actions.

As discussed in the *Setting*, the sensitive receptors (residences) are located immediately adjacent to the project site. Noise sources from the proposed residential uses would consist of rooftop HVAC equipment and vehicular noise from operational traffic. Compliance with Code requirements (discussed in the *Setting)* would ensure that HVAC associated with the proposed project does not exceed City exterior noise level standards at the nearest sensitive receptors. The majority of operational noise resulting from the project would occur in indoor areas and is therefore not expected to affect offsite sensitive receptors. Therefore, project operation would not result in noise levels that exceed City standards at these sensitive receptors, and impacts related to operational noise would thus be less than significant.

Mitigation Measures. Because impacts would be less than significant, no mitigation is required.

Significance After Mitigation. Impacts would be less than significant without mitigation.

Impact N-3 Traffic generated by the proposed project is anticipated to result in noise level increases along roadways in the project vicinity. Traffic-related increases in noise would not exceed the City's threshold at sensitive receptors along roadway segments. This is a Class III, *less than significant* impact.

Development of the proposed project would increase the number of vehicle trips to and from the site, which would increase traffic noise on neighborhood roadways within the immediate vicinity of the project site. Estimated average daily traffic (ADT) values from the Transportation Impact Analysis Final Report were used to model the change in noise levels resulting from increased traffic on ten local roadway segments within the immediate vicinity of the project site and five roadway segments within the surrounding road network.

Table 4.10-9 shows exterior noise level increases that would result from project-related traffic increases on local roadways within the immediate vicinity of the project site. Existing plus project traffic volumes would increase exterior noise levels on five of the ten analyzed roadway segments. All of the affected roadway segments are on Daisy Avenue and W. 48th Street. Project-related noise increases would be as high as 2.4 dBA, which is less than the significance

thresholds that apply along each studied road segment. As the immediate neighborhood of the project site, which is served by local roadways, is completely built out, planned and pending projects are not expected to impact local roadways and future and cumulative traffic-related noise were not modeled. Although Oregon Park is a pending project 900 feet north of the project site, the only access to the park would be on Del Amo Boulevard, which is considered in the analysis of the surrounding road network.

Table 4.10-9
Pre-Project and Post-Project Local Traffic Noise

Roadway	Projected Noise Level (dBA CNEL)		Change In Noise Level (dBA CNEL)	Significance Threshold (dBA)[5]	Significant?
	Existing [1]	Existing Plus Project[4]			
W. 48th St between Oregon Ave and Daisy Ave	48.1[2]	48.1	0	7	No
Daisy Ave between Del Amo Blvd and W. 49th St	54.1[2]	56.5	2.4	5	No
Daisy Ave between W. 49th St and W 48th St	53.4[3]	54.1	0.7	5	No
Daisy Ave south of W. 48th St	55.1[3]	54.1	- 1.0	3	No
W. 48th St between Daisy Ave and Pacific Ave	60.6[3]	51.9	- 8.7	2	No
Pacific Ave between Del Amo Blvd and Pleasant St	53.6[2]	53.6	0	5	No
W. 48th St between Pacific Ave and Virginia Ave	51.4[2]	52.9	1.5	5	No
W. Arbor St between Virginia Ave and Long Beach Blvd	50.4[2]	50.4	0	5	No
W. 48th St between Virginia Ave and Long Beach Blvd	52.4[2]	53.6	1.2	5	No
W. 49th St west of Long Beach Blvd	56.7[2]	56.7	0	3	No

1. Existing noise is based on measured noise, except where measurements were not taken, in which case noise estimates based on TNM Look-Up Tables were used.

2. Existing noise reflects modeled estimates based on traffic from roadway centerline at 35 feet from Table 4.10-4. Refer to Appendix I for these estimates from the TNM Look-Up Tables.

3. Existing noise reflects measurements from Table 4.10-3.

4. Existing Plus Project noise reflects estimates generated using TNM Look-Up Tables. In the case where existing noise is based on measurements, project noise was estimated using the TNM Look-Up Tables and added to measured existing noise. Refer to Appendix I for these estimates and for the equation used.

5. As shown in Table 4.10-5, an increase of 7 dBA would be considered significant when existing ambient noise is between 45-50 dBA, an increase of 5 dBA would be considered significant when existing ambient noise is between 50-55 dBA, an increase of 3 dBA would be considered significant when existing ambient noise is between 55-60 dBA,and an increase of 2 dBA would be considered significant when existing ambient noise is between 60-65 dBA.

Table 4.10-10 shows exterior noise level increases that would result from project-related traffic increases on roadways segments within the surrounding arterial roadway network. Existing plus project traffic volumes would increase exterior noise levels on two of the analyzed roadway segments in the surrounding road network, both of which were on Del Amo Boulevard. Project-related noise increases would be as high as 0.1 dBA, which is less than the significance thresholds that apply along each studied road segment. Therefore, impacts from project-related traffic noise increases on local roadway segments and the surrounding road network would be less than significant.

Table 4.10-10
Pre-Project and Post-Project Surrounding Road Network Traffic Noise

Roadway	Projected Noise Level (dBA CNEL)			Change In Noise Level (dBA CNEL)		Significance Threshold (dBA)	Significant?
	Existing	Existing Plus Project	Cumulative Growth Plus Project	Project Only	Cumulative Growth Plus Project		
Del Amo Blvd between Susana Rd and Daisy Ave	72.7	72.8	73.2	0.1	0.5	1	No
Del Amo Blvd between Daisy Ave and Long Beach Blvd	72.5	72.5	72.9	0	0.4	1	No
Del Amo Blvd east of Long Beach Blvd	72.2	72.3	72.7	0.1	0.5	1	No
Long Beach Blvd south of Arbor St.	67.4	67.4	67.9	0	0.5	1	No
Long Beach Blvd north of Del Amo Blvd	67.0	67.0	67.4	0	0.4	1	No

1. Modeled estimates based on traffic from roadway centerline at 50 feet. Refer to Appendix I for these estimates from the TNM Look-Up Tables.

Note: As shown in Table 4.10-5, an increase of 1 dBA would be considered significant when existing ambient noise is greater than 65 dBA.

Mitigation Measures. Because impacts would be less than significant, no mitigation is required.

Significance After Mitigation. Impacts would be less than significant without mitigation.

Impact N-4 Noise levels from the UP Railroad and traffic on Interstate 710 would not exceed exterior noise thresholds for the proposed residences. Additionally, railroad vibration impacts would not exceed applicable vibration thresholds for the proposed residences. This is a Class III, *less than significant* impact.

Traffic on Interstate 710 west of the project site is a source of noise that would affect exterior noise levels at proposed residences facing the highway. According to the California Department of Health Services, noise exposure for a residential land use is "normally acceptable" when the CNEL at exterior residential locations is equal to or below 60 dBA. The Noise Impact Study

models traffic noise from Interstate 710 and estimates that exterior noise levels at the residential units closest to the Interstate would be 48.9 dBA CNEL (see Appendix H). Therefore, exterior noise impacts on the proposed residences from Interstate-710 traffic noise would be less than significant.

The railroad tracks south of the project site are a source of noise and vibration that would affect exterior noise and vibration levels at the proposed residences facing and nearest the tracks. The Noise Impact Study models railroad noise and estimates that exterior noise levels at the residential units closest to the tracks (approximately 100 feet from the tracks) would be 57.6 dBA CNEL, which is below the 60 dBA CNEL "normally acceptable" threshold (see Appendix H). Therefore, exterior noise impacts on the proposed residences from railroad noise would be less than significant.

The Noise Impact Study models railroad vibration and estimates that vibration would range from 70 to 74 VdB, which is below the vibration threshold set by the FTA of 80 VdB. Therefore, impacts on the proposed residences from railroad vibrations would be less than significant.

Mitigation Measures. Because impacts would be less than significant, no mitigation is required.

Significance After Mitigation. Impacts would be less than significant without mitigation.

Impact N-5 Interior noise in proposed residences facing the railroad and Interstate-710 would exceed the City's interior noise standards for residences. This is a Class II, *significant but mitigable* impact.

The Noise Impact Study calculated future interior noise level for proposed residences using a typical "windows open" and "windows closed" condition. A "windows open" condition assumes 12 dBA of noise attenuation from the exterior noise level. A "windows closed" condition assumes 20 dBA of noise attenuation from the exterior noise level. According to the Noise Impact Study, interior noise levels would range from 36.9 to 52.3 dBA CNEL with the windows open and 28.9 to 44.3 with the windows closed. To meet the City's interior 45 dBA CNEL standard, a "windows closed" condition is required for all lots facing Interstate-710 and the railroad.

Mitigation Measures. The following mitigation measure would reduce impacts related to interior noise levels to a less than significant level.

N-5 **Windows and Sliding Glass Doors.** All first floor and second floor windows and sliding glass doors facing Interstate 710 shall utilize a minimum STC rating of 28. All first floor and second floor windows and sliding glass doors facing the adjacent railroad track shall utilize a minimum STC rating of 30. All other windows and sliding glass doors on the project site shall utilize a minimum STC rating of 25.

Significance After Mitigation. With implementation of Mitigation Measure N-5, impacts to interior noise levels in proposed residences would be reduced to less than significant levels.

c. Cumulative Impacts. The immediate neighborhood of the project site, which is served by local roadways, is completely built out, therefore, planned and pending projects are not expected to impact local roadways. As discussed above, although Oregon Park is 900 feet north of the project site, the only access to the park would be from Del Amo Boulevard, which is considered in the analysis of the surrounding road network. Cumulative development in the City of Long Beach would result in the development of several projects also served by the larger roadway network surrounding the project site. As shown in Table 4.10-10, cumulative impacts along the analyzed surrounding roadway network would contribute to further exceedance of the exterior noise standard over time. Cumulative traffic noise increases along the analyzed road segments would range from 0.4 dBA to 0.5 dBA CNEL, which would not exceed applicable thresholds for significant impacts. The operational noise generation of cumulative projects is not known, but as no other planned or pending projects are located in the immediate vicinity of the project site and the neighborhood is built out, no planned or pending projects in the immediate vicinity would create cumulative operational noise impacts in combination with the proposed project. Because of its distance from the project site, operational noise generated at Oregon Park 900 feet north of the project site would not create cumulative noise impacts in combination with the proposed project. All future development would be required to comply with the City's noise and vibration standards, which restrict the level of noise and vibration that can be generated near a property according to its designated use. Cumulative impacts would be less than significant.

4.11 POPULATION AND HOUSING

This section evaluates the proposed project's potential impact on population and housing in the project area and its surroundings.

4.11.1 Setting

a. City of Long Beach. Table 4.11-1 provides the State's 2014 estimates of population and housing for the City of Long Beach and Los Angeles County as a whole. The City of Long Beach has an estimated 176,417 housing units as of 2014 while the City's estimated 2014 population is 470,292 (California Department of Finance, May 2014).

Table 4.11-1
Current Housing and Population

	City of Long Beach	Los Angeles County
Housing Units	176,417	3,474,152
Population	470,292	10,041,797
Persons/Household	2.82	3.02

Source: California Department of Finance, E-5 Population and Housing Estimates for Cities, Counties, and the State, January 1, 2011-2014, with 2010 Benchmark, May 2014.

As shown in Table 4.11-1, the City of Long Beach's population of 470,292 makes up about 4.7% of the countywide population of 10,041,797, and the City's 176,417 housing units make up about 5.1% of the County's 3,474,152 total housing units. The average number of persons per household in Long Beach is 2.82, which is about 6.6% lower than the countywide average of 3.02 persons per household.

Table 4.12-2 shows 2008 estimates of employment, household, and population for Long Beach as well as 2020 and 2035 forecasts, all from the Southern California Association of Governments (SCAG), which is the Metropolitan Planning Organization (MPO) for a six-county region of Southern California, including all of Los Angeles County and the City of Long Beach. From 2008 to 2035, the City is forecast to add 71,900 residents, 25,400 households, and 16,700 jobs.

Based on the 2008 estimate of employment (jobs) and households in the City shown in Table 4.11-2, there are 1.03 jobs per household in Long Beach. By comparison, there are about 1.34 jobs per household in Los Angeles County as a whole. The ratio of jobs-to-housing in the City is forecast to fall to 0.98:1 by 2035.

Table 4.11-2
SCAG Employment, Households and Population Forecasts for Long Beach

	2008	2020	2035
Population	462,200	491,000	534,100
Households	163,500	175,600	188,900
Employment	168,100	176,000	184,800

Source: SCAG, 2012 RTP Growth Forecast, April, 2012.

b. Project Area. The project area (the vicinity of the project site) is predominately residential with a variety of housing types, including single family residences, two family residences, and mobile homes. According to the California Department of Finance (2014), the City's current population is 470,292 and the average household density in Long Beach is 2.82 persons per household. The proposed project would add 131 new single family residences to the project site. Based on this average, the project would add an estimated 369 residents, for a total city population of 470,661 residents (California Department of Finance, May 2014).

c. Regulatory Setting.

City of Long Beach 2013-2021 Housing Element. The City of Long Beach's Housing Element (adopted January 2014) of the General Plan describes the city's existing and projected housing needs, identifies the City's capacity for new housing, and indicates how the City will meet its regional housing need allocation (RHNA) for the period based on its land supply and development capacity. The Housing Element identifies strategies and programs that focus on: (1) providing housing assistance and preserving publicly assisted units; (2) addressing the unique housing needs of special needs residents; (3) retaining and improving the quality of existing housing and neighborhoods; (4) providing increased opportunities for the construction of high quality housing; (5) mitigating government constraints to housing investment and affordability; (6) providing increased opportunities for home ownership; and (7) ensuring fair and equal housing opportunity. The future residential development potential of the City of Long Beach as analyzed in the Housing Element of the City's General Plan, is 7,270 new dwelling units by 2021 (City of Long Beach, January 2014). Specific policies from the Housing Element are listed below.

Policy 4.1 *Provide adequate sites, zoned at the appropriate densities and development standards, to facilitate the housing production and affordability goals set forth in the 2008-2014 RHNA.*

Policy 4.2 *Encourage a balance of rental and homeownership opportunities, including high quality apartments, townhomes, condominiums, and single-family homes to accommodate the housing needs of needs of all socioeconomic segments of the community, including large families.*

Policy 4.3 *Encourage new high quality rental and ownership housing through the implementation of design review guidelines, and architectural and green building standards.*

Policy 4.4 *Continue to implement innovative strategies for encouraging the adaptive reuse of existing structures for residential purposes.*

Policy 4.5 *Encourage residential development along transit corridors, in the downtown and close to employment, transportation and activity centers; and encourage infill and mixed-use developments in designated districts.*

Policy 4.8 *Support the development of housing that is technology-friendly and designed to meet the housing needs of the emerging information and technology industry workforce.*

Regional Comprehensive Plan and Guide. SCAG's Regional Comprehensive Plan and Guide (RCPG) contains a general overview of federal, state, and regional plans applicable to the Southern California region and serves as a comprehensive planning guide for future regional growth. The primary goals of the RCPG are to improve the standard of living, enhance the quality of life, and promote social equity. The RCPG was originally adopted by the member agencies of SCAG in 1994 to set broad goals for the Southern California region and identify strategies for agencies at all levels of government to use in their decision making. The 2008 RCP, which serves the same function as the previous version, was accepted by the SCAG Board as an advisory document, but was never adopted. Nevertheless, the 2008 RCP includes input from each of the 13 subregions that make up the Southern California region including Los Angeles, Orange, San Bernardino, Riverside, Imperial, and Ventura counties.

SCAG's RCPG serves as a framework for addressing problems and creating a path to correct issues on a regional level through 2035. The RCGP is broken up into nine chapters that include key areas where resource management is necessary due to the urban growth the area experiences. Population projections are made through SCAG's Regional Transportation Plan/ Sustainable Communities Strategy (RTP/SCS) and are the basis for growth for the RCPG.

Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). SCAG's RTP/SCS is a long range transportation plan that looks ahead 20+ years and provides a vision for the future of the regional multi-modal transportation system. The RTP/SCS identifies major challenges as well as potential opportunities associated with growth, transportation finances, the future of airports in the region, and impending transportation system deficiencies that could result from growth that is anticipated in the region. The SCS component of the RTP integrates land use and transportation strategies to achieve California Air Resources Board emissions reduction targets. SCAG adopted its current RTP/SCS in 2012, and is currently in the process of developing its 2016 RTP/SCS (SCAG, April 2012).

4.12.2 Impact Analysis

a. Methodology and Significance Thresholds. Impacts related to population are generally social or economic in nature. Under CEQA, a social or economic change generally is not considered a significant effect on the environment unless the changes are directly linked to a

physical change. Pursuant to the State *CEQA Guidelines* Appendix G Environmental Checklist, impacts related to population and housing would be potentially significant if the project would:

- *Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure), or*
- *Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere, or*
- *Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.*

The Initial Study prepared for the proposed project (Appendix A) determined that the project would have no impact related to displacement of substantial numbers of existing housing or people; therefore, these topics are not further analyzed in this section of the EIR. The analysis that follows focuses on the first criterion listed above.

b. Project Impacts and Mitigation Measures.

Impact PH-1 Development associated with the proposed project may directly increase the City's population. However, this population growth would fall within and be consistent with City of Long Beach General Plan and SCAG population forecasts. The proposed project would therefore not in itself induce population growth beyond that already planned, and impacts related to inducement of substantial population growth would be Class III, *less than significant.*

Development of the proposed project would add 131 new single family residences to Long Beach. According to the California Department of Finance (May 2014), the average household density in Long Beach is 2.82 persons per household. Based on this average, the project would add an estimated 369 residents for a total city-wide population of 470,661. The 369 new residents would increase the City's population by 0.07%. The increase is well within the 20,708 residents forecast by SCAG to be added to the City between 2014 and 2020 (see tables 4.11-1 and 4.11-2). Direct population growth associated with the proposed project is therefore within SCAG's growth forecasts.

The future residential development potential of the City of Long Beach as analyzed in the Housing Element of the City's General Plan, is 7,270 new dwelling units by 2021 (City of Long Beach, January 2014). Based on the average household density in Long Beach of 2.82 persons per household, realization of this future residential development potential would result in an increase of 20,501 persons from the City's current population of 470,292 (California Department of Finance, May 2014), totaling 490,793 in 2021. The General Plan's population projections are less than SCAG's 2020 population projection for Long Beach of 491,000. Direct population growth associated with the proposed project would not exceed either of these projections, and would therefore be consistent with both. For this reason, impacts of the proposed project related to population and housing growth would be less than significant.

Mitigation Measures. Because impacts would be less than significant, mitigation is not required.

Significance after Mitigation. Impacts would be less than significant without mitigation.

c. Cumulative Impacts. As discussed in Impact PH-1, housing and population growth facilitated by the proposed project would be consistent with the growth envisioned in the Housing Element of the Long Beach General Plan and SCAG's Regional Comprehensive Plan (RCP). As listed in Table 3-1 in Section 3.0, *Environmental Setting*, there is no other planned or pending residential development in this part of Long Beach, and there is only one other nearby residential project outside the City, a project that would create 13 new single-family homes in the neighboring jurisdiction of Carson. In Long Beach, 807 residential units are included in eight currently planned and pending projects City-wide as of April 2015. These projects are listed in Table 4.11-3. If all of these projects were built and occupied at the City's average household density (2.82 persons per household), they could result in a direct population increase of 2,276 residents. The proposed project's potential direct population increase of approximately 369 residents, plus the potential direct population increase of city-wide planned and pending projects, would equal 2,645 residents. Together these would increase the City's existing population of 470,292 to 472,937, which is less than SCAG's 2020 population projection for Long Beach of 491,000 and the Long Beach General Plan Housing Element's population projection of 490,793 by 2021. Therefore, cumulative impacts related to population and housing in the City of Long Beach would not be significant.

Table 4.11-3
Planned and Pending Residential Projects in the City of Long Beach

Project	Address	Description	# of Res. Units
Mixed-use Project	137 W. 6th St.	New 4-story mixed-use project comprised of 10 residential units and ground floor retail use.	10
Apartment Building Application No. 1312-03 (Babaoff)	442 W. Ocean Blvd.	Construction of a new 93-unit apartment building over three levels of parking (one level subterranean).	93
Mixed-Use Project Application No. 1302-17	125 Linden Ave.	Five-story, 25-unit apartment building with 1,257 sq. ft. of retail space at street level.	25
Adaptive Reuse Residential Project (Application No. 1403-03)	110 W. Ocean Blvd.	Adaptive reuse of 14-story landmark Ocean Center Building, including 74 residential units; 7,200 sq. ft. restaurant space; and 5,400 sq. ft. retail.	74
Residential Project Application No. 1402-05 (Lennar)	150 W. Ocean Blvd.	Seven-story, 216-unit multi-family residential building with two-level parking structure.	216

Table 4.11-3
Planned and Pending Residential Projects in the City of Long Beach

Project	Address	Description	# of Res. Units
Edison Lofts (City Hall East) (Ratkovich)	100 Long Beach Blvd.	Proposed adaptive reuse of an existing office building, providing 156 dwelling units and approximately 3,621 sq. ft. of retail space.	156
Anchor Place Apartments (Villages at Cabrillo Phase V)	2000 River Ave.	Modification to the Master Development Plan, Site Plan Review for a proposed 5-story, 120-unit affordable rental housing project serving 75 veteran and 45 non-veteran homeless households and individuals. Lot merger of two parcels and Standards Variance for height increase located at Century Villages at Cabrillo.	120
Apartment Building Application No. 1312-04	207 Seaside Way	Construction of eight-story, 113-unit apartment building with three levels of parking (one level subterranean).	113
		Total	**807**

Source: City of Long Beach Planning Department, April 2015

4.12 PUBLIC SERVICES AND RECREATION

This section assesses the impact of the proposed project on public services, including fire and police protection, libraries, schools, parks and recreation facilities. Impacts related to water and wastewater infrastructure and solid waste collection and disposal are discussed in Section 4.14, *Utilities and Service Systems*. The information in this section is based in part on the Long Beach General Plan (1975 Public Safety Element; 2002 Open Space Element; and 2013 Mobility Element) and communications with various service providers, as cited.

4.12.1 Setting

a. Fire Service. The Long Beach Fire Department (LBFD) provides fire and emergency medical services in the city of Long Beach. There are twenty-five fire stations located within the City, as well as mutual aid support available from fire stations located in adjacent cities. The closest fire station to the project site is Fire Station 11, located at 160 East Market Street in Long Beach, approximately 1.41 miles northeast of the northern edge of the project site. This station houses a paramedic squad with a staff of two that handles emergencies, along with an engine company and staff of four, and a truck company with an additional staff of four.

Fire Station 11 is estimated to have an emergency response time of four minutes (personal communication, J. Ramirez, October 2014). In the event of major fires, the City has mutual aid agreements with cities and counties so that additional personnel and fire-fighting equipment can augment LBFD resources.

b. Police Service. The Long Beach Police Department (LBPD) serves the project site and it surroundings. LBPD headquarters is located at 400 West Broadway in Long Beach, approximately 6.5 miles south of the project site. LBPD consists of approximately 800 sworn police officers, and 500 other department employees. The current officer to population ratio is 1.7 sworn officers per 1,000 residents. LBPD's average response time for Priority One emergency calls is 4.5 minutes, meeting the LBPD goal of under 5 minutes (personal communication, M. McGuire, October 2014). For additional support, the LBPD maintains mutual aid agreements with the Los Angeles County Sheriff's Department and the Signal Hill Police Department.

c. Schools. The Long Beach Unified School District (LBUSD) educates nearly 81,000 students in 84 public schools in the cities of Long Beach, Lakewood, Signal Hill and Avalon on Catalina Island. LBUSD operates 55 elementary schools, 17 middle schools, and 12 high schools (LBUSD, October 2014). The closest schools to the project site are Dooley Elementary School (0.4 miles), Perry Lindsey Academy Middle School (0.25 miles), David Starr Jordan High School (2 miles), and Jordan-Plus High School (1.9 miles). Table 4.12-1 lists the current enrollment figures, capacities and utilization rates of these schools. In addition, LBUSD has an Open Enrollment policy, which allows students to apply to attend another LBUSD school outside their school's boundary if space is available (personal communication, S. Ahn, November 2014).

Table 4.12-1
Current Local School Enrollment

School	Student Enrollment[1]	Student Capacity	Utilization
Dooley Elementary School	1,103	1,680	66%
Perry Lindsey Academy Middle School	861	1,645	52%
David Starr Jordan High School	2,898	4,760	61%
Jordan-Plus High School	485	1,575	31%

Source: Personal communication with Susan Ahn, Long Beach Unified School District, November 2014
[1] Enrollment as of October 3, 2014.

d. Public Libraries. Long Beach has 12 public libraries in the Long Beach Public Library (LBPL) system. Both Dana Neighborhood Library (3680 Atlantic Avenue) and North Neighborhood Library (5571 Orange Avenue) are located approximately 2.5 miles from the project site. The Dana Neighborhood Library is a 6,800 square foot facility with a collection of 45,146 books and other materials and a service population of approximately 41,791 persons (LBPL, 2012). The North Neighborhood Library is also a 6,800 square foot facility with a collection of 32,576 books and other materials and a service population of approximately 99,144.

e. Parks and Recreation. Parks, recreational facilities, open space areas and beaches are available to the public for use in Long Beach. Programs and services are offered at 162 parks with 26 community centers, two historic sites, two major tennis centers, one of the busiest municipal golf systems in the country with five courses, the Long Beach Animal Care Services Bureau, the largest municipally operated marina system in the nation with 3,677 boat slips, and six miles of beaches. More than 3,100 acres within the city's 50 square miles are developed for recreation.

The Long Beach Parks, Recreation and Marine Department offers recreation programs, including arts and cultural, sports and fitness, and enrichment subjects, for all ages from pre-school to senior citizen. More than 2,800 recreational and educational classes are offered each year (City of Long Beach Parks, Recreation and Marine Department website, October 2014).

The parks closest to the project site are the 26.1-acre Scherer Park located at 4600 Long Beach Boulevard approximately 0.4 miles east of the project site, the 1.2-acre Atlantic Plaza Park located at 1000 Via Wanda approximately 0.9 miles northeast of the project site, and the 3.9-acre Bixby Knolls Park located at 1101 San Antonio Drive approximately one mile east of the project site. Several other parks are located within approximately two miles of the project site.

f. Regulatory Setting. The project site is located within the jurisdiction of the City of Long Beach; therefore, the proposed project would be subject to the requirements of the Long Beach Municipal Code (LBMC), including as they relate to public services, as well as applicable state requirements.

Fire. The California Code of Regulations (CCR) Title 24 (California Building Code [CBC]) is a compilation of building standards, including fire safety standards for residential and commercial buildings. CBC standards are based on: building standards that have been adopted by state agencies without change from a national model code; building standards based on a national model code that have been changed to address particular California conditions; and building standards, authorized by the California legislature, not covered by the national model code. Typical fire safety requirements of the CBC include the installation of sprinklers in all high-rise buildings, the establishment of fire resistance standards for fire doors, building materials, and particular types of construction, and clearance of debris and vegetation within a prescribed distance from occupied structures in wildfire hazard areas. The CBC applies to all occupancies in California, except where more stringent standards have been adopted by local agencies. Chapter 18.48 of the LBMC includes several CBC fire safety regulations that have been amended and incorporated in the LBMC. This includes the use of fire-resistant building materials, fire suppression systems and other fire safety elements related to the design and construction of buildings.

Title 18 (Building and Construction Code) of the LBMC includes Chapter 18.23 (Fire Facilities Impact Fees) and Chapter 18.48 (Fire Code). Chapter 18.23 imposes a fire facilities impact fee on residential and non-residential development for the purposes of assuring that new development pays its fair share of the costs required to support needed fire facilities and related costs necessary to accommodate such development. The fee is imposed for every dwelling unit of a residential development and per gross square foot of floor area for non-residential development. The fire facilities impact fee is to be paid prior to issuance of the certificate of occupancy and is utilized for the acquisition of new property, the construction of new facilities, and the purchasing of equipment.

As detailed in Chapter 18.48 of the LBMC, the Fire Code incorporates the California Fire Code, 2007 Edition (CCR, Title 24, Part 9), which incorporates the International Fire Code, 2006 Edition. The Fire Code regulates and governs the safeguarding of life and property from fire and explosion hazards arising from the storage, handling, and use of hazardous substances, materials, and devices, and from conditions hazardous to life or property in the occupancy of buildings.

Chapter 1 of the Fire Code authorizes the Fire Chief to make and enforce such rules and regulations for the prevention and control of fires, fire hazard and hazardous materials incidents as may be necessary from time to time. Chapter 2 of the Fire Code includes definitions, specifically that high-rises are to be defined as, "every building of any type of construction or occupancy having floors located more than seventy-five (75) feet above the lowest floor level having building access (see CBC, Section 403.1.2) or the lowest level of Fire Department vehicle access, whichever is more restrictive, except buildings used as hospitals defined in section 1250 of the California Health and Safety Code."

Chapter 5 includes requirements for access. Specifically, it requires a minimum width of 26 feet and 14 vertical feet for fire access roads and minimum turning radii of 28 feet, in addition to requirements for address numbers and key box maintenance. Finally, Chapter 5 concludes with specific requirements for emergency landing helicopter facilities on high-rise buildings. It

includes requirements for approaches, landings, roof perimeter fencing, wind devices, standpipes, markings, and communication systems.

Chapter 9 establishes regulations for fire protection systems and equipment. It requires that all new commercial, industrial and non-residential buildings that require two or more exits or that are greater than 3,000 square feet be protected by an automatic sprinkler system along with all new single-family residences greater than 4,000 feet and multi-family residential units. It also includes requirements for outdoor systems, minimum water pressure for standpipe outlets, requirements for evacuation plans for buildings over three stories, control panels, and that all boats and marinas are equipped with a standpipe system.

Chapter 10 of the Fire Code further discusses access requirements. It requires protection of means of egress for fire department vehicles, along with requirements for roof access. Specifically, for buildings four stories or taller, it is required that one stairway extends to the roof unless the roof has a slope steeper than 33%.

Public safety goals and recommendations are also included in the Public Safety Element of the Long Beach General Plan (1975). The following goals and recommendations are applicable to the proposed project.

- ***Development Goal 7.*** *Assure continued safe accessibility to all urban land uses throughout the City.*

- ***Development Goal 9.*** *Encourage development that would augment efforts of other safety-related Departments of the City (i.e., design for adequate access for firefighting equipment and police surveillance).*

- ***Protection Goal 1.*** *Use safety precautions as one means of preventing blight and deterioration.*

- ***Protection Goal 10.*** *Provide the maximum feasible level of public safety protection services.*

Police. Chapter 2.15 of the LBMC identifies the permissible activities of the LBPD including providing police reports, fees for fingerprinting, and training policies and standards consistent with Chapter 1 of the Penal Code. Chapter 2.15 also established the Reserve Corps under leadership of the police chief, and that membership in the Reserve Corps is open to both men and women. Section 2.15.080 limits the use of the California Law Enforcement Telecommunications System (CLETS) to only the police chief.

Chapter 10.04 (Administration) of the LBMC establishes the Police Department's role in the administrative duties of the City. Specifically, Section 10.04.030 provides the Police Department with the ability, "to enforce all street traffic laws of this city, and all of the state vehicle laws applicable to street traffic in this city." In addition, the Development Services Department and parking control checkers are required to coordinate with the LBPD to issue notices for State Vehicle Code violations.

Chapter 18.22 of the LBMC refers to Police Facilities Impact Fees. The enactment of Government Code Sections 66001 through 66009 has authorized the City to enact development impact fees. A police facilities impact fee is imposed on residential and non-residential development for the purpose of assuring that the development pays its fair share of the costs required to support needed police facilities and related costs necessary to accommodate such development.

The public safety goals and recommendations from the Public Safety Element of the Long Beach General Plan (1975) listed under Fire would also apply to police protection services.

Schools. Education services for development projects are subject to the rules and regulations of the California Education Code and governance of the State Board of Education. The state also provides funding through a combination of sales and income taxes. In addition, pursuant to Proposition 13, the state is also responsible for the allocation of educational funds that are acquired from property taxes. Because the proposed project includes residential uses that would contribute students to local schools, the Code is applicable to the proposed project.

Senate Bill 50 (SB 50), enacted in 1998, is a program for funding school facilities largely based on matching funds. The approval of Proposition 1A in 1998 authorized funds for SB 50 in the amount of $9.2 billion, including grants for new school construction and modernization of existing schools. The new construction grant provides funding on a 50/50 state and local match basis. The modernization grant provides funding on a 60/40 basis. Some exceptions for matching funding are made for districts that can demonstrate financial hardship.

SB 50 allows LBUSD to levy a fee, charge, dedication, or other requirement against any development project within its boundaries, for the purpose of funding the construction or reconstruction of school facilities. The LBUSD collects the maximum school facility fees at a rate of $3.36 per square foot for residential additions over 500 square feet, $4.85 per square foot for new residential construction and residential redevelopment, and $0.54 per square foot for commercial/industrial development (LBUSD, July 2014). Pursuant to Government Code Section 65995, resulting from passage of SB 50, the payment of these fees by a developer serves to mitigate all potential impacts on school facilities that may result from implementation of a project to a less than significant level. Since the proposed project includes residential uses that would contribute students to local schools, SB 50 is applicable to the proposed project.

Libraries. According to the LBPL's mission statement, the LBPL is committed to meeting the information needs of the diverse and dynamic population that it serves by: 1) providing quality library service through staff that is responsive, expert, and takes pride in service; 2) offering a wide selection of resources and materials representing all points of view; and 3) supporting lifelong learning, intellectual curiosity, and free and equal access to information.

Parks and Recreation. California Government Code, Section 66477 (Quimby Act) was enacted in an effort to promote the availability of park and open space areas in response to the need for such facilities by residential development. The Quimby Act authorizes cities and counties to enact ordinances requiring the dedication of land and/or the payment of fees for park and/or recreational facilities in lieu thereof, or both, by developers of residential subdivisions as a condition to the approval of a tentative map or parcel map. The Act states that "the dedication of land or the payment of fees, or both, shall not exceed the proportionate

amount necessary to provide three acres of park area per 1,000 persons residing within a subdivision subject to this section, unless the amount of existing neighborhood and community park area, as calculated pursuant to this subdivision, exceeds that limit, in which case the legislative body may adopt the calculated amount as a higher standard not to exceed five acres per 1,000 persons residing in a subdivision subject to this section." In addition to Quimby fees, facilities can be provided by grants, donations, user fees, community fund raising events, joint ventures, and joint use agreements. Pursuant to the Quimby Act, LBMC Section 18.18 was authorized and is discussed below.

The State Public Park Preservation Act was adopted to preserve and protect public parks. Under the Public Resources Code (PRC), cities may not acquire any real property that is in use as a public park for any non-park use unless compensation and/or land are provided to replace the parkland acquired.

Chapter 18.18 (Park and Recreation Facilities Fee) of the LBMC imposes a park impact fee on new residential development to assure City parkland and recreational facility standards are met with respect to additional needs created by a proposed project. The purpose of this fee is to fund parkland acquisition and recreation improvements incurred by the City. Section 18.18.100 of the LBMC permits the Long Beach City Council to approve credits toward meeting the park fee as a result of the provision of parkland or the development of recreational improvements by a project. The proposed project includes residential uses and, therefore, is subject to the park requirements of the LBMC. Construction of the new Oregon Park by the applicant, which would be required by the City as a Condition of Approval of the proposed project, has been accepted by the City in lieu of payment of parks fees for this project.

A number of policies contained in the Housing and the Open Space Elements of the Long Beach General Plan relate to parks and recreation.

Housing Element

Policy 3.5. Continue to improve streets and drainage, sidewalks and alleys, green spaces and parks, street trees, and other public facilities, amenities and infrastructure.

Open Space Element

Policy 2.1. Reserve, at a minimum, the existing amount of open space for community gardens and strive to create more.

Policy 4.1. Create additional recreation open space and pursue all appropriate available funding to enhance recreation opportunities.

Policy 4.6. With the help of the community, plan and maintain park facilities at a level acceptable to the constituencies they serve.

Policy 4.9. Encourage the provision of non City-owned recreation resources to supplement what the City is able to provide.

Policy 4.10. Require all new developments to provide usable open space tailored to the recreational demands they would otherwise place on public resources.

4.12.2 Impact Analysis

a. Methodology and Significance Thresholds. The following thresholds have been used to determine the impacts to fire protection services, police protection services, schools, public libraries, and parks and recreation facilities.

Based on the environmental checklist included in Appendix G of the State *CEQA Guidelines*, the proposed project would result in potentially significant impacts relating to public services if it would:

- *Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable services ratios, response times or other performance objectives for any of the following public services:*
  - *Fire protection*
  - *Police protection*
  - *Schools*
  - *Parks*
  - *Other public facilities (i.e. libraries)*
- *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; or*
- *Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.*

b. Project Impacts and Mitigation Measures.

Impact PS-1 Buildout of the proposed project would place increased demands on fire protection services. However, the project would not create the need for new or expanded fire protection facilities. Impacts would be Class III, *less than significant*.

The proposed project would provide for the addition of 131 single family homes; a small pocket park; a recreation center with a pool, spa and clubhouse; 262 garage parking spaces (a two car garage for each home); and 40 on-street guest parking spaces. The project would result in subdivision of the entire 10.56-acre project site.

The proposed project may incrementally increase demand for fire protection service through the addition of residents and structures to the site. However, the site is currently within the service area of the LBFD. The site is located in an already-developed and has adequate access to fire-fighting infrastructure such as fire hydrants.

For urban areas, LBFD has a four-minute response time goal for the first arriving fire unit and an eight-minute response time goal for the first arriving emergency medical services (EMS) unit. As described in Section 4.12.1(a), the approximate response time from the nearest LBFD fire station, Fire Station 11, located at 160 East Market Street in Long Beach approximately 1.41 miles northeast of the north edge of the project site, would be approximately four minutes (personal communication, J. Ramirez, October 2014).

As part of Long Beach's regular budget process, the City consults with the LBFD to assess needs for service and service goals and standards. The City also involves the LBFD in the development review process to ensure that necessary fire prevention and emergency response features are incorporated into development projects. As described in Section 4.12.1f, all site and building improvements would be required to comply with all applicable fire code and ordinance requirements for construction, access, water mains, fire flows, and hydrants, and would be subject to review and approval by the LBFD prior to building permit and certificate of occupancy issuance. Improvements would also be subject to the City's fire facility fee for new development, which funds the fair share costs of constructing and equipping new fire facilities.

Because the project site is within the existing LBFD service area and the LBFD's current response times to the site are within the identified response time goal, the proposed project would not result in the need to expand existing facilities or build new facilities. With continued implementation of existing practices of the City, including compliance with the California Fire Code and the Uniform Building Code, the proposed project would not significantly affect community fire protection services and would not result in the need for new or expanded fire protection facilities. Impacts would be less than significant.

Mitigation Measures. Impacts would be less than significant and therefore no mitigation is necessary.

Significance After Mitigation. Impacts would be less than significant without mitigation.

Impact PS-2 Buildout of the proposed project would place increased demands on police services. However, the proposed project would not create the need for new or expanded police facilities. Impacts would be Class III, *less than significant*.

The proposed project would result in an increase of 131 single family homes within the project site. The addition of new single family homes would incrementally increase demand for police service. As described in Section 4.12.1(b), the LBPD's average response time is 4.5 minutes for Priority One emergency calls (personal communication, M. McGuire, October 2014). The current officer to population ratio is 1.7 sworn officers per 1,000 residents.

As discussed in Section 4.11, *Population and Housing,* the estimated 2014 population of the city of Long Beach is 470,292 people (California Department of Finance, May 2014). Development of the proposed project would add 131 new single family residences to the City. According to the California Department of Finance (May 2014), the average household density in Long Beach is 2.82 persons per household. Based on this average, the project would add an estimated 369 residents for a total City population of 470,661 residents. Even with this additional population, the City's current sworn officer to population ratio would remain at 1.7. Additionally, the LBPD's response time to the project site is within the currently identified response time goal of less than 5 minutes. For these reasons, the proposed project would not result in the need for new or expanded police protection facilities to the serve the project site. As such, impacts related to new or expanded police facilities would be less than significant.

Mitigation Measures. Impacts would be less than significant; therefore, mitigation is not required.

Significance After Mitigation. Impacts would be less than significant without mitigation.

Impact PS-3 Buildout of the proposed project would place increased demands on public library facilities. However, the project would not create the need for new or expanded public library facilities. Impacts would be Class III, *less than significant*.

The Long Beach Public Library System maintains twelve libraries, which provide a combined total of 220,110 square feet of facilities and a collection of 803,129 books and other materials (Long Beach Public Library website, accessed October 2014). The estimated 2014 population in Long Beach is 470,292 people (California Department of Finance, May 2014).

The increase in population in the City resulting from the proposed project may increase the use of public library facilities. As discussed under Impact PS-2 and in Section 4.11, *Population and Housing,* development of the proposed project would add 131 new single family residences and an estimated 369 residents to the City, for a total City population of 470,661 residents. The project's demand for library services would represent a 0.08% population increase in the demand for library services in the City. The project's demand for library services would predominately be served by the nearest library branches, Dana Neighborhood Library and North Neighborhood Library.

As described under Section 4.12.1, *Setting*, Dana Neighborhood Library has a local service population of 41,791 persons and North Neighborhood Library serves 99,144 persons. Therefore, the project's demand for library services would represent a 0.9% local population increase in the demand for library services at Dana Neighborhood Library and 0.4% local population increase at North Neighborhood Library.

Residents of the proposed project would not be limited to utilizing Dana Neighborhood and North Neighborhood libraries. Burnett Neighborhood Library (3.9 miles) is also in the vicinity of the project site and school libraries would also be available to serve students that are generated by the proposed project. As the proposed project's new residents would only incrementally increase demand for library services and would be able to utilize libraries in the vicinity, no expansions or physical improvements to Dana Neighborhood and North

Neighborhood libraries or nearby libraries would be required to meet the needs of future residents. Furthermore, the proposed project would generate revenue to the City's general fund in the form of net new property tax, indirect sales tax (i.e., from household spending), utility user's tax, real estate transfer tax on resident initial sales and annual resales, and other miscellaneous household-related taxes (e.g., parking fines). If needed, this additional revenue could be used to improve services at existing library facilities to offset any incremental impact from the project's new residents. Given the incremental nature of the increased demand for library services (a less than one percent increase in demand at either local library), the availability of other libraries to serve the proposed project, and the anticipated revenue to be generated by the proposed project into the City's general fund, the proposed project would not result in a need for new or expanded library facilities in Long Beach. Therefore, impacts to public library facilities would be less than significant.

Mitigation Measures. Impacts would be less than significant; therefore, mitigation is not required.

Significance After Mitigation. Impacts would be less than significant without mitigation.

Impact PS-4 Buildout of the proposed project would place increased demands on public schools. However, the project would not create the need for new or expanded school facilities. Impacts would be Class III, *less than significant*.

The proposed project includes the development of 131 single family homes. Table 4.12-2 estimates the total number of new students directly generated by the new residences.

Table 4.12-2
Estimated Project Related Student Generation Rates

Grade Levels	Single-Family Residences Generation Rate	Total Student Generation (based on 131 units)
Elementary (Grades K-5)	0.3022	40
Middle School (Grades 6 – 8)	0.0879	12
High School (Grades 9 – 12)	0.1264	17
	Total Students Generated	**69**

Source: LBUSD, School Facilities Needs Analysis, May 2014.

As shown in Table 4.12-2, the proposed project would generate an estimated 69 additional students within the LBUSD. These include an estimated 40 elementary students (grade K-5), 12 middle school (grade 6-8) students, and 17 high school (grade 9-12) students.

Table 4.12-3 shows how the additional students would potentially affect enrollment at local schools.

Table 4.12-3
Post-Project Enrollments and Capacities of Schools Serving the Project Site

School	Approximate Current Enrollment	Project-Generated Students[1]	Post-Project Total Student Enrollment	Current Capacity	Post-Project Capacity Available for Additional Students
Dooley Elementary School	1,103	40	1,143	1,680	537
Perry Lindsey Academy Middle School	861	12	873	1,645	772
David Starr Jordan High School	2,898	17	2,915	4,760	1,845
Jordan-Plus High School	485	17	502	1,575	1,073

Source: Personal communication with Susan Ahn, Long Beach Unified School District.

[1] 17 high school students in total would be generated by the project; as students could attend either David Starr Jordan High School or Jordan-Plus High School, high school student generation was evaluated against each school's capacity separately.

The proposed project's estimated student generation would not exceed the capacity of area schools based on approximate 2014 enrollment. Therefore, the project would not create the need for new or expanded school facilities.

In addition, Section 65995(h) of the California Government Code (Senate Bill 50, chaptered August 27, 1998) states that payment of statutory fees "...is deemed to be full and complete mitigation of the impacts of any legislative or adjudicative act, or both, involving, but not limited to, the planning, use, or development of real property, or any change in governmental organization or reorganization." The proposed project would be required to pay School Facility Fees to the LBUSD. Therefore, impacts related to school capacity would be less than significant.

Mitigation Measures. Impacts would be less than significant without mitigation.

Significance After Mitigation. Impacts would be less than significant without mitigation.

Impact PS-5 Buildout of the proposed project would place increased demands on park facilities. However, the project would not create the need for new or expanded park facilities beyond those already planned. Impacts would be Class III, *less than significant*.

The City of Long Beach owns and operates approximately 3,100 acres of public land for recreation, including community parks, neighborhood parks, sports parks, open spaces, beaches, community centers, and marinas. The city's estimated 2014 population is 470,292 (California Department of Finance, May 2014). Therefore, the ratio of public parks to residents in the city is 6.6 acres of parkland for every 1,000 residents, which is less than the City's goal of achieving and maintaining a ratio of 8 acres of parkland per 1,000 residents, but greater than the standard ratio of 3 acres of parkland for every 1,000 residents used by the Quimby Act.

The proposed project would accommodate an expansion of the city's residential population, and includes provisions for a small pocket park (0.15 acres) and a recreation center with a pool, spa and clubhouse (0.49 acres). Additionally, the City is requiring the applicant to construct an approximately 3.3-acre park at the southwest corner of Oregon Avenue and Del Amo Boulevard. Construction of this park is a separate project that has already undergone environmental review in accordance with CEQA and has been approved by the City.

The residential population increase associated with the proposed project may increase the use of neighborhood parks and other recreational facilities. Development of the proposed project would add 131 new single family residences and an estimated 369 residents for a total city population of 470,661 residents (refer to Section 4.11, *Population and Housing*). The proposed project would not cause a significant change in the parkland to population ratio, as the ratio would remain 6.6 acres of parkland for every 1,000 residents even with the addition of 369 residents. In addition, the proposed project would add approximately 0.64 acres of on-site recreational space for future residents and a 3.3-acre public park, for a total addition of 3.94 acres of recreational space. In order to provide 8 acres of parkland per 1,000 residents for the 369 new residents accommodated by the proposed project, the project would have to include approximately 3 acres of parkland. The 3.94 acres of recreational space provided by the project exceeds this amount. Creation of the 3.3-acre public park would increase the amount of public recreational land in the city. Therefore, while the proposed project would lead to an increase in use of existing parks, the project would also include recreational space and fund the creation of a new park, and would not negatively affect the existing parkland to population ratio in the City. No need for new or expanded park facilities would occur, and there will be no significant impact to existing park facilities as a result of the proposed project.

Mitigation Measures. Impacts would be less than significant without mitigation.

Significance After Mitigation. Impacts would be less than significant without mitigation.

c. Cumulative Impacts.

Police Protection. The geographic area for cumulative analysis of police protection services is defined as the service territory for the LBPD. Long Beach is almost fully built out, with most new development occurring as in-fill development. As discussed in Section 4.11, *Population and Housing*, aside from the proposed project, there are currently eight other planned and pending projects in the City that include new residential units. The 807 units included in these projects could accommodate approximately 2,276 new residents. The proposed project's potential direct population increase of approximately 369 residents, plus the potential direct population increase of City-wide planned and pending residential projects, equals 2,645 residents, which represents an approximately 0.6% increase over the City's existing population of 470,292 (California Department of Finance, May 2014). The future residential development potential of the City at full implementation of the General Plan, as described in the Housing Element of the General Plan, would result in a population of 490,793 persons in Long Beach by 2021. This would be an increase of 20,501 persons from the City's current population. Housing and population growth facilitated by the proposed project and cumulative development would be well within this projected growth, as well as the projected City population of 491,200 in 2020 contained in SCAG's Regional Comprehensive Plan (RCP). The two nearby planned or pending

projects in Long Beach described in Section 3.0, *Environmental Setting,* the Oregon Park project (which would be funded by the applicant for the proposed project) and the Houghton Park Community Center Rebuild, have no residential or growth-inducing component and would not produce a significant increase in demand for police protection. The LBPD is currently meeting its response time goal of less than five minutes. The need for additional police protection services associated with cumulative growth, if any, would be addressed through the annual budgeting process, when budget adjustments may be made to meet changes in service demand. Because population growth caused by the project and other planned and pending projects would not create the need for new or expanded police protection facilities, cumulative project impacts would be less than significant. Additionally, payment of Police Facilities Impact Fees (City of Long Beach Municipal Code [LBMC] Chapter 18.22), would be used to finance any necessary improvements to current facilities, as required. Therefore, no significant cumulative impacts would occur and mitigation is not required.

Fire Protection. The geographic area for cumulative analysis of fire protection services is defined as the service territory for the LBFD. The City is almost fully built out, with most new development occurring as in-fill development. As discussed above, residential growth caused by the proposed project and other planned and pending projects would be well within future projections for the City contained in the City's General Plan and SCAG's RCP, and the two nearby planned or pending projects in Long Beach described in Section 3.0, *Environmental Setting* have no residential or growth-inducing component and would not produce a significant increase in demand for fire protection. The LBFD is currently meeting its response time goal of four minutes for the first arriving fire unit and eight minutes for the first arriving EMS unit in the area of the project site. The need for additional fire protection services associated with cumulative growth, if any, would be addressed through the annual budgeting process, when budget adjustments may be made to meet changes in service demand. Because population growth caused by the project and other planned and pending projects would not create the need for new or expanded fire protection facilities, cumulative project impacts would be less than significant. Additionally, payment of Fire Facilities Impact Fees (City of Long Beach Municipal Code [LBMC] Chapter 18.23) would be used to finance any necessary improvements to current facilities, as required. Therefore, no significant cumulative impacts would occur and mitigation is not required.

Library Services. The geographic area for cumulative analysis of library services is the City of Long Beach. The City is almost fully built out, with most new development occurring as in-fill development. As discussed above, residential growth caused by the proposed project and other planned and pending residential projects would be well within future projections for the City contained in the City's General Plan and SCAG's RCP. The two nearby planned or pending projects described in Section 3.0, *Environmental Setting,* the Oregon Park project (which would be funded by the applicant for the proposed project) and the Houghton Park Community Center Rebuild, have no residential or growth-inducing component and would thus not increase demand for library services. The other, City-wide residential projects mentioned above are outside the local area of the proposed project, and would not combine with the effects of the proposed project to increase demands on local libraries. Therefore, no related planned or pending projects would result in a substantial increase in the use of library services or the need for new or expanded facilities. Cumulative impacts to libraries would be less than significant and the proposed project's contribution to such impacts (an 0.08% increase in demand for

library services in the City) would not be cumulatively considerable. No mitigation is required. In addition, related projects could also generate revenue to the City's general fund from sources such as property taxes and sales taxes. This revenue could be used to fund LBPL expenditures as necessary to offset cumulative impacts on library services.

Schools. The geographic area for cumulative analysis of school services is the LBUSD service area. The City is almost fully built out, with most new development occurring as in-fill development. As described above, nearby planned and pending projects would not result in direct or indirect population growth in the City, and potential population growth from City-wide planned and pending residential projects plus the proposed project fall within growth projections contained in the City's General Plan and SCAG's RCP. Therefore, cumulative development would not result in a substantial increase in student enrollment in the LBUSD or directly create the need for new or expanded facilities. The need for additional school facilities associated with future growth, if any, would be addressed through payment of mandatory School Facility Fees to LBUSD, which would be used to finance any necessary improvements to current facilities, as required by state law. No significant cumulative impacts are anticipated as a result of past, present, or reasonably foreseeable projects, and the proposed project's contribution to such impacts would not be cumulatively considerable. No mitigation is required.

Parks. The geographic area for cumulative analysis of park and recreational facilities is the City of Long Beach. The City is almost fully built out, with most new development occurring as in-fill development. As described above, the nearby proposed Oregon Park and Houghton Park Community Center Rebuild projects would not result in direct or indirect population growth in the City, and potential population growth from City-wide planned and pending residential projects plus the proposed project fall within growth projections contained in the City's General Plan and SCAG's RCP. Therefore, cumulative development would not result in a substantial increase in demand for parks and recreational facilities. In fact, the two nearby parks projects mentioned above would provide new or renovated parks and recreational facilities, and the proposed Oregon Park would be constructed by the project applicant. Cumulative impacts to parks and recreation would be less than significant. No mitigation is required. Furthermore, the payment of park in-lieu fees and the dedication of parkland as allowed by the Quimby Act on a project-by-project basis would meet the City's long-term demand for parks over time.

4.13 TRANSPORTATION AND TRAFFIC

This section analyzes the potential for the proposed project to cause significant impacts to the existing traffic and transportation facilities in the City of Long Beach. The analysis in this section is based on a Traffic Impact Analysis (TIA) prepared for the proposed project by Fehr & Peers in March 2015, which incorporates the findings of a Supplemental Traffic Assessment prepared by Linscott, Law, and Greenspan, Engineers, in January 2015. The full Fehr & Peers TIA is provided in Appendix J.

4.13.1 Setting

a. Existing Street Network. Primary regional access to the project site is provided by the Long Beach Freeway (I-710), the San Diego Freeway (I-405), and the Artesia Freeway (SR-91). I-710 runs in the north/south direction west of the project site, I-405 runs in the east/west direction south of the project site, and SR-91 runs in the east/west direction north of the project site. Local access to the project site is provided by Del Amo Boulevard, Long Beach Boulevard, Atlantic Avenue, and Daisy Avenue. These roadways are classified in the City's General Plan and described in detail below.

Interstate 710 (I-710) Freeway. The I-710 Freeway is a north-south freeway that extends from Los Angeles to Long Beach. Within the study area (the area analyzed in the traffic studies) the freeway has a north-south orientation and generally provides four travel lanes in each direction. Access to the project site is provided via the Del Amo Boulevard and Long Beach Boulevard ramps.

State Route 405 (I-405) Freeway. The I-405 Freeway is a north-south freeway that extends from the I-5 Freeway in North Los Angeles to where it reconnects with the I-5 Freeway in Irvine. Within the study area the freeway has an east-west orientation and provides five travel lanes in each direction. Access to the project site is provided via the Long Beach Boulevard ramps.

State Route 91 (SR-91) Freeway. SR-91 is an east-west freeway that extends from I-110 in Gardena to SR-60 in San Bernardino where it turns into I-215. Within the study area, SR-91 has an east-west orientation and generally provides five travel lanes in each direction. Access to the project site is provided via the Atlantic Avenue ramps.

Del Amo Boulevard. Del Amo Boulevard is classified in the City of Long Beach Mobility Element (adopted October 2013) as a Major Avenue. This roadway runs in the east-west direction north of the project site, providing direct access to I-710. Within the study area, Del Amo Boulevard has three lanes in each direction, and is divided by a raised, landscaped median. On-street parking is generally permitted along Del Amo Boulevard and the posted speed limit varies between 40-45 miles per hour (MPH).

Long Beach Boulevard. Long Beach Boulevard is classified in the City of Long Beach Mobility Element as a Boulevard. The roadway runs in the north-south direction east of the project site providing direct access to I-710 and I-405 Freeway. Within the study area, Long Beach Boulevard provides two lanes in each direction and is generally divided by either a

raised median or two-way left turn median. On-street parking is permitted along some portions of Long Beach Boulevard. The posted speed limit varies between 30-35 MPH.

Atlantic Avenue. Atlantic Avenue is classified in the City of Long Beach Mobility Element as a Major Avenue. The roadway runs in the north-south direction east of the project site providing direct access to SR-91. Within the study area, Atlantic Avenue provides two lanes in each direction and is divided by a two-way left turn median. On-street parking is permitted along some portions of Atlantic Avenue. The posted speed limit is 30-35 MPH.

Daisy Avenue. Daisy Avenue is classified in the City of Long Beach Mobility Element as a Local Street. It runs in the north-south direction providing direct access to the project site. Daisy Ave has one lane in each direction, and is undivided. On-street parking is generally permitted along Daisy Avenue. The posted speed limit is 25 MPH.

Susana Road. Susana Road is classified in the City of Long Beach Mobility Element as a Local Road. The roadway runs in the north-south direction west of the project site, providing direct access to SR-91 and I-710. Within the study area, Susana Road provides two lanes in each direction and is divided by either a raised median or a two-way left turn median. On-street parking is not permitted along Susana Road and the posted speed limit is 45 MPH.

b. Existing Public Transit. There are no planned transit improvements within the study area, however, there are five transit lines that currently operate in the study area. The lines, operated by Long Beach Transit (LBT) and the Los Angeles County Metropolitan Transportation Authority (Metro), are described in detail below:

LBT Route 191 (Santa Fe/Del Amo Blvd). This route travels north-south from the Long Beach Downtown Civic Center stop to the Del Amo Station on Del Amo Boulevard where it turns into an east-west route, ending at Artesia High School. Near the project site, this route travels along Del Amo Boulevard with stops a quarter mile from the project site and peak period headways ranging between 30 and 60 minutes.

LBT Route 192 (Santa Fe/South St). This route travels north-south from the Long Beach Downtown Civic Center stop to the Del Amo Station on Del Amo Boulevard and then becomes an east-west route traveling along South Street until the Los Cerritos Center. Near the project site, this route travels along Del Amo Boulevard with stops a quarter mile from the project site and peak period headways ranging between 30 and 60 minutes.

LBT Route 51 (Long Beach Boulevard to Artesia Station). This route travels north-south from the Transit Mall Station near Downtown Civic Center to Artesia Station via Long Beach Boulevard. Near the project site, this route travels along Long Beach Boulevard with stops a half mile from the project site and peak period headways ranging between 10 and 30 minutes.

Metro Blue Line (Downtown LA to Long Beach). This light rail route travels north-south from Downtown Long Beach to Downtown Los Angeles, running parallel to Long Beach Boulevard and Willowbrook Avenue. Near the project site, the Blue Line stops at Del Amo Boulevard at Santa Fe Avenue about a mile from the project site. Peak period headways range between 6-12 minutes and weekend service headways range from 10-12 minutes.

Metro Local Bus Route 202 (Willowbrook-Compton-Wilmington via Alameda St). This route travels north-south from Wilmington to Willowbrook on Del Amo Boulevard along Alameda Street, Santa Fe Street, and Willowbrook Avenue parallel to the Metro Blue line. Near the project site, this route travels briefly along Del Amo Boulevard and north on Susana Road with stops a half mile from the project site and headways ranging between 50-60 minutes during peak periods. There is no mid-day or weekend service for this route.

Metro Local Bus Route 60 (Downtown LA-Artesia Station via Long Beach Bl - Owl Service to Downtown Long Beach). This route travels north-south from the Transit Mall Station near Downtown Civic Center in Long Beach to Downtown Los Angeles via Long Beach Boulevard. This bus only services Long Beach Boulevard south of Artesia during its owl service. Near the project site, this route travels along Long Beach Boulevard with stops a half mile from the project site and headways ranging between 25 and 60 minutes between 10PM and 5AM.

c. Existing Bicycle and Pedestrian Network. The only existing bikeway within the study area is a Class I Bike Lane along the Los Angeles River that passes directly west of the project site. The City of Long Beach classifies Class I Bike Lanes as dedicated travel-ways for bicyclists. Most common applications of Class I Bikeways are along rivers, canals, and utility right-of-ways, college campuses or within and between parks.

The pedestrian network in the study area consists of sidewalks, pedestrian crosswalks, and pedestrian crossing controls. Sidewalks are generally provided throughout the study area along with crosswalks at signalized intersections.

d. Existing Traffic Conditions.

Intersection Capacity Utilization (ICU) Method of Analysis (Signalized Intersections). In conformance with City of Long Beach and LA County Congestion Management Plan (CMP) requirements, existing AM and PM peak hour operating conditions for key signalized study intersections were evaluated using the ICU method. The ICU technique is intended for signalized intersection analysis and estimates the volume to capacity (V/C) relationship for an intersection based on the individual V/C ratios for key conflicting traffic movements. The ICU numerical value represents the percent signal (green) time, and thus capacity, required by existing and/or future traffic. It should be noted that the ICU methodology assumes uniform traffic distribution per intersection approach lane and optimal signal timing.

Per LA County CMP requirements, the ICU calculations use a lane capacity of 1,600 vehicles per hour (vph) for left-turn, through, and right-turn lanes, and dual left turn capacity of 2,880 vph. A clearance interval is also added to each Level of Service (LOS) calculation. Per City of Long Beach requirements, clearance intervals are based on the number of phases in the intersection and whether the left turning movements are all fully protected or whether some of them are permitted with other left-turn movements being protected. A peak hour factor (PHF) of 1.00 was used for the ICU analysis and a peak hour truck percentage of 2 percent was applied to represent heavy truck and general traffic characteristics in the study area.

The ICU value translates to an LOS estimate, which is a relative measure of the intersection performance. The six qualitative categories of LOS have been defined along with the corresponding ICU value range and are shown in Table 4.13-1. The ICU value is the sum of the

critical volume to capacity ratios at an intersection; it is not intended to be indicative of the LOS of each of the individual turning movements.

Table 4.13-1
Level of Service Definitions

Level of Service	ICU Value	HCM Delay Value (sec/veh)	Description
A	<0.600	<10	Signalized: Operations with very low delay occurring with favorable progression and/or short cycle length. Unsignalized: Little or no delay.
B	0.601–0.700	10–15	Signalized: Operations with low delay occurring with good progression and/or short cycle lengths. Unsignalized: Short traffic delays.
C	0.701–0.800	15–25	Signalized: Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear. Unsignalized: Average traffic delays.
D	0.801–0.900	25–35	Signalized: Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable. Unsignalized: Long traffic delays.
E	0.901–1.000	35–50	Signalized: Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. Unsignalized: Very long traffic delays.
F	>1.000	>50	Signalized: Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths. Unsignalized: Extreme traffic delays with intersection capacity exceeded.

Source: Fehr & Peers, March 2015; see Appendix J for full TIA report.

Highway Capacity Manual (HCM) Method of Analysis (Unsignalized Intersections). The 2000 HCM unsignalized methodology for stop-controlled intersections was utilized for the analysis of the one unsignalized study intersection (Long Beach Boulevard at Arbor Avenue/48th Avenue). This methodology estimates user delay for all turning movements at the intersection and determines the level of service for each movement. For side-street stop-controlled intersections, the longest-delayed turning movement is reported. In cases where there are shared lanes, the average delay in that lane is reported.

The HCM control delay value translates to an LOS estimate, which is a relative measure of the intersection performance. The six qualitative categories of LOS have been defined along with the corresponding HCM control delay value range, as shown in Table 4.13-1.

Level of Service Criteria. According to the City of Long Beach, LOS D is the minimum acceptable condition that should be maintained during the peak commute hours, or the current LOS if the existing LOS is worse than LOS D (i.e., LOS E of F).

Existing Daily Intersection Volumes. Manual vehicular turning movement counts were conducted at the five study intersections during the weekday morning and evening peak commuter periods to determine the existing AM peak hour and PM peak hour traffic volumes. Traffic counts at the five study intersections were conducted in October 2013 by Fehr & Peers. Figure 4.13-1 depicts the existing weekday AM and PM peak hour traffic volumes at the five study intersections.

Existing Intersection Level of Service Results. Table 4.13-2 summarizes the existing weekday peak hour service level calculations for the five study intersections based on existing traffic volumes and current street geometrics. Review of Table 4.13-2 indicates that two of the five study intersections currently operate at an unacceptable level of service during the AM peak hour and one of the five study intersections currently operates at an unacceptable level of service during the PM peak hour. The intersection of Susana Road at Del Amo Boulevard currently operates at unacceptable LOS E during the AM peak hour, and the intersection of Long Beach Boulevard at Del Amo Boulevard currently operates at unacceptable LOS E during the AM and PM peak hours. The remaining three study intersections currently operate at acceptable levels of service during the AM and PM peak hours.

Table 4.13-2
Existing[1] (Weekday) Intersection Peak Hour Levels of Service Summary

Key Intersection	Control Type	Time Period	V/C[2] or Delay[3]	LOS
1. Susana Road at I-710 Sb Ramps	Signal	AM PM	0.543 0.478	A A
2. Susana Road at Del Amo Boulevard	Signal	AM PM	**0.967** 0.846	**E** D
3. Daisy Avenue at Del Amo Boulevard	Signal	AM PM	0.683 0.648	B B
4. Long Beach Boulevard at Del Amo Boulevard	Signal	AM PM	**0.907** **0.923**	**E** **E**
5. Long Beach Boulevard at Arbor Avenue/48th Avenue	Side-Street Stop	AM PM	17.2 20.4	C C

Source: Fehr & Peers, March 2015; see Appendix J for full TIA report.

Notes:

[1]- Existing intersection conditions are based on traffic counts conducted in October 2013 for Fehr & Peers' original traffic study.

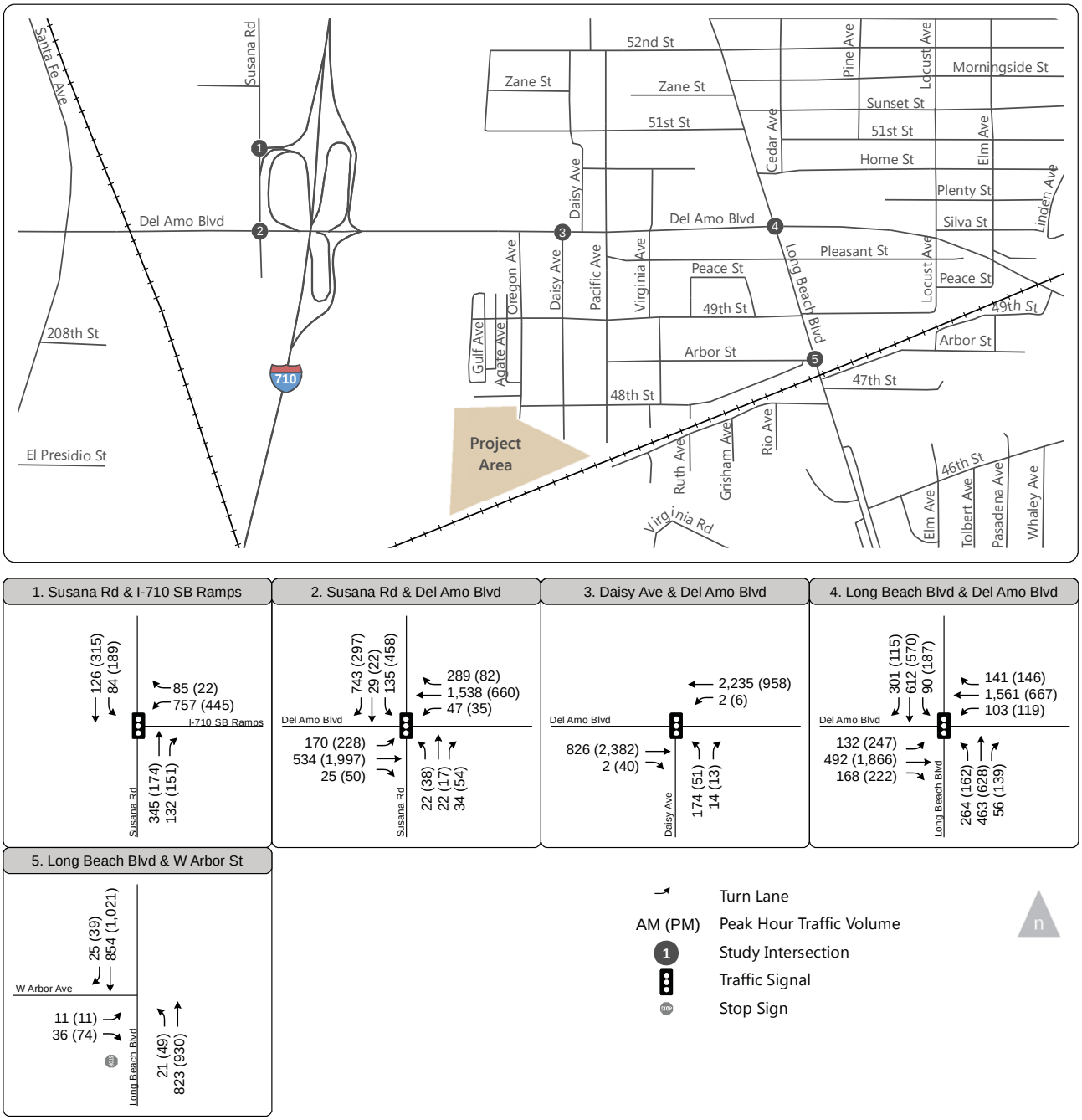
[2]- V/C for signalized intersections based on application of Intersection Capacity Utilization methodology using Traffix software. V/C = Volume / Capacity Ratio.

[3]- Delay for unsignalized intersections based on application of Highway Capacity Methodology using Traffix software. Delay reported is the worst-case approach delay.

s/v = seconds per vehicle

LOS = Level of Service

***Bold Delay/LOS** values indicate unacceptable service levels based on LOS criteria identified in this report.*



Existing (2013) Weekday Peak Hour Traffic Volumes

Figure 4.13-1

Source: Fehr & Peers, 2015

Roadway Segment Analysis. The performance of roadway segments is typically evaluated based on the volume-to-capacity (v/c) ratio, which is translated into a level of service (LOS), similar to peak-hour intersection analysis. The LOS E capacity of a roadway segment is typically utilized in determining the level of service of a roadway segment. The City does not, however, have guidelines regarding daily LOS E capacities for local residential streets. In addition, the County of Los Angeles only has daily LOS E capacities for local collector streets (i.e. 12,000 vehicles per day (vpd)), which carry more daily volume than local residential streets. In order to determine an appropriate capacity standard for a local residential street, LLG conducted research at other cities within Los Angeles County. In order to provide a conservative analysis, the City of Glendale's guidelines showing an LOS E capacity of 2,500 vpd for local residential streets was utilized.

Existing Daily Roadway Segment Volumes. Existing average daily traffic volume counts were conducted at ten roadway segments by Transportation Studies Inc. on November 6, 2014. Refer to Appendix J for the directional average daily traffic volume count sheets for the ten roadway segments evaluated.

Existing Level of Service Results. Table 4.13-3 summarizes the existing daily traffic conditions for the ten study intersections based on existing traffic volumes and current street geometrics. As shown in Table 4.13-3, all of the roadways adjacent to the project site currently have sufficient capacity to meet the LOS E capacity threshold described above.

Table 4.13-3
Existing (Weekday) Roadway Segment Levels of Service Summary

			Existing Traffic Conditions	
Roadway Segment	**Type of Roadway**	**Acceptable Traffic Level (vpd[1])**	**Daily Traffic Volume**	**Acceptable?**
1. W. 48th St between Oregon Ave and Daisy Ave	2-lane Residential	2,500	329	Yes
2. Daisy Ave between Del Amo Blvd and W. 49th St	Residential	2,500	1,319	Yes
3. Daisy Ave between W. 49th St and W 48th St	Residential	2,500	353	Yes
4. Daisy Ave south of W. 48th St	Residential	2,500	75	Yes
5. W. 48th St between Daisy Ave and Pacific Ave	Residential	2,500	499	Yes
6. Pacific Ave between Del Amo Blvd and Pleasant St	Residential	2,500	1,169	Yes
7. W. 48th St between Pacific Ave and Virginia Ave	Residential	2,500	701	Yes
8. W. Arbor St between Virginia Ave and Long Beach Blvd	Residential	2,500	566	Yes
9. W. 48th St between Virginia Ave and Long Beach Blvd	Residential	2,500	892	Yes
10. W. 49th St west of Long Beach Blvd	Residential	2,500	2,375	Yes

Source: Fehr & Peers, March 2015; see Appendix J for full TIA report.

[1]- VPD = Vehicles Per Day

e. Regulatory Setting.

Congestion Management Program (CMP). In Los Angeles County (County), the CMP uses ICU intersection analysis methodology to analyze its operations. In June 1990, the passage of the Proposition 111 gas tax increase required urbanized areas in the State with a population of 50,000 or more to adopt a CMP. Metro is the Congestion Management Agency (CMA) for the County. Metro has been charged with the development, monitoring, and biennial updating of Los Angeles County's CMP. The Los Angeles County CMP is intended to address the impact of local growth on the regional transportation system. The CMP Highway System includes specific roadways, including State highways, and CMP arterial monitoring locations/intersections. The CMP is also the vehicle for proposing transportation projects that are eligible to compete for the State gas tax funds.

City of Long Beach General Plan. It is the stated goal of the City to maintain or improve the current ability to move people and goods to and from activity centers while reinforcing the quality of life in their neighborhoods. This goal is supported by the objectives to: (1) maintain traffic and transportation LOS at LOS D, (2) accommodate reasonable, balanced growth, and (3) maintain or enhance our quality of life. The following specific Mobility of People (MOP) policies are included in the Mobility Element of the General Plan.

MOP Policy 1-1	*To improve the performance and visual appearance of Long Beach's streets, design streets holistically using the "complete streets approach" which considers walking, those with mobility constraints, bicyclists, public transit users, and various other modes of mobility in parallel.*
MOP Policy 1-9	*Increase mode shift of transit, pedestrians, and bicycles.*
MOP Policy 1-18	*Focus development densities for residential and nonresidential uses around the eight Metro Blue Line stations within City boundaries.*
MOP Policy 4-1	*Consider effects on overall mobility and various travel modes when evaluating transportation impacts of new developments or infrastructure projects.*
MOP Policy 15-3	*Consider pickup and delivery activities associated with various land uses when approving new development, implementing projects, and improving highways, streets, and bridges.*

Long Beach Municipal Code. Chapter 21.41, *Off-Street Parking and Loading requirements* of the Long Beach Municipal Code (LBMC) provides parking requirements for development projects within the City. Since the proposed project involves development of new residential uses within the City, which will require adequate parking, the proposed project is subject to the requirements of Chapter 21.41 of the LBMC.

According to the LBMC (Table 41-1A), for residential uses with more than two bedrooms, the following parking should be provided: 2.00 residential spaces per unit and 0.25 guest spaces per unit (or one space per four units). The proposed project includes 131 residential units, which would require 295 on-site parking spaces. The project site plan shows a total of 302 parking spaces; as such, the proposed project provides more than enough on-site parking for the project based on the City's parking requirements.

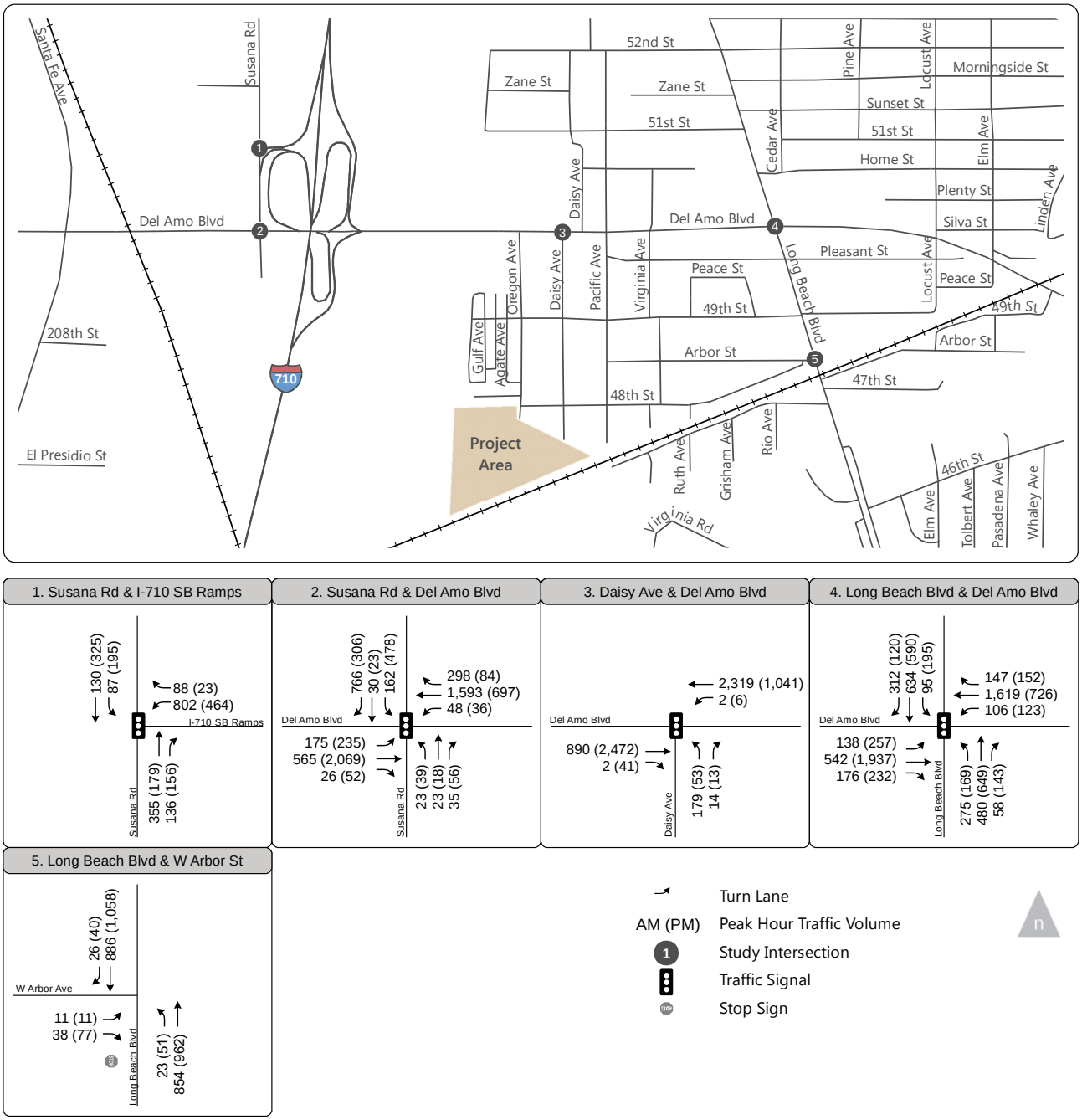
4.13.2 Impact Analysis

a. Methodology and Significance Thresholds. Each of the five study intersections and 10 roadway segments within the study area were analyzed to determine the delay and corresponding LOS.

Opening Year (2015[1]) No Project Conditions. Future volumes for Project Opening Year (2015) No Project Conditions were developed by applying a 1.52% per year growth rate to existing volumes. The annual growth rate factor of 1.52% is based on recommended growth rates from the CMP guidelines plus traffic from approved and pending projects in the study area, listed on page 7 of the TIA. Figure 4.13-2 depicts the Opening Year (No Project) weekday AM and PM peak hour traffic volumes at the five study intersections.

Intersection level of service analysis results for Project Opening Year (2015) No Project Conditions are summarized in Table 4.13-4. As shown in Table 4.13-4, two of the five study intersections would operate at an unacceptable level of service during the AM peak hour and one of the five study intersections would operate at an unacceptable level of service during the PM peak hour. The intersection of Susana Road at Del Amo Boulevard would operate at unacceptable LOS E during the AM peak hour, and the intersection of Long Beach Boulevard at Del Amo Boulevard would operate at unacceptable LOS E during the AM and PM peak hours. The remaining three study intersections would continue to operate at acceptable levels of service during the AM and PM peak hours.

[1] *2015 is the Opening Year for the proposed project in the March 2015 Fehr & Peers TIA, which is an updated version of a TIA produced for the same project in October 2013.*



Source: Fehr & Peers, 2015

Project Opening Year (2015) No Project Weekday Peak Hour Traffic Volumes

Figure 4.13-2

Table 4.13-4
Opening Year (2015) No Project
Intersection Peak Hour Levels of Service Summary

Key Intersection	Control Type	Time Period	V/C[1] or Delay[2]	LOS
1. Susana Road at I-710 Sb Ramps	Signal	AM PM	0.563 0.492	A A
2. Susana Road at Del Amo Boulevard	Signal	AM PM	**0.994** 0.872	**E** D
3. Daisy Avenue at Del Amo Boulevard	Signal	AM PM	0.704 0.669	C B
4. Long Beach Boulevard at Del Amo Boulevard	Signal	AM PM	**0.935** **0.951**	**E** **E**
5. Long Beach Boulevard at Arbor Avenue/48th Avenue	Side-Street Stop	AM PM	17.8 21.6	C C

Source: Fehr & Peers, March 2015; see Appendix J for full TIA report.

1- V/C for signalized intersections based on application of Intersection Capacity Utilization methodology using Traffix software. V/C = Volume / Capacity Ratio.

2- Delay for unsignalized intersections based on application of Highway Capacity Methodology using Traffix software.Delay reported is the worst-case approach delay.

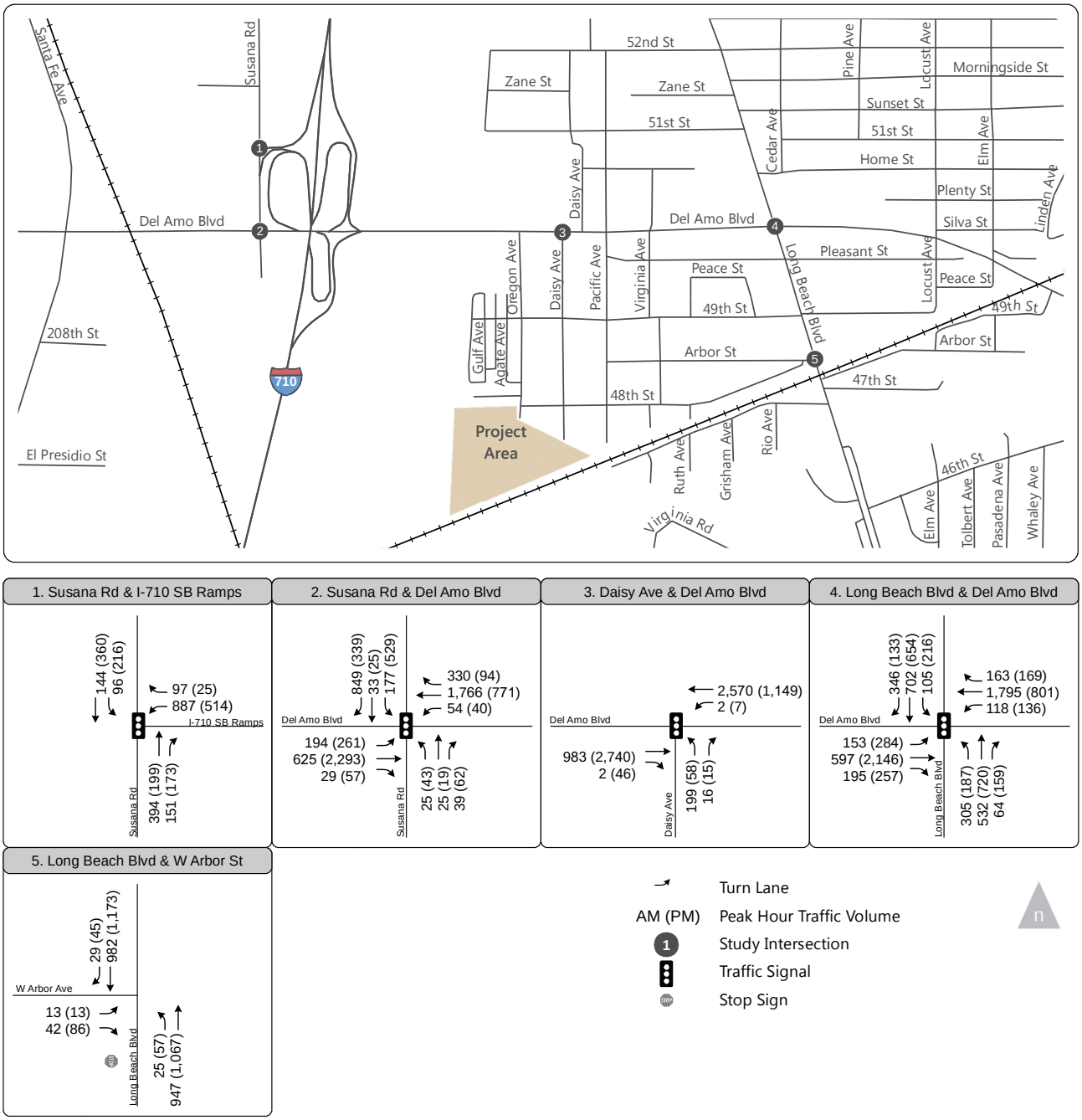
s/v = seconds per vehicle

LOS = Level of Service

***Bold Delay/LOS** values indicate unacceptable service levels based on LOS criteria identified in this report.*

Cumulative Year (2030) No Project Conditions. Future volumes for Cumulative Year (2030) No Project Conditions were developed by applying a 0.84% per year growth rate to the existing Year 2013 traffic volumes, consistent with the Los Angeles County CMP guidelines, and adding traffic from approved and pending projects in the study area. Figure 4.13-3 depicts the cumulative year weekday AM and PM peak hour traffic volumes at the five study intersections.

Intersection level of service analysis results for Cumulative (2030) No Project Conditions are summarized in Table 4.13-5. As shown in Table 4.13-5, two of the five study intersections would operate at an unacceptable level of service during both the AM and PM peak hours. The intersection of Susana Road at Del Amo Boulevard would operate at unacceptable LOS F during the AM peak hour and operate at unacceptable LOS E during the PM peak hour. The intersection of Long Beach Boulevard at Del Amo Boulevard would operate at unacceptable LOS F during both the AM and PM peak hours. The remaining three study intersections would continue to operate at acceptable levels of service during the AM and PM peak hours.



Source: Fehr & Peers, 2015

Cumulative Year (2030) No Project
Weekday Peak Hour Traffic Volumes

Figure 4.13-3

Table 4.13-5
Cumulative Year (2030) No Project Intersection Peak Hour Levels of Service Summary

Key Intersection	Control Type	Time Period	V/C[1] or Delay[2]	LOS
1. Susana Road at I-710 SB Ramps	Signal	AM PM	0.611 0.532	B A
2. Susana Road at Del Amo Boulevard	Signal	AM PM	**1.082** **0.945**	**F** **E**
3. Daisy Avenue at Del Amo Boulevard	Signal	AM PM	0.770 0.730	C C
4. Long Beach Boulevard at Del Amo Boulevard	Signal	AM PM	**1.017** **1.034**	**F** **F**
5. Long Beach Boulevard at Arbor Avenue/48th Avenue	Side-Street Stop	AM PM	21.4 29.0	C D

Source: Fehr & Peers, March 2015; see Appendix J for full TIA report.

1- V/C for signalized intersections based on application of Intersection Capacity Utilization methodology using Traffix software. V/C = Volume / Capacity Ratio.

2- Delay for unsignalized intersections based on application of Highway Capacity Methodology using Traffix software. Delay reported is the worst-case approach delay.

s/v = seconds per vehicle

LOS = Level of Service

***Bold Delay/LOS** values indicate unacceptable service levels based on LOS criteria identified in this report.*

Project Traffic Generation. Traffic generation is expressed in vehicle trip ends, defined as one-way vehicular movements, either entering or exiting the generating land use. Generation equations and/or rates used in the traffic forecasting procedure are found in the Ninth Edition of *Trip Generation*, published by the Institute of Transportation Engineers (ITE).

Table 4.13-6 summarizes the trip generation rates used in forecasting the vehicular trips generated by the proposed project and presents the forecast daily and peak hour project traffic volumes for a "typical" weekday. The trip generation potential for the proposed project was forecast using ITE Land Use Code 210: Single Family Detached Housing.

As shown in Table 4.13-6, the proposed project is forecast to generate 1,247 daily trips, with 98 trips (24 inbound, 74 outbound) produced in the AM peak hour and 131 trips (83 inbound, 48 outbound) produced in the PM peak hour on a typical weekday.

Table 4.13-6
Trip Generation Rates and Estimates

Unit Count	ITE Reference	Daily	AM Peak Hour			PM Peak Hour		
			Inbound	Outbound	Total	Inbound	Outbound	Total
ITE (9th Edition) Trip Generation Rates								
Single Family Detached Housing		9.52	25%	75%	0.75	63%	37%	1.00
Trip Generation Estimates								
131	Single Family	1,247	24	74	98	83	48	131

Source: Fehr & Peers, March 2015; see Appendix J for full TIA report.

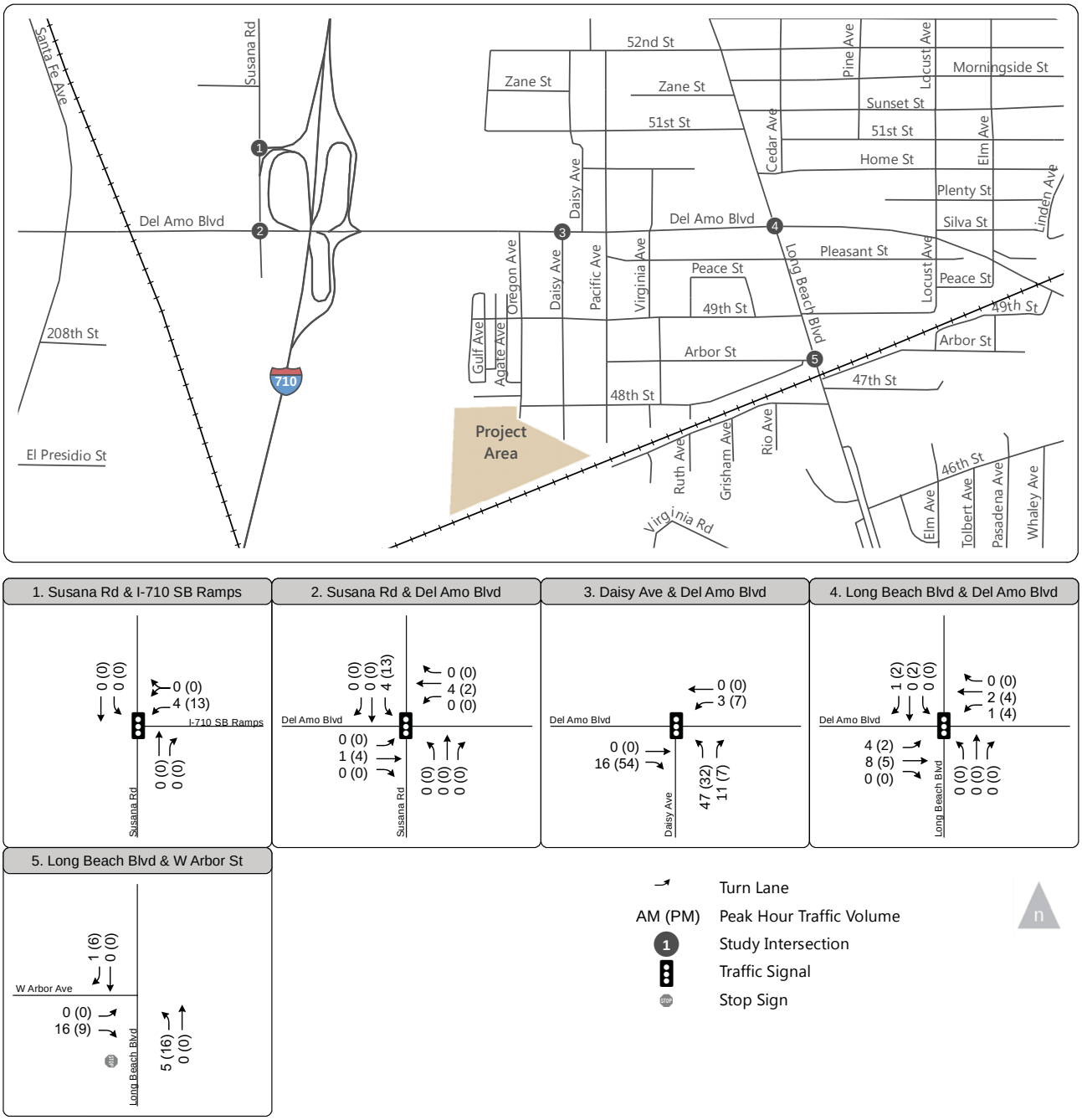
Project Traffic Distribution and Assignment. Traffic distribution determines the directional orientation of traffic. It is based upon the location, intensity of use, accessibility of existing and planned residential areas, employment centers, and other commercial activities. Traffic assignment is the determination of specific trip routes, given the previously developed traffic distribution. Primary factors in route selection are the generalized travel direction, minimum time and minimum distance paths.

Fehr & Peers estimated the trip distribution in the study area based on existing traffic patterns in the study area and the locations of complimentary land uses. Estimated trip distribution is summarized below:

- 15% to the north on I-710
- 10% to the south on I-710
- 15% to the west on I-405
- 20% to the east on I-405
- 5% to the north on Long Beach Boulevard
- 10% to the south on Long Beach Boulevard
- 5% to the west on Del Amo Boulevard
- 5% to the east on Del Amo Boulevard
- 5% to the north on Atlantic
- 10% to the south on Atlantic

Fehr & Peers used the trip generation and trip distribution information to assign project trips to the study intersections. The project trip assignment volumes are presented on Figure 4.13-4.

Project Transit Trips. The number of transit trips generated by the project was estimated by taking the peak hour trip generation (131 PM peak hour trips), multiplying it by 1.4 to convert auto trips to person trips (183 person trips), and assuming that up-to 3.5% of those trips could be transit trips. This results in a total potential of six PM peak hour transit trips generated by the site.



Source: Fehr & Peers, 2015

Project Only Weekday Peak Hour Traffic Volumes

Figure 4.13-4

Significance Thresholds. Impacts related to transportation and circulation would be potentially significant if development facilitated by the proposed project would:

- *Conflict with an applicable plan, ordinance, or policy establishing a measure of effectiveness for the performance of a circulation system, taking into account all modes of transportation, including mass transit and nonmotorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways, and freeways, pedestrian and bicycle paths, and mass transit*
- *Conflict with an applicable congestion management program, including, but not limited to, level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways*
- *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*
- *Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?*
- *Result in inadequate emergency access*
- *Conflict with adopted policies, plans, or programs regarding public transit, bikeways, or pedestrian facilities, or otherwise substantially decrease the performance or safety of such facilities*

In addition, according the City of Long Beach:

- *Impacts to intersections are considered significant if:*
  - *An unacceptable peak hour Level of Service (LOS) (i.e. LOS E or F) at any of the intersections is projected. The City of Long Beach considers LOS D (ICU = 0.801 - 0.900) to be the minimum acceptable LOS for all intersections. For the City of Long Beach, the current LOS, if worse than LOS D (i.e. LOS E or F), should also be maintained; and*
  - *The project increases traffic demand at the study intersection by 2% of capacity (ICU increase ≥ 0.020), causing or worsening LOS E or F (ICU > 0.901). At unsignalized intersections, a "significant" adverse traffic impact is defined as a project that: adds 2% or more traffic delay (seconds per vehicle) at an intersection operating LOS E or F.*
- *Impacts to roadway segments are considered significant if:*
  - *An unacceptable LOS (i.e. LOS E or F) at any of the study roadway segments is projected.*

The Initial Study for the proposed project (Appendix A) determined that the project would not result in a change in air traffic patterns or conflict with adopted policies, plans, or programs regarding public transit, bikeways, or pedestrian facilities, or otherwise substantially decrease the performance or safety of such facilities. Therefore, thresholds related to these topics are not discussed further in this EIR.

b. Project Impacts and Mitigation Measures.

Impact T-1 Construction of the proposed project would increase traffic on the surrounding street network, but would not cause any intersection to exceed the City's LOS standard. Impacts associated with construction of the proposed project would be Class III, *less than significant*.

The construction activities associated with the proposed project include 1) site preparation, 2) rough grading and 3) building construction. In order to forecast the potential construction related trips associated with the construction activities at the project site, several assumptions were utilized for the three aforementioned construction components. Site preparation was assumed to last approximately 20 days, rough grading was assumed to last approximately 60 days, and building construction was assumed to last approximately 680 days. Refer to Appendix J for a complete list of assumptions used to estimate construction related trips.

Table 4.13-7 provides a summary of the forecast construction peak hour and daily traffic volumes for each of the three construction components. The site preparation construction component is expected to generate 12 daily trips, including 9 AM peak hour trips and 3 PM peak hour trips. The rough grading construction component is expected to generate 236 daily trips, including 34 AM peak hour trips and 34 PM peak hour trips. The building construction component is expected to generate 216 daily trips, including 54 AM peak hour trips and 54 PM peak hour trips.

Table 4.13-7
Project Construction–Related Traffic Generation

Construction Phase	Daily 2-Way	AM Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
Site Preparation							
Construction Truck Traffic (1 Truck)	2	1	1	2	0	0	0
Passenger Car Equivalent Factor[1]	*3*	*3*	*3*	*3*	*3*	*3*	*3*
Subtotal	6	3	3	6	0	0	0
Employees (3 Workers)	6	3	0	3	0	3	3
TOTAL	**12**	**6**	**3**	**9**	**0**	**3**	**3**
Rough Grading							
Construction Truck Traffic (38 Trucks)	76	5	5	10	5	5	10
Passenger Car Equivalent Factor	3	3	3	3	3	3	3
Subtotal[1]	228	15	15	30	15	15	30
Employees (4 Workers)	8	4	0	4	0	4	4
TOTAL	**236**	**19**	**15**	**34**	**15**	**19**	**34**
Building Construction							
Construction Truck Traffic (24 Trucks)	48	3	3	6	3	3	6
Passenger Car Equivalent Factor[1]	3	3	3	3	3	3	3
Subtotal	144	9	9	18	9	9	18
Employees (36 Workers)	72	36	0	36	0	36	36
TOTAL	**216**	**45**	**9**	**54**	**9**	**45**	**54**

Source: Fehr & Peers, March 2015; see Appendix J for full TIA report.

1- A passenger car equivalent factor of 3.0 was applied to the truck trips to convert them into passenger car trips.

As described under *Significance Thresholds*, according to the City of Long Beach, impacts to intersections are significant if:

- *An unacceptable peak hour Level of Service (LOS) (i.e. LOS E or F) at any of the key intersections is projected. The City of Long Beach considers LOS D (ICU = 0.801 - 0.900) to be the minimum acceptable LOS for all intersections. For the City of Long Beach, the current LOS, if worse than LOS D (i.e. LOS E or F), should also be maintained; and*
- *The project increases traffic demand at the study intersection by 2% of capacity (ICU increase ≥ 0.020), causing or worsening LOS E or F (ICU > 0.901). At unsignalized intersections, a "significant" adverse traffic impact is defined as a project that: adds 2% or more traffic delay (seconds per vehicle) at an intersection operating LOS E or F.*

Given that the building construction component would generate the greatest amount of construction-related traffic, this impact analysis focuses on the potential impacts associated with that component (i.e., 216 daily trips, 54 AM peak hour trips, and 54 PM peak hour trips). Table 4.13-8 summarizes the results of the existing plus construction traffic level of service analysis at the five study intersections for the building construction component.

Table 4.13-8
Existing (Weekday) Intersection Peak Hour Plus Construction Traffic Levels of Service Summary

Key Intersection	Time Period	Existing Traffic Conditions		Existing Plus Construction Traffic Conditions			
		V/C[1] or Delay[2]	LOS	V/C[1] or Delay[2]	LOS	Change in V/C or Delay	Significant Impact
1. Susana Road at I-710 SB Ramps	AM PM	0.543 0.478	A A	0.550 0.481	A A	0.007 0.003	No No
2. Susana Road at Del Amo Boulevard	AM PM	**0.967** 0.846	**E** D	**0.967** 0.849	**E** D	0.000 0.003	No No
3. Daisy Avenue at Del Amo Boulevard	AM PM	0.683 0.648	B B	0.689 0.676	B B	0.006 0.028	No No
4. Long Beach Boulevard at Del Amo Boulevard	AM PM	**0.907** **0.923**	**E** **E**	**0.908** **0.924**	**E** **E**	0.001 0.001	No No
5. Long Beach Boulevard at Arbor Avenue/48th Avenue	AM PM	17.2 s/v 20.4 s/v	C C	18.5 18.4	C C	0.1 s/v 0.1 s/v	No No

Source: Fehr & Peers, March 2015; see Appendix J for full TIA report.

1- V/C for signalized intersections based on application of Intersection Capacity Utilization methodology using Traffix software. V/C = Volume / Capacity Ratio.

2- Delay for unsignalized intersections based on application of Highway Capacity Methodology using Traffix software. Delay reported is the worst-case approach delay.

s/v = seconds per vehicle, LOS = Level of Service

***Bold Delay/LOS** values indicate unacceptable service levels based on LOS criteria identified in this report.*

Traffic associated with the building construction component would not significantly impact any of the five study intersections when compared to the LOS standards and significant impact criteria specified above. Although the intersections of Susana Road/Del Amo Boulevard and Long Beach Boulevard/Del Amo Boulevard are forecast to operate at unacceptable LOS E during the AM and/or PM peak hours, the building construction component would add less than 0.020 to the ICU value. The remaining three study intersections are forecast to continue to

operate at an acceptable LOS with the addition of building construction traffic to existing traffic. Given that no construction traffic impacts are anticipated for the building construction component, it can be concluded that the remaining construction components (i.e., site preparation and rough grading) will also have no significant impacts at the five study intersections, because they have a lesser trip generation potential than that of the building construction component. Therefore, impacts related to construction traffic would be less than significant. However, the TIA recommends that a Construction Management Plan for the proposed project should be developed in conjunction with the City of Long Beach to ensure that impacts to the surrounding street system are managed appropriately. The TIA recommends that the Construction Management Plan should, at a minimum, address the following:

- *Traffic control for any street closure, detour, or other disruption to traffic circulation.*
- *Identify the routes that construction vehicles will utilize for the delivery of construction materials (i.e. lumber, tiles, piping, windows, etc.), to access the site, traffic controls and detours, and proposed construction phasing plan for the project.*
- *Specify the hours during which transport activities can occur and methods to mitigate construction-related impacts to adjacent streets.*
- *The haul route for the soil import will be prepared to the satisfaction of the City Engineer.*
- *Require the Applicant to keep all haul routes clean and free of debris including but not limited to gravel and dirt as a result of its operations. The Applicant shall clean adjacent streets, as directed by the City Engineer (or representative of the City Engineer), of any material which may have been spilled, tracked, or blown onto adjacent streets or areas.*
- *Hauling or transport of oversize loads will be allowed between the hours of 9:00 AM and 4:00 PM only, Monday through Friday, unless approved otherwise by the City Engineer. No hauling or transport will be allowed during nighttime hours, weekends or Federal holidays.*
- *Use of local streets shall be prohibited unless approved as part of the haul route.*
- *Haul trucks entering or exiting public streets shall at all times yield to public traffic; the use of flagman will be incorporated as necessary.*
- *If hauling operations cause any damage to existing pavement, street, curb, and/or gutter along the haul route, the applicant will be fully responsible for repairs. The repairs shall be completed to the satisfaction of the City Engineer.*
- *All construction-related parking and staging of vehicles will be kept out of the adjacent public roadways/residential streets and will occur on-site.*
- *This Plan shall meet standards established in the current California Manual on Uniform Traffic Control Device (MUTCD) as well as City of Long Beach requirements.*

While these recommendations are noted and may be considered for inclusion in the Conditions of Approval of the proposed project, mitigation is not required since impacts related to construction traffic would be less than significant according to the adopted thresholds discussed above.

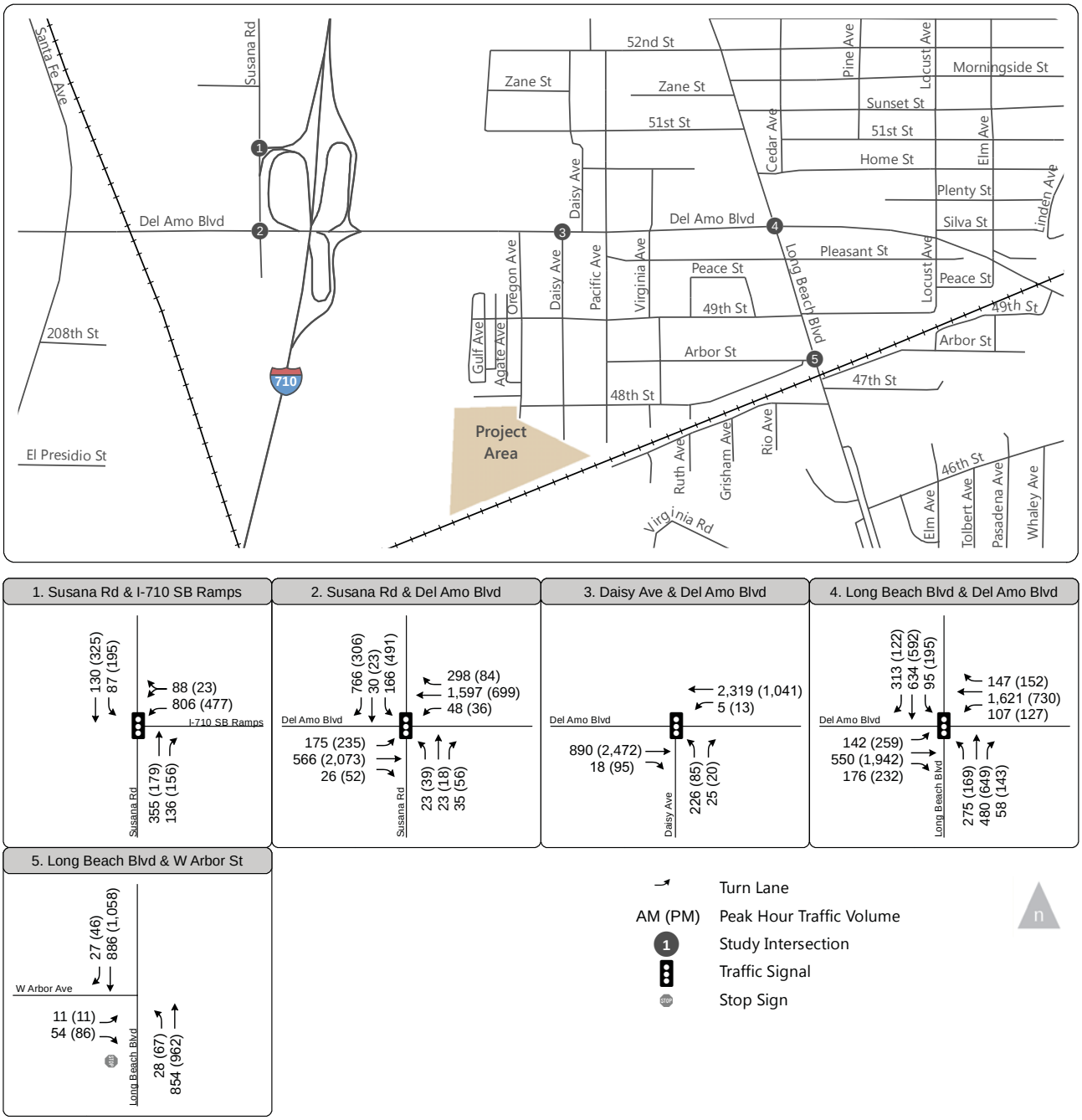
Mitigation Measures. Mitigation would not be required since impacts would be less than significant.

Significance After Mitigation. Impacts would be less than significant without mitigation.

Impact T-2 Implementation of the proposed project would increase traffic on the surrounding street network. However, project-generated traffic would not cause any intersection or road segment to exceed City standards nor would it conflict with the County CMP. Impacts associated with the proposed project would be Class III, *less than significant*.

Project-generated traffic would increase traffic volumes at each of the five study intersections. Figure 4.13-5 presents AM and PM peak hour traffic volumes at the study intersections with the addition of the trips generated by the proposed project to opening year (2015) traffic volumes.

Opening Year Plus Project Traffic Conditions. Table 4.13-9 summarizes the peak hour Level of Service results at the study intersections for Opening Year Plus Project traffic conditions. Based on the increases forecast to occur, traffic associated with the proposed project would not significantly impact any of the five study intersections when compared to the City's LOS standards and significant impact criteria. Although the intersections of Susana Road/Del Amo Boulevard and Long Beach Boulevard/Del Amo Boulevard are forecast to operate at unacceptable LOS E during the AM and/or PM peak hours, the proposed project would add less than 0.020 to the ICU value. The remaining three study intersections are forecast to continue to operate at an acceptable LOS with the addition of project traffic to operating year traffic. Therefore, the project's impact on study intersections would not be significant based on City criteria.



Source: Fehr & Peers, 2015

Project Opening Year (2015) Plus Project Weekday Peak Hour Traffic Volumes

Figure 4.13-5

Table 4.13-9
Opening Year (2015) Plus Project Conditions for Study Intersections

Key Intersection	Time Period	Opening Year Traffic Conditions		Opening Year Plus Project Traffic Conditions			
		V/C[1] or Delay[2]	LOS	V/C[1] or Delay[2]	LOS	Change in V/C or Delay	Significant Impact ?
1. Susana Road at I-710 SB Ramps	AM PM	0.563 0.492	A A	0.565 0.496	A A	0.002 0.004	No No
2. Susana Road at Del Amo Boulevard	AM PM	**0.994** 0.872	**E** D	**0.996** 0.876	**E** D	0.002 0.004	No No
3. Daisy Avenue at Del Amo Boulevard	AM PM	0.704 0.669	C B	0.740 0.709	C C	0.036 0.040	No No
4. Long Beach Boulevard at Del Amo Boulevard	AM PM	**0.935** **0.951**	**E** **E**	**0.937** **0.953**	**E** **E**	0.002 0.002	No No
5. Long Beach Boulevard at Arbor Avenue/48th Avenue	AM PM	17.8 21.6	C C	17.1 22.2	C C	-0.7 0.6	No No

Source: Fehr & Peers, March 2015; see Appendix J for full TIA report.

1- V/C for signalized intersections based on application of Intersection Capacity Utilization methodology using Traffix software. V/C = Volume / Capacity Ratio.

2- Delay for unsignalized intersections based on application of Highway Capacity Methodology using Traffix software. Delay reported is the worst-case approach delay.

s/v = seconds per vehicle, LOS = Level of Service

***Bold Delay/LOS** values indicate unacceptable service levels based on LOS criteria identified in this report.*

Table 4.13-10 summarizes the daily roadway segment analysis results at the ten study roadway segments for Existing Plus Project traffic conditions. As shown in Table 4.13-10, project traffic will only be added to six of the ten key roadway segments. The six roadway segments where the project would add traffic are either located on Daisy Avenue (i.e., roadway segments #2, #3 and #4) or W. 48th Street (i.e., roadway segments #5, #7 and #9). The remaining four roadway segments are not expected to have any project traffic (i.e. key roadway segments #1, #6, #8 and #10).

All of the roadways adjacent to the project site currently have sufficient capacity to meet the LOS E capacity threshold of 2,500 vpd described above. In addition, all roadway segments would maintain acceptable traffic volumes with the addition of project traffic volumes. Therefore, the project's impact on study roadway segments would not be significant based on City criteria.

Table 4.13-10
Existing Plus Project Conditions for Study Roadway Segments

Roadway Segment		Type of Roadway	Acceptable Traffic Level (vpd[1])	Existing Traffic Conditions		Project Only Daily Traffic Volumes	Existing Plus Project Traffic Conditions	
				Daily Traffic Volume	Acceptable?		Daily Traffic Volume	Acceptable?
1.	W. 48th St between Oregon Ave and Daisy Ave	2-lane Residential	2,500	329	Yes	0	329	Yes
2.	Daisy Ave between Del Amo Blvd and W. 49th St	2-lane Residential	2,500	1,319	Yes	952	2,271	Yes
3.	Daisy Ave between W. 49th St and W 48th St	2-lane Residential	2,500	353	Yes	952	1,305	Yes
4.	Daisy Ave south of W. 48th St	2-lane Residential	2,500	75	Yes	1,247	1,322	Yes
5.	W. 48th St between Daisy Ave and Pacific Ave	2-lane Residential	2,500	499	Yes	295	794	Yes
6.	Pacific Ave between Del Amo Blvd and Pleasant St	2-lane Residential	2,500	1,169	Yes	0	1,169	Yes
7.	W. 48th St between Pacific Ave and Virginia Ave	2-lane Residential	2,500	701	Yes	295	996	Yes
8.	W. Arbor St between Virginia Ave and Long Beach Blvd	2-lane Residential	2,500	566	Yes	0	566	Yes
9.	W. 48th St between Virginia Ave and Long Beach Blvd	2-lane Residential	2,500	892	Yes	295	1,187	Yes
10.	W. 49th St west of Long Beach Blvd	2-lane Residential	2,500	2,375	Yes	0	2,375	Yes

Source: Fehr & Peers, March 2015; see Appendix J for full TIA report.
[1] VPD = Vehicles per day

Congestion Management Program. The Congestion Management Program (CMP) was created statewide as a result of Proposition 111 and has been implemented locally by Metro . The CMP for Los Angeles County requires that the traffic impact of individual development projects of potential regional significance be analyzed. A specific system of arterial roadways plus all freeways comprise the CMP system.

As required by the current CMP, a review has been made of designated monitoring locations on the CMP highway system for potential impact analysis. Per CMP TIA criteria, the geographic area examined in the TIA must include the following:

- *All CMP arterial monitoring intersections, including freeway on and off-ramp intersections, where the project will add 50 or more trips during either the AM or PM weekday peak hours.*
- *Mainline freeway-monitoring stations where the project will add 150 or more trips, in either direction, during the AM or PM weekday peak hours.*

No CMP intersection monitoring locations were identified within the project study area. The following CMP freeway monitoring location in the project vicinity has been identified:

- *CMP Station No. 1079, 710 north of Route 405, south of Del Amo Boulevard*

As stated earlier, the CMP TIA guidelines require that freeway monitoring locations must be examined if the proposed project would add 150 or more trips (in either direction) during either the AM or PM weekday peak periods. Based on the project's trip generation potential and distribution pattern, the proposed project would not add more than 150 trips during the AM or PM peak hour at this CMP mainline freeway monitoring location. Therefore, a CMP freeway traffic impact analysis is not required.

A review of potential impacts on transit service was also conducted. As discussed in Section 4.13.1, *Setting*, LBT Routes Nos. 51, 191, and 192, and Metro Routes 60, 202, and the Blue Line light rail currently serve the surrounding vicinity. Pursuant to the CMP guidelines, the proposed project is forecast to generate six PM peak hour transit trips. With five transit routes (excluding the Blue Line) serving the study area, this would equate to just over one trip per bus route. Also, with multiple buses operating on most of the routes during the peak hours, this would result in less than one additional rider per transit vehicle. The CMP does not have a threshold for determining the significance of impacts on the transit system; however, at these levels (less than one trip per transit vehicle in the peak hour) project-related impacts on the regional transit system would not be significant.

Based on the foregoing analysis, the proposed project would not result in an exceedance of the City's LOS standards, and would not conflict with implementation of the County CMP. Impacts would be less than significant.

Mitigation Measures. Mitigation would not be required since impacts would be less than significant.

Significance After Mitigation. Impacts would be less than significant without mitigation.

Impact T-3 The proposed project does not include any hazardous design feature and would not result in inadequate emergency access. Impacts associated with the proposed project would be Class III, *less than significant.*

Potential project-related traffic hazards related to internal circulation and access are discussed below. Potential project-related temporary construction traffic impacts are discussed under Impact T-1.

Internal Circulation. On-site circulation is proposed to be provided by a 34-foot wide primary loop road connecting the whole of the site. 20-foot wide lanes provide access to the individual properties where primary residential access would occur. Use of the 20-foot wide lanes will minimize speeding adjacent to the residential access areas and is considered beneficial to the project. In additional, the site plan shows pedestrian sidewalks within the project site along the outer edge of the internal loop road. These facilities would provide direct access for residents to walk to/from the community center area and the tot lot park area.

Internal circulation would be typical of residential areas and would not include any hazardous design features.

The project site also abuts the rail tracks located along the south end of the project site. In general, rail tracks can pose a safety hazard for pedestrians wandering onto the tracks, but the railroad tracks at this site are located on top of an elevated berm that is an approximate average height of 25-30 feet above the project site. The project site is also separated from these tracks by fencing, and would continue to be separated from the project site by fencing after construction of the proposed project. Public access to the tracks would not be provided as part of the proposed project. Therefore, the proposed project would not result in any hazardous design feature related to the adjacent rail tracks. Impacts would be less than significant.

Project Site Access. Vehicle access to the project site is provided via Daisy Avenue, a residential street, which provides access to a grid-system of residential streets connecting to Del Amo Boulevard and Long Beach Boulevard. As shown in Table 4.13-10, all of these roadways would maintain acceptable traffic volumes with the addition of project traffic volumes. Access to the project site would therefore be adequate, and motorists entering and exiting the project site would be able to do so without exceeding the capacity of local streets. The proposed project would therefore not result in significant impacts related to vehicular access to the site.

Although these streets have sufficient capacity to provide sufficient access to the project site, the project would add a large amount of traffic to certain street segments in the adjacent neighborhood compared to existing traffic volumes on these streets. The most extreme example of this is Intersection #4, Daisy Avenue south of West 48th Street, which is currently a cul-de-sac dead-ending at the gate to the currently unused project site. This street segment currently serves nine houses fronting on it (all of which have alley access, potentially further lowering traffic volumes) but, under the proposed project, would serve as the entrance to the project site and therefore vehicular access to all 131 proposed under the project. Consequently, the proposed project would, as shown in Table 4.13-10, increase traffic volumes on this segment from 75 vehicles per day (vpd) to 1,322 vpd.

The TIA recommends that the project sponsor work with the City and the adjacent neighborhood to develop and implement a comprehensive traffic calming program for adjacent streets. Traffic calming measures can help reduce traffic speeds, as well as help reduce traffic volumes on specific street segments (Fehr & Peers, Traffic Calming.org website, March 2015). According to the TIA, the success of any traffic calming program depends on effectively interfacing with the community to develop a program that serves them. The TIA therefore recommends that the City hire a qualified consultant to work with the community on this effort and that the effort follow the recommendations documented in the US Traffic Calming Manual. While these recommendations may be considered for inclusion in the Conditions of Approval of the proposed project, all roadways adjacent to the project site currently have sufficient capacity to meet the LOS E capacity threshold and all roadway segments would maintain acceptable traffic volumes with the addition of project traffic volumes based on City criteria; therefore, the proposed project would not have a significant impact on access to the project site or surrounding properties and no mitigation is required.

A vehicular connection from the project site to Oregon Avenue would be available in case of emergencies, but would otherwise remain blocked off under normal circumstances. As described in Section 4.12, *Public Services and Recreation*, all site and building improvements would be required to comply with all applicable fire code and ordinance requirements for access and would be subject to review and approval by the Long Beach Fire Department prior to building permit and certificate of occupancy issuance. As such, the proposed project would not result in inadequate emergency access. The TIA recommends that the City's fire and police departments review the site plan to ensure adequate accessibility is provided for emergency responders. Such "plan checks" are part of the City's standard project review process.

In addition to vehicle access, bicycle access to the site is provided via the site's proximity to the Los Angeles River Bicycle Trail. The TIA recommends that the project sponsor ensure that direct, convenient, and safe connectivity to the bicycle trail is provided. The TIA also recommends that the project sponsor consider providing bicycle parking for its residents at the community pool area and at the tot lot park area. However, while these recommendations may be considered for inclusion in the Conditions of Approval of the proposed project, the proposed project would not have a significant impact on bicycle access or other forms of alternative transportation; therefore, mitigation is not required.

Mitigation Measures. Mitigation would not be required since impacts would be less than significant.

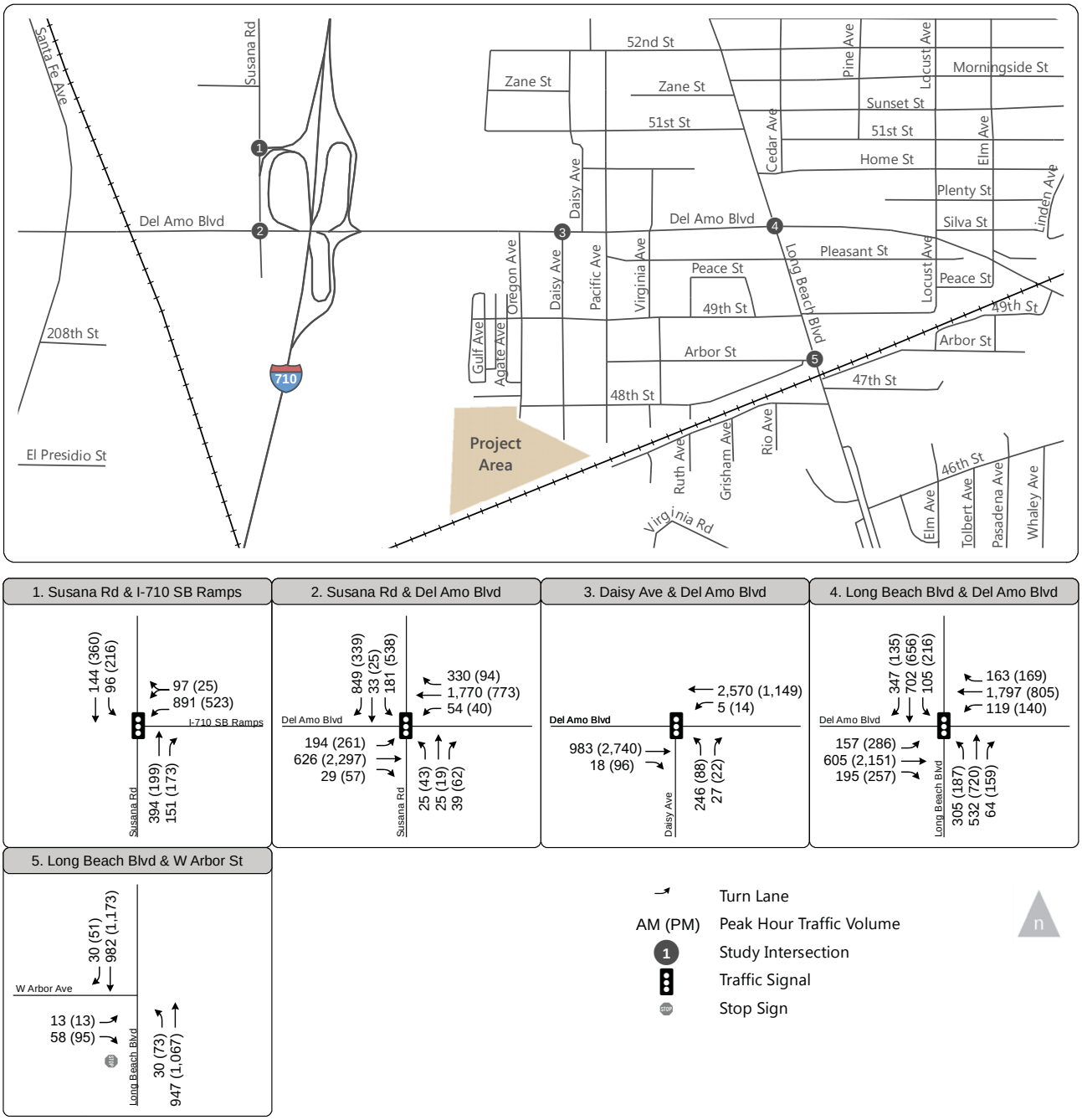
Significance After Mitigation. Impacts would be less than significant without mitigation.

c. Cumulative Impacts. Cumulative development within the project area would cause increases in traffic on area roadways. The project TIA identifies six related projects that could, in combination with the proposed project, result in cumulative traffic impacts. These projects include:

- *Oregon Park – Local neighborhood park*
- *Douglas Park – three industrial buildings totaling 502,076 sq. ft.*
- *Lot D (Pacific Pointe East) – 91,560 sq. ft. of medical office buildings*
- *Weiland Brewery Restaurant*
- *Dutch's Brewery Restaurant*
- *Chick-fil-A – Located at 3290 Atlantic Avenue*

This list of projects was provided to Fehr & Peers by the City of Long Beach at the time of production of the Traffic Impact Study, and both extends further geographically than the scope of cumulative projects listed in Table 3-1 of this EIR, and also includes some projects that may no longer be included on the City's list of planned and pending projects.

Figure 4.13-6 shows the forecast traffic volumes for cumulative projects (including the proposed project) in the AM and PM peak hours. Table 4.13-11 summarizes existing, cumulative, and cumulative plus project intersection capacities.



Source: Fehr & Peers, 2015

Cumulative Year (2030) Plus Project
Weekday Peak Hour Traffic Volumes

Figure 4.13-6

Table 4.13-11
Cumulative Peak Hour Intersection Capacity Analysis

Key Intersection	Time Period	Existing Conditions		Year 2030 Cumulative (No Project) Conditions		Year 2030 Cumulative Plus Project		Project Increase	Significant Impact ?
		V/C[1] or Delay[2]	LOS	V/C or Delay	LOS	V/C or Delay	LOS		
1. Susana Road at I-710 SB Ramps	AM PM	0.543 0.478	A A	0.611 0.532	B A	0.612 0.534	B A	0.001 0.002	No No
2. Susana Road at Del Amo Boulevard	AM PM	**0.967** 0.846	**E** D	**1.082** **0.945**	**F** **E**	**1.084** **0.949**	**F** **E**	0.002 0.004	No No
3. Daisy Avenue at Del Amo Boulevard	AM PM	0.683 0.648	B B	0.770 0.730	C C	0.806 0.768	D C	0.036 0.038	No No
4. Long Beach Boulevard at Del Amo Boulevard	AM PM	**0.907** **0.923**	**E** **E**	**1.017** **1.034**	**F** **F**	**1.019** **1.037**	**F** **F**	0.002 0.003	No No
5. Long Beach Boulevard at Arbor Avenue/48th Avenue	AM PM	17.2 20.4	C C	21.4 29.0	C D	20.5 30.6	C D	-0.900 1.600	No No

Source: Fehr & Peers, March 2015; see Appendix J for full TIA report.

1- V/C for signalized intersections based on application of Intersection Capacity Utilization methodology using Traffix software. V/C = Volume / Capacity Ratio.

2- Delay for unsignalized intersections based on application of Highway Capacity Methodology using Traffix software. Delay is reported in s/v and is the worst-case approach delay.

s/v = seconds per vehicle, LOS = Level of Service

***Bold Delay/LOS** values indicate unacceptable service levels based on LOS criteria identified in this report.*

The intersection of Susana Road at Del Amo Boulevard currently operates at LOS E during the AM peak hour and would operate at LOS F during the AM peak hour and LOS E at the PM peak hour in the year 2030 without traffic generated by the proposed project. The intersection of Long Beach Boulevard at Del Amo Boulevard is currently operating at LOS E during the AM and PM peak hours and would operate at LOS F during the AM and PM peak hours in the year 2030 without traffic generated by the proposed project. Although the intersections of Susana Road/Del Amo Boulevard and Long Beach Boulevard/Del Amo Boulevard are forecast to operate at unacceptable LOS E and/or F during the AM and/or PM peak hours, the proposed project would add less than 0.020 to the ICU value. Therefore, the project's impact on study intersections would not be significant based on City criteria. Furthermore, because the largest increase associated with proposed project (0.004) at any intersection forecast to operate below acceptable LOS would only represent 20 percent of the 0.020 threshold, the project's contribution to these impacts would not be cumulatively considerable. All of the other study intersections would operate at acceptable levels of service under the year 2030 cumulative and cumulative plus project scenarios.

4.14 UTILITIES and SERVICE SYSTEMS

This section discusses potential impacts to utilities, including water supply, wastewater collection and treatment, solid waste, and stormwater conveyance facilities. Impacts to public services such as police and fire protection and schools are discussed in Section 4.12, *Public Services and Recreation*. Impacts to water quality and hydrology are discussed in Section 4.8, *Hydrology*.

4.14.1 Setting

a. Water Supply. The Long Beach Water Department (LBWD) provides water to the majority of Long Beach, including the project site (LBWD, website, accessed March 9, 2015). The major sources of water in Long Beach are those purchased wholesale from the Metropolitan Water District of Southern California (MWD), groundwater pumped and treated by LBWD, recycled water and, possibly in the future, desalinated seawater (Long Beach Board of Water Commissioners, 2011). Table 4.14-1 shows current and planned water supplies for Long Beach in acre-feet per year (AFY).[1]

Table 4.14-1
Current and Planned Water Supplies for the Long Beach System (AFY)

Sources	2010	2015	2020	2025	2030	2035
Potable Water						
Purchased from MWDSC	22,237	24,520	24,046	18,551	17,477	11,929
Central Basin (Groundwater)	34,655	33,000	33,500	34,000	34,500	35,000
West Coast Basin (Groundwater)	0	0	0	0	0	0
Desalination	-	-	-	5,000	5,000	10,000
Reclaimed Water	6,556	10,100	11,300	13,400	13,700	14,000
Total	***63,448***	***67,620***	***68,846***	***70,951***	***70,677***	***70,929***

Source: Table 2A, 2010 Urban Water Management Plan – Long Beach Board of Water Commissioners, June 2011.

Local Water. The LBWD has the right to pump 32,692 AFY of groundwater from the Central Basin Aquifer and 0.7 AFY from the West Coast Basin (Long Beach Board of Water Commissioners, 2011). The Central Basin is a groundwater aquifer under 277 square miles in mostly urbanized southern Los Angeles County. LBWD has no wells in the West Coast Basin and, therefore, does not use those water rights.

Imported Water. Wholesale supplies are shown in Table 4.14-1. The imported drinking water purchased by LBWD will remain an important supply (Long Beach Board of Water Commissioners, 2011). LBWD purchases this water wholesale from the MWD, an agency that is essentially a joint powers authority of the major water agencies in southern California.

[1] *An acre-foot is 325,585 gallons.*

Based on the Regional UWMP (2010), prepared by MWD, it is reported that MWD can provide reliable water supplies during normal, single dry year and multiple dry year conditions, as shown in Table 4.14-2 below.

Table 4.14-2
MWD Water Supply in Normal, Single and Multiple Dry Years
(Thousands of Acre Feet)

Normal Year	**2015**	**2020**	**2025**	**2030**	**2035**
Supply Totals	3,485	3,810	4,089	3,947	3,814
Demand Totals	2,006	1,933	1,985	2,049	2,106
Reserves (Supply – Demand)	1,479	1,877	2,104	1,898	1,708
Single Dry Year	**2015**	**2020**	**2025**	**2030**	**2035**
Supply Totals	2,457	2,782	2,997	2,823	2,690
Demand Totals	2,171	2,162	2,201	2,254	2,319
Reserves (Supply – Demand)	286	620	776	569	371
Multiple Dry Year	**2015**	**2020**	**2025**	**2030**	**2035**
Supply Totals	2,248	2,417	2,520	2,459	2,415
Demand Totals	2,236	2,188	2,283	2,339	2,399
Reserves (Supply – Demand)	12	229	237	120	16

Source: Tables 2-9, 2-10 and 2-11, Regional Urban Water Management Plan, Metropolitan Water District of Southern California, November 2010.

Per the 2010 UWMP, MWD has a surplus of 1.7 million AFY in 2035 during normal years, a surplus of 371,000 AFY in 2035 during single dry year conditions and a surplus of 16,000 AFY in 2035 under multiple dry year conditions.

As shown in Table 4.14-3, based on the current water supply portfolio, LBWD will be able to meet demand during an average year, single dry-year, and multiple dry-year water scenarios through 2035. Each year, the purchase of imported water is designed to meet the projected demand. It should be noted that LBWD does not have a surplus because water is purchased from the MWD on an as needed basis to meet projected demands. Thus, supply does not typically exceed demand and no surplus is created. The controlling factor is the availability of water from MWD, which shows surpluses under all scenarios.

As indicated in Tables 4.14-3, LBWD is able to supply enough water to meet demand through the year 2035. Imported water supplies are projected to meet demand because MWD accounted for future demands within its service area and analyzed reliability under single and multiple dry year scenarios in the Regional Urban Water Management Plan (UWMP). As shown in Table 4.14-2, MWD has a surplus of 1.7 million AFY in 2035 during normal years, a surplus of 371,000 AFY in 2035 during single dry year conditions and a surplus of 16,000 AFY during multiple dry year conditions.

Table 4.14-3
LBWD Water Supply in Average, Single-Dry and Multiple-Dry Years (Acre Feet)

Normal Year	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**
Supply Totals	63,448	67,620	68,846	70,951	70,677	70,929
Demand Totals	63,448	67,620	68,846	70,951	70,677	70,929
Reserves (Supply – Demand)	*0*	*0*	*0*	*0*	*0*	*0*
Single Dry Year	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**
Supply Totals	63,448	67,620	68,846	70,951	70,677	70,929
Demand Totals	63,448	67,620	68,846	70,951	70,677	70,929
Reserves (Supply – Demand)	*0*	*0*	*0*	*0*	*0*	*0*
Multiple Dry Year	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**
Supply Totals	63,448	67,620	68,846	70,951	70,677	70,929
Demand Totals	63,448	67,620	68,846	70,951	70,677	70,929
Reserves (Supply – Demand)	0	*0*	*0*	*0*	*0*	*0*

Source: Tables 32, 33 and 34, 2010 Urban Water Management Plan – Long Beach Board of Water Commissioners, June 2011.

Due to the current state-wide drought, the State Water Resources Control Board (SWRCB) adopted new water conservation regulations (Resolution 2014-0038) in July 2014, including select prohibitions for all water users and required actions for all water agencies. For the same reason, the Long Beach Board of Water Commissioners declared an Imminent Water Supply Shortage for the City on February 27, 2014, followed by a Stage 1 Water Supply Shortage on November 20, 2014 (LBWD, website, accessed March 9, 2015). The declarations prohibited the use of potable water for filling residential pools and spas and have restricted the days and durations during which residents can irrigate landscaping in order to conserve remaining water reserves. Similarly, in response to the drought, the MWD has reevaluated its water supplies and outlined scenarios that could require the agency to limit water deliveries by 5 to 10 percent by July 1, 2015 and prompt mandatory rationing during summer months (MWD, February 2015). Recently, the California Department of Water Resources announced that MWD's 15 percent State Water Project allocation would be increased to 20 percent this year; however, the MWD reiterated its commitment to carefully managing water supplies in case drought conditions persist (MWD, March 2015).

In addition, the MWD has implemented rebate programs to incentivize the use of water efficient fixtures and equipment for residences, businesses, industry, institutions, and large landscapes in southern California (MWD website, March 2015). MWD's rebate programs include SoCalWater$mart that assists customers with installing high-efficiency toilets, clothes washers, plumbing fixtures, HVAC, sprinkler controllers, soil moisture sensors and more (for additional information on this program go to www.socalwatersmart.com). MWD's Water Savings Incentive Program assists large water volume users in implementing large scale water saving projects, such as projects to overhaul industrial processes to increase water reuse, or install

valves and pumps to improve agricultural irrigation efficiency. For more water conservation resources and tips, and information on how MWD is responding to the drought, go to http://bewaterwise.com, and for more information on the Water Savings Incentive program go to http://bewaterwise.com/Water_Saving_Incentive_Program_Brochure_WEB.pdf).

On April 1, 2015, Governor Brown issued Executive Order B-29-15, which ordered the SWRCB to impose restrictions to achieve a statewide 25% reduction in potable urban water usage through February 28, 2016. Executive Order B-29-15 states that "these restrictions will require water suppliers to California's cities and towns to reduce usage as compared to the amount used in 2013" (State of California, Executive Order B-29-15, April 2015). The SWRCB has proposed the following schedule for the development of emergency regulations to implement both the new prohibitions and restrictions on water use, as well as the 25% statewide reduction in potable urban water use contained in Executive Order B-29-15 (SWRCB, April 2015).

- **April 1, 2015 -** Governor issues Drought Executive Order
- **April 7, 2015 -** Notice announcing release of draft regulatory framework and request for public comment
- **April 17, 2015 -** Notice announcing release of draft regulations for informal public comment
- **April 28, 2015 -** Emergency rulemaking formal notice
- **May 5 or 6, 2015 -** Board hearing and adoption

According to SWRCB data, Long Beach may have to cut its water usage by 20% (Los Angeles Times, April 8, 2015).

b. Wastewater Conveyance and Treatment. The LBWD operates and maintains the City's sanitary sewer system (LBWD, website, March 2015). Wastewater treatment services would be supplied to the proposed project through the Sanitation Districts of Los Angeles County (LACSD). The project is located in District 3 of the LACSD. Currently, a majority of the City's wastewater is delivered to the Joint Water Pollution Control Plant (JWPCP) of the LACSD. The remaining portion of the City's wastewater is delivered to the Long Beach Water Reclamation Plant (WRP) of the LACSD.

The LACSD manage wastewater and solid waste on a regional scale and consist of 24 independent special districts serving about 5.5 million people in Los Angeles County (LACSD, website, March 2015). The service area covers approximately 824 square miles and encompasses 78 cities and unincorporated territory within the county. The LACSD own, operate, and maintain the large trunk sewers that form the backbone of the regional wastewater conveyance system. Local collector and/or lateral sewer lines are the responsibility of the jurisdiction in which they are located (City of Long Beach, 2014). LACSD own, operate, and maintain approximately 1,400 miles of sewers, ranging from 8 to 144 inches in diameter, that convey approximately 510 mgd of wastewater to ten water reclamation plants and one ocean discharge facility. Included in LACSD wastewater collection system are 49 active pumping plants located throughout the County. The LACSD service area includes wastewater collection systems located within the Joint Outfall System, the Santa Clarita Valley, and the Antelope Valley.

The JWPCP is located at 24501 S. Figueroa Street in Carson (LACSD, website, March 2015). The plant serves a population of approximately 3.5 million people throughout Los Angeles County and has a design capacity of 400 million gallons per day (mgd). According to 2013 Annual Performance Data, the facility provides both primary and secondary treatment for approximately 264 mgd of wastewater (LACSD, website, March 2015). Prior to discharge, treated wastewater is disinfected with sodium hypochlorite and sent to the Pacific Ocean through a network of outfalls. These outfalls extend 1 ½ miles off the Palos Verdes Peninsula to a depth of 200 feet.

The Long Beach WRP of the LACSD is located at 7400 E. Willow Street in Long Beach and serves approximately 250,000 people (LACSD, website, March 2015). The Long Beach WRP provides primary, secondary and tertiary treatment for 25 mgd of wastewater. Almost 6 million gallons per day of reclaimed water is reused at over 60 reuse sites. Reuse includes landscape irrigation of schools, golf courses, parks, and greenbelts by the City of Long Beach, re-pressurization of oil-bearing strata off the coast of Long Beach, and replenishment of the Central Basin groundwater supply from water processed at the Leo J. Vander Lans Advanced Water Treatment Facility. The remainder is discharged to Coyote Creek. This facility uses microfiltration, reverse osmosis, and ultraviolet disinfection to produce near distilled quality water that is blended with imported water and pumped into the Alamitos Seawater Barrier to protect the groundwater basin from seawater intrusion.

Existing wastewater infrastructure adjacent to the project site includes two 8-inch sewer mains: one in the alley between Oregon Avenue and Daisy Avenue and the other in the alley between Daisy Avenue and Pacific Avenue (F. Eggleston, pers. communication, December 17, 2014). The 8-inch sewer mains were installed around 1935. A 6-inch sewer line from the existing house on the project site connects to one of these 8-inch main lines.

c. Solid Waste. The City of Long Beach is a member of the LACSD (City of Long Beach, 2014). The City's Environmental Services Bureau provides solid waste collection services throughout Long Beach (Long Beach Environmental Services Bureau, website, March 2015). In 2013, the City of Long Beach is reported to have disposed of approximately 459,908 tons of waste (CalRecycle, 2013). The majority of the City's solid waste is disposed of at the Southeast Resource Recovery Facility (SERRF). The City and LACSD have a Joint Powers Agreement to operate the SERRF, located at 120 Pier S Avenue in Long Beach. The SERRF is a refuse-to-energy transformation facility that reduces the volume of solid waste by approximately 80 percent while creating electrical energy (Long Beach Gas and Oil Department, website, March 2015). The SERRF produces 36 megawatts (MW) of electricity for Southern California Edison, which is enough to supply 35,000 homes with electrical power.

Solid waste from the project site would be collected and trucked to the SERRF, as the closest active solid waste facility operated by LACSD. SERRF performs "front-end" and "back-end" recycling by recovering items such as white goods prior to incineration and collecting metals removed from the boilers after incineration (Long Beach Gas and Oil Department, website, March 2015). Each month, an average of 825 tons of metal are recycled rather than sent to a landfill. The Solid Waste Facility Permit from the County Solid Waste Management Program for the SERRF authorizes the disposal of a maximum of 2,240 tons per day (CalRecycle, 2014b). During the month of July 2014, the SERRF accepted an average of 1,601 tons per day

(CalRecycle, 2014b). Remaining capacity and estimated closure dates are not applicable because the SERRF is a transformation facility that converts solid waste to energy and ash.

As of October 31, 2013, the Puente Hills Landfill closed after 56 years of operation (LACSD, website, March 2015). Therefore, solid waste that cannot be processed at the SERRF (i.e., that would damage or threaten to damage combustion units or otherwise adversely affect maintenance of SERRF, present a substantial endangerment to the health or safety of the public or SERRF employees, cause any permit requirement or condition to be violated, exceed the materials handling capacity of the combustion feed system) would be taken to landfills in Orange, San Bernardino and Riverside counties (LACSD, website, March 2015). Residents and commercial haulers are encouraged to use other nearby LACSD's facilities for disposal and recycling. Alternative disposal options include the Puente Hills Materials Recovery Facility (MRF) (situated at the base of the Puente Hills Landfill), Downey Area Recycling and Transfer Facility in the City of Downey, South Gate Transfer Station in the City of South Gate, the Commerce Refuse-to-Energy Facility in the City of Commerce, and SERRF. The Puente Hills MRF is permitted to accept a maximum of 4,400 tons per day of solid waste (CalRecycle, 2014a). During the month of July 2014, the Puente Hills MRF accepted an average of 2,794 tons per day (CalRecycle, 2014a). Residual waste is placed into large capacity trailers for transfer to permitted out-of-county landfills (LACSD, website, March 2015).

In approximately five years, the County of Los Angeles (County) plans to load waste dumped by residential and commercial garbage trucks from the County's 88 cities onto rail cars (LACSD, website, March 2015). The waste-by-rail system would consist of transfer stations and intermodal rail yards that transfer solid waste to the Mesquite Regional Landfill in Imperial County. Completed in 2011, owned and operated by LACSD; the Mesquite Regional Landfill is permitted to receive up to 20,000 tons of municipal solid waste per day and has a total capacity of 600 million tons. The project life of the facility is about 100 years. Through the available MRFs run by LACSD, temporary use of landfills in Orange, San Bernardino and Riverside Counties, and plans for future implementation of the waste-by-rail landfill system, Los Angeles County will be able to meet projected landfill needs.

The California Integrated Waste Management Act of 1989 (AB 939), required each city or county's source reduction and recycling element to include an implementation schedule showing that a city or county must divert 50 percent of solid waste from landfill disposal or transformation on and after January 1, 2000. SB 1016, passed in 2008, now requires the 50 percent diversion requirement to be calculated in a per capita disposal rate equivalent. Table 4.14-4 shows the City of Long Beach's per capita disposal rates since 2010.

As shown in Table 4.14-4, the City of Long Beach achieved a 1.5 lbs/person/day transformation rate from 2010 to 2013. This transformation rate has enabled Long Beach to achieve the State mandated 50 percent per capita diversion requirement each year. Recycling programs such as curbside, greenwaste, and construction recycling have helped increase the City's diversion rate (Long Beach Environmental Services Bureau, website, accessed March 9, 2015).

Table 4.14-4
City of Long Beach Per Capita Solid Waste Diversion Rates

Reporting Year	Per Capita Landfill Disposal Rate without Transformation (lbs./person/day) [1]	Transformation Rate (lbs./person/day) [2]	Calculated Disposal Rate (lbs./person/day) [1]-[2]	Disposal Rate Not to Exceed (lbs./person/day)	Target Met?
2010	5.3	1.5	3.8	7.6	Yes
2011	5.3	1.5	3.8	7.6	Yes
2012	5.2	1.5	3.7	7.6	Yes
2013	5.4	1.5	3.9	7.6	Yes

Source: CalRecycle, Jurisdiction Diversion/Disposal Rate: Long Beach,2010-2013 (http://www.calrecycle.ca.gov/LGCentral/Reports/jurisdiction/diversiondisposal.aspx).

d. Stormwater Conveyance. The Stormwater/Environmental Compliance Division is responsible for maintaining the storm drain system and monitoring stormwater quality within the City in coordination with the Los Angeles County Flood Control District (LACFCD) and the County of Los Angeles Public Works Department (Long Beach Public Works, website, March 2015). The project site drains from the northern edge of the lot toward the center into a depressed elevation area that acts as a drainage conveyance to an existing storm culvert under the railroad tracks along the southern boundary of the project site (Kimley Horn, 2014). Stormwater then drains into a concrete channel owned by the LACFCD, which outlets to the Dominguez Gap Barrier Basin and, ultimately, to the Pacific Ocean.

e. Energy. Southern California Edison (SCE) and the Long Beach Gas and Oil Department (LBGOD) provide electricity and natural gas services to the City of Long Beach.

Electricity. SCE generates electricity primarily from a combination of petroleum-based products (coal, natural gas, and oil) supplemented by hydroelectric, nuclear, and renewable resources, such as wind and solar power. Existing generation and transmission facilities provide adequate electrical service throughout the City. According to the California Energy Commission (CEC), annual total usage for SCE was 84,448 mkWH (million kilo-watt hours) in 2013. Residential and commercial building users were the largest consumers in 2013 with total usage of 26,876 mkWH and 34,210 mkWH, respectively (CEC, 2013).

New buildings constructed in California are subject to the State Building Energy Efficiency Standards as per Title 24 of the California Code of Regulations. These standards are intended to conserve non-renewable energy resources, minimize the ecological impacts of energy consumption, and ensure that energy is used efficiently.

Natural Gas. The City of Long Beach Gas and Oil Department (LBGOD) provides natural gas services to customers in the City. The LBGOD does not produce natural gas. Rather, it purchases natural gas on the open competitive market. According to the 2012 California Gas Report, the City's natural gas use is expected to remain fairly constant, increasing from 9.4 billion cubic feet (Bcf) in 2012 to 9.9 Bcf by 2030. Natural gas consumption in new buildings is regulated by State Building Energy Efficiency Standards per Title 24 of the California Code of Regulations.

f. City of Long Beach Regulatory Setting. The General Plan Public Safety Element includes the following goal relative to utilities.

Development Goal 6 *Encourage transportation systems, utilities, industries, and similar uses to locate and operate in a manner consistent with public safety goals.*

The General Plan Mobility Element also includes the following policies relative to the mobility of resources (MOR) and utilities.

MOR Policy 19-1 *Plan for and provide appropriate levels and types of infrastructure based on the desired character of each neighborhood or district.*

MOR Policy 19-2 *Ensure that development is appropriate in scale with current and planned infrastructure capabilities.*

MOR Policy 19-3 *Promote water-efficient fixtures and appliances to reduce water demand.*

MOR Policy 19-4 *Expand the use of water recycling and graywater systems to treat and recycle wastewater and further reduce water demand related to irrigation of landscaped areas.*

MOR Policy 19-5 *Implement low-impact development techniques to reduce and improve the quality of stormwater runoff.*

Water. The federal *Clean Water Act* (CWA) establishes regulatory requirements for potable water supplies, including raw and treated water quality criteria. Long Beach is required to monitor water quality and conform to the regulatory requirements of the CWA.

The federal *Safe Drinking Water Act* (SDWA) establishes standards for contaminants in drinking water supplies. Maximum contaminant levels and treatment techniques are established for each of the contaminants. The listed contaminants include metals, nitrates, asbestos, total dissolved solids, and microbes.

Safe Water Drinking Act (1976). California enacted its own *Safe Water Drinking Act*. The California Department of Health Services (DHS) has been granted primary enforcement responsibility for the SDWA. Title 22 of the California Administrative Code establishes DHS authority and stipulates drinking water quality and monitoring standards. These standards are equal to or more stringent than federal standards.

Senate Bill 610 (2001). Senate Bill 610 (Costa) was signed into law in 2001. This law requires cities and counties to develop water supply assessments when considering approval of applicable development projects in order to determine whether projected water supplies can meet the project's anticipated water demand. The proposed project does not require a water supply assessment pursuant to SB 610 because it includes fewer than 500 residential units and less than 250,000 square feet of commercial floor area.

Wastewater Treatment and Conveyance. Title 15, Public Utilities, of the City of Long Beach Municipal Code (LBMC) includes seven chapters regulating wastewater line connections and the development of new wastewater facilities. Specifically, Chapter 15.01, Sewer-Rules, Regulations, and Charges, establishes that the current edition of the rules, regulations, and charges governing water and sewer service are to be approved by the Board of Water Commissioners. Chapter 15.08, Sewers-Permits, specifies that only employees of the water department are allowed to construct or alter a public sewer, a sewage pumping plant, a private sewer in a public street, or a house connection or make a connection from a building sewer to a house connection unless a permit from the general manager has been provided. Chapter 15.20, Sewers-Use Regulations, prohibits the discharge of the following items into any public sewer in the City:

- *Earth, sand, rocks, ashes, gravel, plaster, concrete, glass, metal filings or metal objects, or other materials which will not be carried by the sewer stream or anything which may obstruct the flow of sewage in the sewer or any object which will cause clogging of a sewage pump or a sewage sludge pump;*
- *Any garbage which has not been first shredded so that each particle is not more than three eights of an inch in any dimension or any garbage containing broken glass;*
- *Any solid or semisolid material such as garbage, trimmings, cuttings, offal, or other waste produced in the processing of meats, fruits, vegetables, foodstuffs or similar materials except garbage produced which meets the requirements of Chapters 15.04 through 15.28 and the rules, regulations, and charges governing water and sewer service;*
- *Any volatile liquids or substances which can produce toxic or flammable atmospheres in the sewer;*
- *Any compounds which may produce strong odors in the sewer or sewage treatment plant;*
- *Any storm water or runoff from any roof, yard, driveway, or street;*
- *Any materials which will cause damage to any part of the sewer system or abnormal sulphide generation or abnormal maintenance or operation costs of any part of the sewer system or which may cause any part of the sewer system to become a nuisance or a menace to public health or a hazard to workers or which will cause objectionable conditions at the final point of disposal of the sewage;*
- *Any liquid having a temperature in excess of 120 degrees Fahrenheit (ºF);*
- *Unpolluted water from refrigeration systems, air conditioning systems, industrial cooling systems, swimming pools, or other unpolluted water from any origin except as authorized by the general manager; or*
- *Any radioactive waste which constitutes or may constitute a public health hazard or endanger workmen charged with the maintenance of public sewers.*

Chapter 15.20 also includes regulations regarding building sewer lines across another lot; maintenance; existing sewers; backflow prevention; backflow noncompliance; septic tank abandonment; dumping contents of septic tanks or cesspools; opening manholes; damaging sewers; disposal of uncontaminated water; cellar and shower drainage; maintenance of

facilities; and inspections. Finally, Chapters 15.24 and 15.28 include regulations for installations and inspections, respectively.

Solid Waste. The California Integrated Waste Management Act of 1989 (AB 939), required each city or county's source reduction and recycling element to include an implementation schedule showing that a city or county must divert 50 percent of solid waste from landfill disposal or transformation on and after January 1, 2000. SB 1016, passed in 2008, now requires the 50 percent diversion requirement to be calculated in a per capita disposal rate equivalent.

Chapter 8.60 of the LBMC addresses solid waste, recycling, and litter prevention in the City. Sections 8.60.025 and 8.60.020 establish standards and guidelines regarding refuse and recycling receptacles for removing and conveying waste, Section 8.60.080 addresses waste requiring special handling (e.g., material likely to become airborne), and Section 8.60.080 discusses permitting surrounding refuse transportation. Chapter 18.67 discusses regulations surrounding the City's construction and demolition recycling program. Section 18.67.020 applies to all construction projects issued a building permit after January 1, 2008, and requires that each project having a valuation greater than $75,000 to divert at least 60 percent of all project-related construction and demolition material.

In response to State-mandated waste reduction goals, and as part of the City's commitment to sustainable development, the City of Long Beach adopted an ordinance that requires certain demolition and/or construction projects to divert at least 60 percent of waste either through recycling, salvage, or deconstruction. The Construction & Demolition Debris Recycling (C&D) Program, which took effect on November 5, 2007, aims to encourage permit applicants to recycle all C&D materials through a refundable performance deposit. The C&D program also encourages the use of green building techniques in new construction and promotes reuse or salvaging of recyclable materials in demolition, deconstruction, and construction projects.

In accordance with the C&D program, a Waste Management Plan (WMP) must be completed and approved prior to permits being issued. The WMP details how the project will meet the requirement to divert 60 percent of C&D waste either through recycling, salvage, or deconstruction. At the conclusion of the project, a final report detailing the amount of reuse, recycling, and disposal actually generated from the project must be submitted and approved prior to the Applicant receiving refund of the performance deposit. Projects that do not meet the 60 percent requirement may receive a partial refund in proportion to actual diversion (City of Long Beach, website, March 2015).

Electricity. Title 24 of the California Code of Regulations, which is known as the energy efficiency standards, regulates energy consumption in new construction. The standards regulate energy consumed in buildings for heating, cooling, ventilation, water heating, and lighting. Title 24 is implemented through the local plan check and permit process.

Natural Gas. As a public utility, LBGOD is under the jurisdiction of the California Public Utilities Commission. LBGOD provides service in accordance with their policies and extensions rules on file with the Commission.

Stormwater Conveyance. Under the Los Angeles Regional Water Quality Control Board (RWQCB) National Pollution Discharge Elimination System (NPDES), the City is subject to the storm water discharge requirements set forth in its NPDES Permit No. CAS004003 for municipal separate storm sewer system (MS4) discharges originating within its jurisdictional boundaries. NPDES permits are required for operators of construction projects and industrial facilities. NPDES permits are further discussed in Section 4.8, *Hydrology and Water Quality*.

4.14.2 Impact Analysis

a. Methodology and Significance Thresholds. To analyze impacts to utilities, the proposed project was compared to the available capacity of facilities that serve the project site.

Water. The proposed project would have a significant effect on water supplies if demand associated with projected growth would:

- *Require or result in the construction of new water facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.*
- *Fail to have sufficient water supplies available to serve the project from existing entitlements and resources, or require new or expanded entitlements.*

Impacts to water supply were determined based upon information from the LBWD. Water supply impacts are considered potentially significant if the proposed project would not have sufficient water supplies available from existing entitlements and resources.

Wastewater. Impacts related to the proposed project would be significant if the proposed project would:

- *Exceed the wastewater treatment requirements of the applicable Regional Water Quality Control Board.*
- *Require or result in the construction of new wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.*
- *Result in a determination that the wastewater treatment provider does not have adequate capacity to serve projected demand in addition to existing commitments.*

The increase in wastewater generation expected to occur with implementation of the proposed project was estimated using wastewater generation factors from the LACSD. Impacts to wastewater infrastructure are considered significant if the proposed project would result in sewer line or treatment plant system deficiencies requiring new or expanded facilities.

Solid Waste. The proposed project would have significant impacts on solid waste collection and disposal if it would:

- *Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs.*
- *Fail to comply with federal, state, and local statutes and regulations related to solid waste.*

Solid waste generation was estimated using factors from the California Integrated Waste Management Board (2004). Solid waste collection service and disposal capacity already exist in the project area; therefore, for the purpose of this EIR, the project would cause a significant impact if it fails to implement measures to reduce the amount of solid waste entering landfills in accordance with State standards and/or if solid waste generated by the proposed project exceeds the capacity of the disposal facility and other solid waste facilities where such waste would be disposed.

Stormwater Conveyance. The proposed project would have significant impacts on stormwater conveyance facilities if it would:

- *Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.*

The Initial Study (Appendix A) determined that all of the above criteria should be discussed in this EIR. Water quality and hydrological impacts are discussed in Section 4.8, *Hydrology*. Impacts related to water, wastewater, solid waste, and stormwater are discussed below.

Energy. Electricity and natural gas demand was estimated using factors from the South Coast Air Quality Management District (SCAQMD) CEQA Air Quality Handbook (1993). The proposed project would cause a significant impact on energy resources if energy consumption would exceed the projected supply capacity of either the electric or natural gas systems of the City, or if the applicant does not take steps to reduce energy consumption through the use of efficient electrical and mechanical systems.

b. Project Impacts and Mitigation Measures.

Impact U-1 The proposed project would generate demand for approximately 39 acre-feet of water per year. Based on the 2010 Urban Water Management Plan, the City has adequate water supplies to meet projected demand through the year 2035. Therefore, impacts to water supply would be Class III, *less than significant*.

Water for the proposed development would be provided by the LBWD. Based on water demand factors derived from the 2010 UWMP, the proposed project would generate net demand for approximately 39 AFY of water, or about 34,794 gallons of water per day (see Table 4.14-5). This increase in demand would constitute about 0.06 percent of the existing water demand level for the City, which in 2010 was reported at approximately 63,448 AFY (Long Beach Board of Water Commissioners, June 2011).

As discussed in Section 4.14.1, LBWD does not have a surplus for any years through 2035 because water is purchased from MWD on an as needed basis to meet projected demands. As such, a comparison of project demand to available surplus is not feasible for the proposed project. As shown in Table 4.14-2, MWD has a surplus of 1.7 million AFY in 2035 during normal years, a surplus of 371,000 AFY in 2035 during single dry year conditions and a surplus of 16,000 AFY in 2035 under multiple dry year conditions.

Table 4.14-5
Estimated Project Water Demand

Land Use	Size	Generation Rate (AFY)	Total (AFY)
Single Family Residential	131 dwelling units	0.30 per unit[1]	39.3
Total for Proposed Project (AFY)			**39.3**
Existing Annual Water Use On-Site[2]			**(0.30)**
Net Increase in Water Demand (AFY)			**39.0**
Total Net Increase in Water Demand (gallons/day)			**34,794**

Notes: 1 AFY = 892.15 gallons per day (GPD)

1. Based on average use in 2010 by single family accounts reported in LBWD 2010 Urban Water Management Plan (18,172 AF/59,768= 0.30 AFY per unit).

2. 1 single family residence existing on site.

The project demand of 39 AFY represents 0.002 percent of MWD surplus in 2035 during normal years, 0.01 percent of surplus in 2035 during single dry year conditions and 0.2 percent of surplus in 2035 during multiple dry year conditions. As such, should LBWD determine that it is necessary to purchase additional supply from MWD, adequate supply would be available to meet estimated demand of the proposed project during normal, single, and multiple dry year conditions up to the year 2035. As described under Section 4.14.1, *Setting,* the recent drought has led to restrictions on water use in southern California, increased incentives for water conservation, and the potential for water rationing during summer months. If MWD implements water rationing in the summer months, the proposed project would be required to comply with any additional restrictions on water use that the City implements, which may include additional restrictions on landscape irrigation and promotion of non-potable water use, such as grey water, as described in SWRCB's Resolution 2014-0038. Therefore, impacts to water supply would be less than significant.

Mitigation Measures. Impacts would be less than significant; therefore no mitigation is necessary.

Significance After Mitigation. Impacts would be less than significant without mitigation.

Impact U-2 The proposed project would generate a net increase of approximately 33,800 gallons of wastewater per day. Projected future wastewater generation would remain within the capacity of local wastewater facilities. However, the sewer mains adjacent to the project site may be over-capacity and not able to receive wastewater flows from the proposed increased density on the project site. This impact would be Class II, *significant but mitigable.*

The proposed project would result in a net increase of 130 single family residences. This takes into account the one existing single family residence on the project site that would be demolished. Table 4.14-6 shows the estimated wastewater generated by the proposed project.

Table 4.14-6
Estimated Project Wastewater Generation

Land Use	Size	Generation Rate (gallons/day)	Total (gallons/day)
Single Family Residential	131 dwelling units	260 per unit	34,060
Total for Proposed Project (gallons/day)			**34,060**
Existing Annual Wastewater Generation On-Site[1]			**(260)**
Net Increase in Wastewater Generation (gallons/day)			**33,800**

Source: LACSD Average Wastewater Generation Factors. Table 1, Loadings for Each Class of Land Use. Accessed at http://www.lacsd.org/civica/filebank/blobdload.asp?BlobID=3531

Notes: 1 AFY = 892.15 gallons per day (GPD)

[1] 1 single family residence exists on site.

The net increase in wastewater generated by the proposed project would be 33,800 gallons/day or approximately 0.034 mgd. According to LACSD, wastewater from the project site would be treated at the JWPCP located in Carson, which has a design capacity of 400 mgd and currently treats on average a wastewater flow of 264 mgd. The proposed project's wastewater would represent 0.03 percent of the anticipated available daily capacity of the JWPCP. Therefore, the estimated wastewater flow from the proposed project would be accommodated within the existing design capacity of the JWPCP.

Existing wastewater infrastructure adjacent to the project site includes two 8-inch sewer mains in the alley between Oregon Avenue and Daisy Avenue and the alley between Daisy Avenue and Pacific Avenue (F. Eggleston, pers. communication, December 17, 2014). A 6-inch sewer line from the existing house on the project site connects to one of these 8-inch main lines. No recent sewer studies have been done in the area of the project site and LBWD reported that a sewer study would be required to determine whether the existing sewer is operating over capacity or could accommodate the wastewater generated by the proposed project. According to the Long Beach Water Department, because the two sewer main lines were installed around 1935, it is unlikely that the existing wastewater infrastructure would be able to accommodate the additional wastewater generated by the proposed project (F. Eggleston, pers. communication, December 17, 2014). Should wastewater infrastructure upgrades be necessary to accommodate the proposed project, such upgrades would occur as upgrades to existing infrastructure and would not result in new areas of disturbance. Mitigation is required to ensure that the wastewater infrastructure serving the site has the capacity to serve the proposed project.

Mitigation Measures. The following measure would reduce impacts to wastewater infrastructure to less than significant levels.

U-2 **Wastewater Infrastructure.** Prior to issuance of grading or building permits, the applicant shall submit a sewer study performed by an experienced civil engineer, including a hydraulic analysis, for review and approval by the LBWD. If the study determines that the existing sewer mains are over capacity and would be unable to accommodate the additional wastewater generated by the proposed project, then the project applicant shall

pay to upgrade the existing sewer mains to sufficient design and capacity to accommodate the proposed project, prior to the issuance of building or grading permits. Replacement sewer lines shall be installed in the same locations as existing sewer lines in order to ensure that only temporary disturbance of existing rights-of-way would occur and that installation of these replacement sewer lines would not result in new areas of disturbance. The sewer upgrades must be designed and implemented consistent with the information and conclusions in the approved sewer study.

Significance After Mitigation. Impacts related to wastewater flows would be less than significant with implementation of Mitigation Measure U-2. As replacement or improvement of sewer lines would be in the same locations as existing sewer lines, these activities would only involve temporary disturbance of existing rights-of-way, and would not result in new areas of disturbance.

Impact U-3 The proposed project would generate approximately 0.71 tons of solid waste per day that would need to be disposed of at a landfill. However, projected future solid waste generation would remain within the capacity of local landfills. Impacts would therefore be Class III, *less than significant*.

In 2013, the City reported an annual per capita per resident landfill disposal rate of 3.9 pounds per day (ppd). Waste diversion for the proposed project is anticipated to be consistent with other residential land uses within the City. According to the California Department of Finance (2014), the City's current population is 470,292 and the average household density in Long Beach is 2.82 persons per household. The proposed project would add 131 new single family residences on a former Boy Scout Camp. Based on this average, the project would add an estimated 369 residents.

The proposed project would result in increased generation of solid waste and increased demand for solid waste services. Total solid waste generated by the proposed project is estimated at about 0.71 tons per day, as shown in Table 4.14-7.

As noted in the *Setting*, the Solid Waste Facility Permit from the County of Los Angeles Solid Waste Management Program for the Puente Hills MRF is permitted to accept a maximum of 4,400 tons per day of solid waste (CalRecycle, 2014a). During the month of July 2014, the Puente Hills MRF accepted an average of 2,794 tons per day (CalRecycle, 2014a). The approximately 0.71 tons per day of solid waste generated by the proposed project would require approximately 0.04 percent of the currently available daily capacity at the Puente Hills MRF. Additionally, as described in *Setting* above, the proposed project would be required to comply with LBMC Section 18.67.020 and the City's C&D Program, which requires that each project having a valuation greater than $75,000 divert at least 60 percent of all project-related construction and demolition material. In accordance with the C&D program, the proposed project must complete a WMP and have it approved by the City prior to permits being issued. The WMP details how the proposed project will meet the requirement to divert 60 percent of C&D waste either through recycling, salvage, or deconstruction. At the conclusion of the

proposed project's demolition and construction, a final report detailing the amount of reuse, recycling, and disposal actually generated from the proposed project must be submitted and approved prior to the applicant receiving refund of its performance deposit (City of Long Beach, website, March 2015). Therefore, the Puente Hills MRF has adequate capacity to serve the proposed project and impacts related to solid waste would be less than significant.

Table 4.14-7
Estimated Solid Waste Generation

Land Use	Estimated Population	Solid Waste Generation Rate (ppd)	Total (ppd)
Single Family Residential	369 residents	3.9 per resident[1]	1,439.1
Total for Proposed Project (ppd)			**1,439.1**
Existing Annual Solid Waste Generated On-Site[1]			**(11.0)**
Net Increase in Solid Waste (ppd)			**1,428.1**
Total Net Increase in Solid Waste (tons/day)			**0.71**

Source: Cal Recycle. Long Beach Disposal Rate Summary (2013).

Notes: 1 ton/year = 5.48 ppd

1. Solid waste generation for 1 single family residence existing on site = 2.82 residents x 3.9 ppd/person = 10.998 ppd

Mitigation Measures. No mitigation is required.

Significance After Mitigation. Impacts would be less than significant without mitigation.

Impact U-4 The proposed project would not result in increased peak period off-site conveyance of stormwater. Impacts to stormwater conveyance facilities would be Class III, *less than significant*.

A preliminary hydrology study was prepared by Kimley Horn for the project site (refer to Appendix G). In the existing condition, runoff drains from the northern edge of the project site toward the center into a depressed elevation area that acts as a drainage conveyance to an existing storm culvert under the railroad tracts along the southern boundary of the project site. Stormwater then drains into a concrete channel owned by the LACFCD, which outlets to the Dominguez Gap Barrier Basin and, ultimately, to the Pacific Ocean.

The proposed project would include an on-site storm drainage system that would be designed to capture the storm water runoff from the hardscape areas, landscape areas, and building roof drains via multiple storm drain systems, and direct the "first flush" to a proposed infiltration Best Management Practice (BMP). The proposed infiltration BMP would include four standard catch basin systems located underground at the intersections of 20th and 26th Streets that would collect all storm water runoff through an underground network of pipes. The catch basin systems would be designed to receive the peak 50-year Capital Storm event and transport these flows to a local retention/detention basin, which would be designed to retain the 85th percentile 24-hour runoff event and release flows at no more than the pre-developed storm flow rate, as shown in Table 4.14-8 below.

Table 4.14-8
Comparison of 50 year Capital Storm Event Flows Pre-Project and Post-Project

Pre-Project Flow (cubic feet per second [cfs])	80% of Pre-Project Flow (cfs)	Post-Project Flow (cfs)
6.25	5.325	5.325

Source: Kimley Horn, Preliminary Hydrology Study, May 28, 2014.

The capacity of the downstream storm drain network is dependent on peak discharge rates entering the system. The proposed project would increase impervious surface area on the project site, which would increase runoff volumes. However, the underground detention system would accommodate flows from a 50-year Capital Storm event and the first-flush and reduce the off-site discharge so it would not exceed existing conditions. Because the proposed project would not increase flow to the downstream storm water drainage system, operation of the proposed project would not contribute runoff water that would exceed the capacity of an existing or planned storm water drainage system. Peak discharge from the site would not increase and the project would not adversely affect the capacity of downstream networks. Therefore, construction or expansion of downstream storm water drainage facilities would not be required and impacts to storm water drainage facilities would less than significant.

Mitigation Measures. No mitigation is required.

Significance After Mitigation. Impacts would be less than significant without mitigation.

Impact U-5 The proposed project would incrementally increase electricity and natural gas consumption within the City. However, because energy resources are available to serve the project, impacts to energy would be Class III, *less than significant*.

Energy consumption associated with the proposed project was estimated using electricity usage rates from the California Air Pollution Control Officers Association's [CAPCOA] (January 2008) CEQA and Climate Change white paper, as shown in Table 4.14-9. The project would generate a demand for about 910,000 kilowatt hours (kWh) of electricity per year. The potential increase in energy demand represents about 0.001 percent of the total electricity demand (approximately 84,448 million kWh in 2013) for the SCE service area (CEC, 2013). The incremental increase in demand for electricity would therefore not significantly impact existing electricity sources and service systems.

The proposed land uses and development would also generate demand for natural gas. The project's likely natural gas consumption was calculated using estimated natural gas usage rates from the SCAQMD CEQA Air Quality Handbook (1993) as shown in Table 4.14-10. The estimated net demand for natural gas consumption for the proposed project is about 6.3 million cubic feet per year as indicated on Table 4.14-10.

Table 4.14-9
Estimated Electricity Consumption

Land Use	Size	Electricity Demand Factor	Total (kWH/year)
Single Family Residential	131 dwelling units	7,000 kWH/unit/year[1]	917,000
Total for Proposed Project (kWH/year)			**917,000**
Existing Electricty Consumption On-Site (kWH/year)[2]			**(7,000)**
Net Increase in Electricity Consumption (kWH/year)			**910,000**

kWH = kilowatt hour

1. Demand factor from CAPCOA, January 2008. CEQA and Climate Change.

2. 1 single family residence existing on site

Table 4.14-10
Estimated Natural Gas Consumption

Land Use	Size	Generation Rate (cf/unit/month)	Total (cubic feet/month)
Single Family Residential	131 units	4,011.5[1]	525,506.5
Total for Proposed Project (cubic feet/year)			**6,306,078**
Existing Natural Gas Consumption On-Site[2] (cubic feet/year)			**(4,011.5)**
Net Increase in Natural Gas Consumption (cubic feet/year)			**6,302,066.5**
Net Increase in Natural Gas Consumption (million cubic feet/year)			**6.3**

1. Demand Factors from Southern California Air Quality Management District, CEQA Air Quality Handbook, Table A9-12-A 1993

2. 1 single family residence existing on site

Natural gas is provided by the Long Beach Gas and Oil Department (LBGOD). According to the 2012 California Gas Report, the City's natural gas use is expected to remain fairly constant, increasing from 9.4 billion cubic feet (Bcf) in 2012 to 9.9 Bcf by 2030. Therefore, the increase in annual natural gas demand associated with the proposed project would be approximately 0.06 percent of the estimated available withdrawal capacity of the LBGOD in 2030. Consequently, the supply and distribution of natural gas within the area surrounding the project site would not be reduced or inhibited as a result of the proposed project and levels of service to off-site users would not be adversely affected. Therefore, impacts related to the provision of natural gas services to the proposed project would be less than significant and the proposed project would not require new or physically altered transmission facilities (other than those facilities needed for on-site distribution and hook-up into the existing system). Similarly, no significant impacts to local or regional supplies of natural gas would occur as a result of the proposed project. The incremental increase in natural gas demand could be accommodated by LBGOD's existing sources and infrastructure, therefore this would be a less than significant impact.

All new development is required to comply with State law regarding energy conservation measures, including pertinent provision of Title 24 of the California Government Code. Title 24 covers the use of energy-efficient building standards, including ventilation, insulation, construction, and the use of energy-saving appliances, conditioning systems, water heating, and lighting. Although the increased energy consumption associated with development and operation of the project could be accommodated by existing sources, adherence with Title 24 guidelines would further reduce the increased demand. Impacts to energy resources would be less than significant.

Mitigation Measures. No mitigation is necessary. Impacts related to energy consumption would be less than significant.

Significance After Mitigation. Impacts would be less than significant without mitigation.

c. Cumulative Impacts. As discussed in Section 3.0, *Environmental Setting*, cumulative development in Long Beach would add both dwelling units and non-residential development to the City. Planned and pending development within the vicinity of the project site would add approximately 3.3 acres of City parkland and 130 single family homes (see Table 3-1 in Section 3.0, *Environmental Setting*). Cumulative impacts from this development are discussed below by impact area.

Water. The LBWD has a preferential right to the imported drinking water it expects to purchase wholesale from the MWD except during times of extreme emergency (Metropolitan Water District Act, Section 135). LBWD has an Allowable Pumping Allocation to extract groundwater from the Central Basin Aquifer. LBWD anticipates development projects' demand for water through projected increases in factors influencing demand projections, such as increases in housing, population, and employment. The current adopted UWMP projected water demands based on a number of factors, including a 0.38 percent annual increase in population, a 0.36 percent annual increase in single family housing, a 0.78 percent annual increase in multi-family housing, a 0.4 percent annual increase in employment through 2035. Based on UWMP forecasts, water demand associated with cumulative growth can be met with existing and planned water supplies. As described under Section 4.14.1, *Setting,* the recent drought has led to restrictions on water use in southern California, increased incentives for water conservation, and the potential for water rationing by MWD during summer months. If MWD implements water rationing in the summer months, cumulative development within the City would be required to comply with any additional restrictions on water use that the City implements, which may include additional restrictions on landscape irrigation and promotion of non-potable water use, such as grey water, as described in SWRCB's Resolution 2014-0038. In addition, water rationing would be temporary in nature, as it would be restricted to the summer months and to times of extreme emergency. Thus, cumulative impacts would be less than significant.

Wastewater Treatment and Conveyance. Planned and pending development within the vicinity of the project site would add 3.3 acres of City parkland and 13 single family homes to the area. The 3.3 acres of City parkland would generate approximately 14,375 gpd of wastewater per day and the 131 single family homes would generate approximately 3,380 gpd (LACSD, website, accessed March 9, 2015). The proposed project plus planned and pending

development in the vicinity would result in a cumulative increase of 51,555 gallons per day of wastewater. Cumulative development in the project vicinity would represent 0.04% of the anticipated available daily capacity of the JWPCP. In addition, in 2005, the City began repairing and replacing most of the sewer conveyance system to provide for the current and future sewage conveyance demands. Thus, the sewage flow from cumulative development will result in minimal impacts on the City's sewer conveyance system. As noted above, replacement of existing deficient sewer lines may be required in conjunction with the proposed project depending on the determinations of a sewer study, thus mitigating potential project impacts. Placement of similar conditions on other planned and pending developments as necessary would mitigate any cumulative impacts to the wastewater conveyance system.

Solid Waste. Planned and pending development within the vicinity of the project site would add 3.3 acres of City parkland and 13 single family homes to the area. As the solid waste disposal rate is per capita, planned and pending development would result in 0.07 tons per day of solid waste.[2] Therefore, the proposed project plus planned and pending development would result in an increase of approximately 0.78 tons per day of solid waste, which equals 0.05% of Puente Hills MRF's remaining daily capacity. In addition, the City has implemented a comprehensive waste reduction and recycling plan, in compliance with state law AB 939 waste diversion requirements. The Districts' SERRF is currently operating within capacity and is not expected to exceed permitted levels in the future (Long Beach Gas and Oil Department, website, accessed March 9, 2015). No additional improvements to the solid waste management system are needed to accommodate planned and pending development in the vicinity of the project site.

Stormwater Conveyance. Planned and pending development within the vicinity of the project site would add 3.3 acres of City parkland and 13 single family homes to the area. The City of Long Beach MS4 requires development to include BMPs so that post-development stormwater flows do not exceed pre-development levels. In addition, the City of Long Beach is urbanized and is well served by existing stormwater infrastructure. Cumulative development would utilize existing stormwater infrastructure or incorporate on site detention and treatment, similar to what is proposed under the project. Should stormwater infrastructure upgrades eventually be necessary as development occurs within the City, such upgrades would occur as upgrades to existing infrastructure and would not result in new areas of disturbance.

Electricity and Natural Gas. Planned and pending development within the vicinity of the project site would add 3.3 acres of City parkland and 13 single family homes to the area. Energy use in new buildings is regulated by Federal, State and local regulations, including the State Building Efficiency Standards (Title 24), which require energy efficiency levels to at least state standards. Compliance with these standards ensures that increased energy demands associated with cumulative development are minimized. In addition, energy supplies are regionally available and can accommodate cumulative development near the project site. Significant cumulative impacts to electricity and natural gas service are not anticipated.

[2] *13 single family homes multiplied by 2.82 persons per household equals approximately 37 people. 37 people multiplied by 3.9 ppd solid waste generation rate equals 144.3 ppd, which equals 0.07 tons per day.*

5.0 OTHER CEQA-REQUIRED DISCUSSIONS

This section discusses growth-inducing impacts, irreversible environmental impacts, and energy impacts that would be caused by the project.

5.1 GROWTH INDUCEMENT

Section 15126(d) of the *CEQA Guidelines* requires a discussion of a proposed project's potential to foster economic or population growth, including ways in which a project could remove an obstacle to growth. Growth does not necessarily create significant physical changes to the environment. However, depending upon the type, magnitude, and location of growth, it can result in significant adverse environmental effects. The proposed project's growth inducing potential is therefore considered significant if it could result in significant physical effects in one or more environmental issue areas.

5.1.1 Population Growth

The proposed project would add 131 new single family residences to Long Beach. The current population of Long Beach is 470,292 and the City has approximately 2.82 persons per household (California Department of Finance, May 2014). Development of the proposed project would therefore add an estimated 369 residents (131 dwelling units x 2.82 people/dwelling unit), thus increasing the City's population to 470,661. The Southern California Association of Government's (SCAG) population growth forecast for Long Beach is 491,000 in 2020 and 534,100 in 2035 (SCAG RTP-SCS, 2012). According to the City's General Plan Housing Element, realization of future housing development potential (7,270 new dwelling units by 2021) would result in an increase in the City's population of 20,501 persons, for a total population of 490,793 in 2021. Consequently, the population increase generated by the proposed project would not exceed SCAG or City of Long Beach citywide population forecasts.

As discussed in Section 3.0, *Environmental Setting*, planned and pending development within the City would add approximately 807 new residential units to the City. Based on the estimate of 2.82 persons per household, cumulative development within the City (including the proposed project) would add 2,645 people (807 units x 2.82 people/unit + 369 residents for proposed project) bringing the total population to 472,937 (470,292 + 2,645). This would not exceed SCAG's 2020 population projection for Long Beach of 491,000 or the Long Beach General Plan Housing Element's population projection of 490,793 by 2021.

5.1.2 Economic Growth

The project would generate temporary employment opportunities during construction, which would be expected to draw workers from the existing regional work force. Therefore, construction of the project would not be considered growth inducing from a temporary employment standpoint.

The proposed project does not involve any commercial uses that would generate permanent employment opportunities. The proposed project may generate jobs associated with maintenance of the project site or operation of the recreational amenities for the proposed

project (i.e., the pocket park and recreation center). This would be an incremental increase in employment opportunities (expected to be less than five jobs) and would be expected to draw workers from the existing regional work force. Therefore, the proposed project would not be growth-inducing with respect to jobs and the economy.

With the proposed project, there would be an increase in population of approximately 369 people and an increase of less than five jobs. This may indirectly contribute to economic growth. The additional population would likely contribute to the local economy as demand for general goods increases, which in turn could result in economic growth for various sectors. Nevertheless, the proposed project would not be expected to induce economic expansion to the extent that significant environmental impacts directly associated with the project's contribution would occur.

According to SCAG data, in 2008 (the most recent year for which SCAG data is available) Long Beach had a jobs-housing ratio of 1.03:1 (SCAG, October 2012). This indicates that there are 1.03 jobs for every housing unit. A jobs-housing ratio over 1.5:1 is considered high and may indicate an increasing imbalance between jobs and housing (i.e., new residential construction has not kept up with job creation), while a ratio below 1:1 is considered low. The new population growth and employment opportunities that would be added by the project are well within SCAG's projections for the City. The project-related increase of 131 housing units would incrementally lower the existing job-housing ratio in the City of Long Beach, but because of the large number of jobs and housing already existing in the City would not significantly change this ratio. Impacts related to the jobs-housing ratio would not be significant.

5.1.3 Removal of Obstacles to Growth

The project site is located in a fully urbanized area that is well served by existing infrastructure. As discussed in Section 4.14, *Utilities and Service Systems,* and 4.8, *Hydrology and Water Quality*, with mitigation to expand wastewater infrastructure capacity if necessary (Mitigation Measure U-2), existing utilities would be adequate to serve the proposed project. Additional minor improvements to water and drainage connection infrastructure could be needed, but would be sized to specifically serve the proposed project. The proposed project does not provide for any substantially capacity-increasing transportation or circulation improvements. The proposed project would involve new roadways, but these would provide on-site circulation only. Because the project constitutes redevelopment within an urbanized area and does not require the extension of new infrastructure through undeveloped areas, project implementation would not remove an obstacle to growth.

5.2 IRREVERSIBLE ENVIRONMENTAL EFFECTS

The *CEQA Guidelines* require that EIRs evaluating projects involving amendments to public plans, ordinances, or policies contain a discussion of significant irreversible environmental changes. CEQA also requires decision makers to balance the benefits of a proposed project against its unavoidable environmental risks in determining whether to approve a project. This section addresses non-renewable resources, the commitment of future generations to the proposed uses, and irreversible impacts associated with the proposed project.

Conversion of the project site from recreational/open space uses to residential uses would likely result in a long-term commitment of the site to such uses. Construction and use of the residences associated with the proposed project would irreversibly commit construction materials and non-renewable energy resources. The project would involve the use of building materials and energy, some of which are non-renewable resources. Consumption of these resources would occur with any development in the region and are not unique to the project. The increased intensity of residential development would also irreversibly increase local demand for non-renewable energy resources such as petroleum products and natural gas. However, increasingly efficient building fixtures and automobile engines are expected to offset this demand to some degree.

The project would require a commitment of law enforcement, fire protection, water supply, wastewater treatment, and solid waste disposal services. However, as discussed in Section 4.12, *Public Services and Recreation,* and 4.14, *Utilities and Service Systems*, impacts to these service systems would be less than significant or less than significant with mitigation incorporated.

Primary impacts related to consumption of non-renewable and slowly renewable resources would be less than significant because the proposed project would not use unusual amounts of energy or construction materials, as development would be primarily comprised of common single-family residential uses. Consumption of these resources would occur with any development in the region and are not unique to the proposed project. Additional vehicle trips associated with the proposed project would incrementally increase local traffic and regional air pollutant and greenhouse gas emissions As discussed in Section 4.13, *Transportation and Traffic*, Section 4.2, *Air Quality*, and Section 4.6, *Greenhouse Gas Emissions/Climate Change*, impacts resulting from traffic generated by future development would be less than significant or would be less than significant with mitigation incorporated.

5.3 ENERGY EFFECTS

The *CEQA Guidelines* Appendix F requires that EIRs include a discussion of the potential energy consumption and/or conservation impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful or unnecessary consumption of energy.

As discussed previously, the proposed project would involve the use of energy during the construction and operational phases of the project. Energy use during the construction phase would be in the form of fuel consumption (e.g., gasoline and diesel fuel) to operate heavy equipment, light-duty vehicles, machinery, and generators for lighting. In addition, temporary grid power may also be provided to any temporary construction trailers or electric construction equipment. Long-term operation of the proposed project would require permanent grid connections for electricity and natural gas service to power internal and exterior building lighting, and heating and cooling systems. In addition, the increase in vehicle trips associated with the project would increase fuel consumption within the City.

Electricity service for the proposed project would be provided by Southern California Edison (SCE). SCE's power mix consists of approximately 20 percent renewable energy sources (wind, geothermal, solar, small hydro, and biomass) (SCE website, 2015). Gas service would be provided by the Long Beach Gas & Oil Department (LBGOD).

California used 296,628 gigawatt-hours (GWh) of electricity in 2013 (CEC, California Energy Almanac, 2014) and 2,313 billion cubic feet of natural gas in 2012 (CEC, California Energy Almanac, 2012). Californians presently consume over 18 billion gallons of motor vehicle fuels per year (CEC, 2014 Integrated Energy Policy Report).

The proposed project's estimated energy usage, calculated using CalEEMod and shown in the CalEEMod output files in Appendix C, is summarized and compared to state-wide usage in Table 5-1. Estimated motor vehicle fuel use is further detailed in Table 5-2. As shown in Table 5-1, the proposed project would make a minimal contribution to state-wide energy consumption in these categories.

Table 5-1
Estimated Project-Related Energy Usage
Compared to State-Wide Energy Usage

Form of Energy	Units	Annual Project-Related Energy Use	Annual State-Wide Energy Use	Project % of State-Wide Energy Use
Electricity	megawatts per hour	955.6[1]	296,628,000[2]	0.0003%
Natural Gas	billion BTU	3.9[1]	2,313,000[3]	0.0002%
Motor Vehicle Fuels	gallons	182,307[4]	18,019,000,000[5]	0.001%

[1] *CalEEMod output provided in the Air Quality Analysis (see Appendix C for calculation results); Table 5-2*

[2] *California Energy Commission, California Energy Almanac,2013 Total Electricity System Power, data as of September 2014. Available: http://energyalmanac.ca.gov/electricity/total_system_power.html*

[3] *California Energy Commission, California Energy Almanac, Overview of Natural Gas in California – Natural Gas Supply. Available: http://energyalmanac.ca.gov/naturalgas/overview.html*

[4] *See Table 5-2*

[5] *California Energy Commission, 2014 Integrated Energy Policy Report, Available: http://www.energy.ca.gov/2014publications/CEC-100-2014-001/CEC-100-2014-001-CMF.pdf.*

Table 5-2
Estimated Project-Related Annual Motor Vehicle Fuel Consumption

Vehicle Type	Percent of Vehicle Trips[1]	Annual Vehicle Miles Traveled[2]	Average Fuel Economy (miles/gallon)[3]	Total Annual Fuel Consumption (gallons)
Passenger Cars	53.18%	2,267,439	27.5	82,452
Light/Medium Trucks	42.35%	1,805,680	23.5	76,837
Heavy Trucks/Other	4.10%	174,812	7.7	22,702
Motorcycles	0.37%	15,776	50	316
Total	**100%**	**4,263,707**	**--**	**182,307**

[1] *Percent of vehicle trips found in Table 4.3 "Trip Type Information" in CalEEMod output (see Appendix C)*

[2] *Mitigated annual VMT found in Table 4.2 "Trip Summary Information" in CalEEMod output (see Appendix C)*

[3] *Average fuel economy provided by the United States Department of Transportation, Bureau of Transportation Statistics (2010).*

The proposed project would also be subject to the energy conservation requirements of the California Energy Code (Title 24, Part 6, of the California Code of Regulations, *California's Energy Efficiency Standards for Residential and Nonresidential Buildings*) and the California Green Building Standards Code (Title 24, Part 11 of the California Code of Regulations). The California Energy Code provides energy conservation standards for all new and renovated commercial and residential buildings constructed in California. The Code applies to the building envelope, space-conditioning systems, and water-heating and lighting systems of buildings and appliances. The Code provides guidance on construction techniques to maximize energy conservation. Minimum efficiency standards are given for a variety of building elements, including appliances; water and space heating and cooling equipment; and insulation for doors, pipes, walls and ceilings. The Code emphasizes saving energy at peak periods and seasons, and improving the quality of installation of energy efficiency measures. The California Green Building Standards Code sets targets for: energy efficiency; water consumption; dual plumbing systems for potable and recyclable water; diversion of construction waste from landfills, and use of environmentally sensitive materials in construction and design, including ecofriendly flooring, carpeting, paint, coatings, thermal insulation, and acoustical wall and ceiling panels. Adherence to Title 24 energy conservation requirements would ensure that energy is not used in an inefficient, wasteful, or unnecessary manner.

This page intentionally left blank.

6.0 ALTERNATIVES

As required by Section 15126.6 of the *CEQA Guidelines*, this EIR examines a range of reasonable alternatives to the proposed project that would attain most of its basic objectives (stated in Section 2.5 of this EIR) but would avoid or substantially lessen any of its significant effects.

Included in this analysis are four alternatives, including the CEQA-required "no project" alternative, that involve changes to the project to help reduce its environmental impacts as identified in this EIR. This section also identifies the Environmentally Superior Alternative.

The following alternatives are evaluated in this EIR:

- *Alternative 1: No Project (no new residential development project on the site)*
- *Alternative 2: Reduced Density*
- *Alternative 3: Alternate Site*
- *Alternative 4: Revised Access*

The potential environmental impacts of each alternative are analyzed in Sections 6.1 through 6.4. Because the alternatives analysis is intended to focus on alternatives that would substantially lessen the significant effects of the project, and because this EIR focuses only on impact areas with the potential for such effects, the potential impacts of each alternative are not analyzed in the areas of Agriculture and Forest Resources and Mineral Resources, which are the only areas that were identified in the Initial Study (Appendix A) as not having potentially significant effects requiring analysis in this EIR.

Table 6-1 provides a summary comparison of the development characteristics of the proposed project and each of the alternatives considered. A more detailed description of the alternatives is included in the impact analysis for each alternative.

Table 6-1
Comparison of Project Alternatives' Buildout Characteristics

Alternatives					
Characteristic	**Proposed Project**	**No Project Alternative**	**Reduced Density Alternative**	**Alternate Site Alternative**	**Revised Access Alternative**
Number of Residential Units	131	0	65	41	131
Site Size	10.56	10.56	10.56	3.3	10.56
Density (du/ga[1]) on Proposed or Alternate Site	12.4	0	6.2	12.4	12.4
Access to Project Site	Residents only	Property owner only	Residents only	Residents only	Streets publicly accessible
Access to Oregon Park Site	Publicly accessible	Publicly inaccessible	Publicly accessible	Residents only	Publicly accessible

[1] *du/ga = dwelling units per gross acre*

6.1 NO PROJECT

As described below and throughout this EIR, this alternative would avoid or reduce the project's significant but mitigable impacts in the environmental impact areas of air quality, biological resources, cultural resources, geology and soils, land use and planning, noise and vibration, and utilities and service systems. This alternative assumes that the proposed improvements are not implemented and that the site remains in its present condition; occupied by a vacant former Boy Scout Camp and associated improvements. This alternative would not meet the objectives of the proposed project (listed in Section 2.5 in the *Project Description* section of this EIR) because it would not: replace the currently vacant and underutilized site with a residential neighborhood with recreational amenities; provide housing; provide bike and trail linkages between the project site and existing facilities in the area; or create a financially viable project that provides for the creation of construction employment opportunities, recreational opportunities, and expanded housing opportunities. Implementation of the No Project Alternative would not preclude future development on the site. If, in the future, the site were developed with uses allowed under the site's current land use and zoning designations, such development could be subject to discretionary review as required of the proposed project or, if it were a use permitted by right and did not require any other discretionary permits, could be subject to ministerial review only.

6.1.1 Aesthetics

The No Project Alternative would not change the existing aesthetics of the project site. This alternative would avoid the project's less than significant impact related to blocking views of the distant San Gabriel Mountains from the bicycle and pedestrian path along the top of the Los Angeles River levee. It would avoid the project's less than significant impacts related to loss of on- and off-site trees as scenic resources, but would also not involve planting 352 new trees on the project site. The project site currently has relatively low visual quality, which would be improved by the proposed project. This alternative would, unlike the proposed project, leave the visual character of the project site unchanged. The current visual character of the project site is inconsistent with its surroundings, which consist of residential development and developed open space. Therefore, this alternative would have a more negative impact on the site's visual character and quality when compared to the proposed project by leaving it in a vacant, undeveloped condition. Neither this alternative nor the proposed project would conflict with applicable goals and policies related to aesthetics. Overall, while the No Project Alternative would avoid certain less than significant impacts of the proposed project to existing scenic vistas and trees, it would also have a more negative impact on the project site's overall visual character and quality. The No Project Alternative's overall impacts related to aesthetics are therefore roughly equal to those of the proposed project.

6.1.2 Air Quality

Due to the fact that the project site is currently vacant, there are little to no emissions currently resulting from use of the site. Because the No Project Alternative would avoid development of the project site, it would avoid the proposed project's potentially significant but mitigable construction-related air quality impacts, and would not require implementation of Mitigation Measure AQ-1. This alternative would also avoid the proposed project's less than significant

operational air quality impacts. Therefore, the No Project Alternative's air quality impacts would be less than those of the proposed project.

6.1.3 Biological Resources

Because the No Project Alternative would avoid development of the project site, it would avoid the potentially significant but mitigable impacts of the proposed project on special-status species, including nesting raptors and migratory birds. It would thus also not require implementation of mitigation measures BIO-1(a) (Preconstruction Bat Surveys) and BIO-1(b) (Raptor and Nesting Bird Protection). This alternative's impacts on biological resources would therefore be less than those of the proposed project.

6.1.4 Cultural Resources

Because the No Project Alternative would avoid development of the project site, it would avoid the potentially significant but mitigable impacts of the proposed project on previously unidentified subsurface cultural resources and paleontological resources. It would thus also not require implementation of mitigation measures CR-1(a) (Archaeological Resource Construction Monitoring), CR-1(b) (Unanticipated Discovery of Cultural Remains), CR-2(a) (Paleontological Resource Construction Monitoring), and CR-2(b) (Fossil Salvage). The No Project Alternative's impacts on cultural resources would therefore be less than those of the proposed project.

6.1.5 Geology and Soils

Because the No Project Alternative would avoid development of the project site, it would avoid the potentially significant but mitigable impacts related to the liquefaction hazards present on the project site. It would thus also not require implementation of mitigation measures GEO-2(a) (Placement of Compacted Fill) and GEO-2(b) (Building Foundations). The No Project Alternative's impacts related to geology and soils would therefore be less than those of the proposed project.

6.1.6 Greenhouse Gas Emissions/Climate Change

Because the project site is currently vacant, it creates fewer greenhouse gas (GHG) emissions than it would under the proposed project, which would increase vehicle trips to and from the site. Although the project's impacts related to GHG emissions would be less than significant, the No Project Alternative's GHG Emissions/Climate Change impacts would be less than those of the proposed project.

6.1.7 Hazards & Hazardous Materials

The impacts of the proposed project in relation to the potential release, use, or transport of hazardous materials, and other potential hazards, would be less than significant. The proposed project would increase the intensity of development on the project site (which is currently vacant). the No Project Alternative would not involve demolition of the existing on-site structures or any ground disturbance for construction. Therefore, potential impacts related to

hazards and hazardous materials from the No Project Alternative would be less than those of the proposed project.

6.1.8 Hydrology and Water Quality

The proposed project's impacts related to hydrology and water quality, including potential increases in polluted runoff, sedimentation, erosion, and increased water usage would be less than significant with compliance with existing regulations. The No Project Alternative would not involve development of the site, and thus would lead to no increase in impermeable surfaces, no ground disturbance from construction, and no increased water usage from additional development. Therefore, potential impacts related to hydrology and water quality from the No Project Alternative would be less than those of the proposed project.

6.1.9 Land Use and Planning

The proposed project would be consistent with the City's adopted General Plan, 2010 Strategic Plan, and Sustainable City Plan with incorporation of measures from other sections of the EIR related to biological resources [BIO-1(a), BIO-1(b)] and noise (N-5). Because the No Project Alternative would avoid development of the project site, leaving it in its current state, it would not require implementation of these mitigation measures. However, this alternative would also not include the features of the proposed project that would have beneficial policy consistency impacts, such as creating new housing in proximity to transit, facilitating the housing production and affordability goals set forth in the City's RHNA, encouraging infill development, and creating recreational open space. Therefore, the No Project Alternative's impacts related to land use and planning would be roughly similar to those of the proposed project.

6.1.10 Noise and Vibration

Because the project site is currently vacant, it produces less noise and vibration than it would under the proposed project. The proposed project would therefore result in less than significant temporary noise and vibration impacts from construction of the proposed project, as well as less than significant long-term noise and vibration impacts from the operation of the proposed residential uses on the site. The proposed project would also expose the proposed residential uses to noise and vibration from existing transportation sources, such as the neighboring railroad and the nearby I-710 Freeway, requiring Mitigation Measure N-5 (Windows and Sliding Glass Doors). The No Project Alternative would not involve any construction on the project site or any construction traffic on surrounding streets, and would retain the site in its currently vacant, unused state. It would therefore avoid all of the project's impacts discussed above, and its impacts related to noise and vibration would be less than those of the proposed project.

6.1.11 Population and Housing

The No Project Alternative would not involve development of 131 residential units on the currently vacant project site; therefore, it would avoid the project's less than significant impacts related to potential inducement of population growth. However, the No Project Alternative

would not meet the project objective of providing expanded housing opportunities, as explained in the description of this alternative in Section 6.1. Overall, the impacts from the No Project Alternative related to population and housing would be less than the proposed project.

6.1.12 Public Services and Recreation

Development of the proposed project would increase demands on public services and recreational facilities. While these impacts would be less than significant, the No Project Alternative would avoid these impacts altogether because no development would occur on the project site. Therefore, the No Project Alternative's impacts on Public Services and Recreation would be less than those of the proposed project.

6.1.13 Transportation and Traffic

Because the project site is currently vacant, it has little or no vehicle trips associated with it. The proposed project would result in both temporary construction traffic and long-term operational traffic that would be added to the area's street system. While the impacts of this project-related traffic have been determined to be less than significant in this EIR, the No Project Alternative would avoid these impacts altogether, and its transportation and traffic impacts would be less than those of the proposed project.

6.1.14 Utilities/Service Systems

Development of the proposed project would place increased demands on utilities and service systems. While these impacts have been determined to be less than significant or, in the case of wastewater, less than significant with incorporation of Mitigation Measure U-2 (Wastewater Infrastructure), the No Project Alternative would avoid these impacts, and its impacts on utilities and service systems would therefore be less than those of the proposed project.

6.2 REDUCED DENSITY ALTERNATIVE

As described below, the Reduced Density Alternative would avoid or reduce the project's significant but mitigable impacts in the areas of air quality, geology and soils, noise, and utilities and service systems. This alternative involves limiting the amount of residential development to that allowed under the project site's existing zoning of Institutional (I). Section 21.34.245 of the Long Beach Municipal Code states that "Residential development in the Institutional District shall conform to the development standards of the R-1-N Zone District". The R-1-N District requires a minimum lot area per unit of 6,000 square feet (sf). Additionally, it is assumed for the purposes of this analysis that the "lettered" streets shown on the site plan (Figure 2-7) would need to remain, although perhaps in an alternate configuration, in order to provide interior circulation within the project site. These streets take up approximately 1.46 acres of the site. It is also assumed that the 6,238 sf (0.14 acre) drainage basin included in the proposed project would remain under this alternative for runoff control. This leaves approximately 8.96 acres out of the site's total 10.56 acres as buildable area. If all of this area were divided evenly into 6,000 sf lots, the project site could accommodate 65 lots. Therefore, this alternative assumes the construction of 65 single-family homes on the project site, rather than the 131 units proposed under the project, an approximately 50% reduction.

The maximum building height in the R-1-N District is 25 feet, and this is assumed to be the maximum building height under this alternative. Also, since there is no requirement for the on-site recreational amenities included in the proposed project under the project site's existing zoning, and the applicant would likely strive to maximize the number of units that could be built at this lower density, it is assumed that, under this alternative, the project would no longer include a small pocket park or recreation center with a pool, spa, and clubhouse, but that it would retain private access to the pedestrian/bicycle path along the Los Angeles River, which does not subtract from the buildable area of the site.

The intent of this alternative is to reduce any potentially significant impacts associated with the project that would result from its intensity, such as the potentially significant but mitigable impacts mentioned above. This alternative also has the potential to reduce other, less than significant impacts of the proposed project such as traffic and noise. This alternative would meet the objectives of the project, but to a lesser degree than the project, because it would not allow for the same amount of housing creation as under the proposed project, or as much enhancement of City property tax revenues. It should also be noted that the Reduced Density Alternative could be applied at an alternate site. The Alternate Site Alternative is analyzed in Section 6.3.

6.2.1 Aesthetics

The Reduced Density Alternative would, like the proposed project, change the aesthetics of the project site from an almost entirely undeveloped vacant lot to a fully-developed residential neighborhood. Maximum building height under this alternative would be 25 feet, which is 10'6" lower than the 35'6" maximum building height allowed under the proposed project. This alternative would therefore incrementally lessen the project's less than significant impact related to blocking views of the distant San Gabriel Mountains from the bicycle and pedestrian path along the top of the Los Angeles River levee. It would not avoid the project's less than significant impacts related to loss of on- and off-site trees, because the project site would still be developed, and sidewalks on Daisy Avenue and Oregon Avenue would still need to be extended to the site to provide pedestrian connectivity. It could also include planting new trees on the project site, although the exact number of trees is unknown. This alternative's overall impacts on scenic resources would, like those of the proposed project, be less than significant. The project site currently has relatively low visual quality, and this alternative would, like the proposed project, improve this visual quality. This alternative would also, like the proposed project, change the visual character of the project site from almost entirely undeveloped to developed. The current visual character of the project site is inconsistent with its surroundings, which consist of residential development and developed open space. Therefore, this alternative would, like the proposed project, have a less than significant impact on the site's visual character and quality. It would also, like the proposed project, not conflict with applicable goals and policies related to aesthetics. Overall, this alternative's aesthetic impacts would be incrementally less than those of the proposed project because it would involve a lower maximum building height.

6.2.2 Air Quality

The Reduced Density Alternative would reduce the number of residential units constructed on the project site from 131 to 65, an approximately 50% reduction. This alternative would therefore lead to a roughly similar reduction in operational emissions compared to the proposed project from a reduction in household emissions and vehicle trips. This alternative may have lower construction emissions than the proposed project due to the reduced number of units to be built, but grading and site preparation emissions would not be significantly reduced because the entire site would still need to be graded and prepared. This alternative would therefore still require implementation of Mitigation Measure AQ-1. This alternative air quality impacts would be less than those of the proposed project.

6.2.3 Biological Resources

While the Reduced Density Alternative would reduce the number of residential units constructed on the project site by approximately 50%, it is assumed that the entire site would still need to be graded and prepared in order to construct these units, and this alternative would therefore still require implementation of mitigation measures BIO-1(a) (Preconstruction Bat Surveys) and BIO-1(b) (Raptor and Nesting Bird Protection). The Reduced Density Alternative's impacts on biological resources would therefore be roughly equal to those of the proposed project.

6.2.4 Cultural Resources

While the Reduced Density Alternative would reduce the number of residential units constructed on the project site by approximately 50%, it is assumed that the entire site would still need to be graded and prepared in order to construct these units, and this alternative would therefore still require implementation of mitigation measures CR-1(a) (Archaeological Resource Construction Monitoring), CR-1(b) (Unanticipated Discovery of Cultural Remains), CR-2(a) (Paleontological Resource Construction Monitoring), and CR-2(b) (Fossil Salvage). The Reduced Density Alternative's impacts on cultural resources would therefore be roughly equal to those of the proposed project.

6.2.5 Geology and Soils

Because the Reduced Density Alternative would reduce development on the project site by 50% compared to the proposed project, it would lessen potentially significant but mitigable impacts from liquefaction hazards present on the project site, simply because it would expose fewer houses to these hazards. However, the 65 houses included in this alternative would still require implementation of mitigation measures GEO-2(a) (Placement of Compacted Fill) and GEO-2(b) (Building Foundations). Overall, this alternative's impacts related to geology and soils would be less than those of the proposed project.

6.2.6 Greenhouse Gas Emissions/Climate Change

Because of the 50% reduction in the total number of residential units under the Reduced Density Alternative, this alternative would lead to a roughly similar reduction in operational greenhouse gas (GHG) emissions compared to the proposed project resulting from a reduction in household emissions and vehicle trips. Reductions in construction-related GHG emissions could also occur, although grading and site preparation GHG emissions would not be substantially reduced because it is assumed that the entire site would still need to be graded and prepared. The Reduced Density Alternative's GHG Emissions/Climate Change impacts would be less than the already less than significant impacts of the proposed project.

6.2.7 Hazards & Hazardous Materials

While the impacts of the proposed project in relation to the potential release, use, or transport of hazardous materials, and other potential hazards, would be less than significant, because the Reduced Density Alternative would reduce the intensity of development on the project site by approximately 50%, this alternative would have fewer potential impacts related to the use and transport of hazardous materials. This alternative would still require demolition of all current on-site structures, and thus would have the same, less than significant impacts related to potential releases of asbestos and lead. Overall, this alternative's impacts related to hazards and hazardous materials would be less than those of the proposed project.

6.2.8 Hydrology and Water Quality

As described in the introduction to this alternative (Section 6.2), it is assumed that, under the Reduced Density Alternative, the project site would require the same 1.46 acres of on-site streets as under the proposed project, and it would also include the 6,238 sf (0.14 acre) drainage basin included in the proposed project for the purpose of runoff control, leaving 8.96 acres as buildable area. The maximum lot coverage for residential units in the Institutional zone is 50%. Assuming 50% lot coverage, 4.48 of these 8.96 buildable acres could be covered with impermeable surfaces. These 4.48 acres plus the 1.46 acres of on-site streets equals 5.94 acres, or 258,746 square feet (sf), of impermeable surfaces. As shown on the applicant's site plan (Figure 2-7), building lot coverage under the proposed project would equal 159,087 sf, or 3.65 acres. Adding the 1.46 acres of streets to this number, total impermeable site coverage under the proposed project would be 5.11 acres. The Reduced Density Alternative would therefore increase impermeable surfaces on the project site compared to the proposed project, and result in increased runoff and decreased groundwater recharge (at least on the project site) after construction. Potential impacts related to runoff and recharge during construction would be similar and less than significant under either scenario due to the need to grade and prepare the entire site. The Reduced Density Alternative would also lead to a lower increase in water usage due to the reduced amount of development. While both the project's impacts and this alternative's impacts related to hydrology and water quality, including potential increases in polluted runoff, sedimentation, erosion, and increased water usage, would be less than significant with compliance with existing regulations, the Reduced Density Alternative's overall impacts in relation to hydrology and water quality would be greater than those of the proposed project.

6.2.9 Land Use and Planning

The proposed project would be consistent with the City's adopted General Plan, 2010 Strategic Plan, and Sustainable City Plan with incorporation of measures from other sections of the EIR related to biological resources [BIO-1(a), BIO-1(b)] and noise (N-5). The Reduced Density Alternative would still involve development of the project site with residential uses, and would still require implementation of these mitigation measures because: a) the entire site would be cleared before construction in both cases; and b) windows and sliding glass doors would still be required for homes directly facing the UP railroad tracks and I-710. This alternative would have some of the same beneficial policy consistency impacts as the proposed project, such as creating new housing in proximity to transit, facilitating the housing production and affordability goals set forth in the City's RHNA, and encouraging infill development, but would not achieve these to as great a degree because of the lower number of residential units. The Reduced Density Alternative would not include the on-site recreational open space proposed under the project, but could still include construction of the off-site park, and would therefore be consistent with Policy 4.1 from the Open Space Element of the General Plan to create recreational open space. Therefore, the Reduced Density Alternative's impacts related to land use and planning would be less than significant and roughly similar to those of the proposed project.

6.2.10 Noise and Vibration

The Reduced Density Alternative would lead to fewer homes being built on the project site, thus lowering operational noise levels due to a less intensive level of activity on the project site and fewer project-generated vehicle trips on and off the project site. This alternative would also introduce fewer new residents to the project site, and thus expose fewer people to off-site noise sources such as the UP railroad and the I-710 Freeway. While these impacts would be reduced, this alternative would still require implementation of Mitigation Measure N-5 (Windows and Sliding Glass Doors) for units directly facing these noise sources. Although fewer homes would be built, construction-related noise would not be substantially reduced because the entire site would still need to be graded and prepared. However, because of lower operational noise impacts, this alternative's noise and vibration impacts would, overall, be less than those of the proposed project.

6.2.11 Population and Housing

Because the Reduced Density Alternative would involve development of 65 rather than 131 residential units on the currently vacant project site, it would lower the already less than significant impacts related to potential inducement of population growth from the proposed project. This alternative would meet the project objective of providing expanded housing opportunities, as explained in the description of this alternative in Section 6.1, although to a lesser degree than the proposed project.

6.2.12 Public Services and Recreation

Development of the proposed project would increase demand for public services and recreational facilities. While these impacts would be less than significant, the Reduced Density Alternative would reduce these impacts because it would involve less development on the

project site. Therefore, the No Project Alternative's impacts on Public Services and Recreation would be less than those of the proposed project.

6.2.13 Transportation and Traffic

Because the project site is currently vacant, it has little or no vehicle trips associated with it. The proposed project would result in both temporary construction traffic and long-term operational traffic that would be added to the area's street system. While the impacts of project-related traffic have been determined to be less than significant in this EIR, the Reduced Density Alternative would lower these impacts further because of the reduced amount of total development. The Reduced Density Alternative's transportation and traffic impacts would therefore be less than those of the proposed project.

6.2.14 Utilities/Service Systems

Development of the proposed project would increase demand on utilities and service systems. While these impacts have been determined to be less than significant or, in the case of wastewater, less than significant with incorporation of Mitigation Measure U-2 (Wastewater Infrastructure), the Reduced Density Alternative would further lessen these impacts because of the lower amount of total development. The Reduced Density Alternative's impacts on utilities and service systems would therefore be less than those of the proposed project.

6.3 ALTERNATE SITE ALTERNATIVE

As described below, this alternative would avoid or reduce the proposed project's significant but mitigable impacts in the areas of air quality, biological resources, geology and soils, noise and vibration, and utilities and service systems. This alternative considers the potential impacts of development of the proposed project on a different site relative to its impacts on the currently proposed site. Based on the availability of undeveloped sites in proximity to the project site, and based on comments received during the IS-NOP public comment period, the site of the proposed Oregon Park, which is located at the southwest corner of Oregon Avenue and Del Amo Boulevard approximately 890 feet north of the project site, has been chosen as the alternate site. The location of this site is shown on Figure 2-2 as "Future Oregon Park Site". This site is roughly rectangular in shape, 3.3 acres in size (31% of the size of the project site, or a 69% reduction), and is currently undeveloped. It has been cleared of all vegetation except for a few weeds. It has direct access to Oregon Avenue, and from Oregon Avenue to Del Amo Boulevard.

The alternate site is in Land Use District 1 (Single-Family District), and is zoned I (Institutional). Because the alternate site has the same Institutional zoning designation as the project site, it is assumed that development at this site would be pursued under the same zoning ordinance amendment and map change as under the proposed project (a Reduced Density Alternative is analyzed in Section 6.2). The proposed project would involve development of 131 units on a 10.56-acre site, for a residential density of 12.4 dwelling units per gross acre (du/ga). At this density, the alternate site could accommodate 41 dwelling units, a 69% reduction compared to the total number of units included in the proposed project. No other undeveloped sites as large as the alternate site were found in the general area. The alternate site has the additional advantage of being owned by the City, which makes it a more feasible alternative than a site

owned by neither the City nor the applicant. It is assumed that, under this alternative, the development would remain gated and accessible only to residents. A photo of the alternate site, taken from Del Amo Boulevard looking southeast, is shown in Figure 6-1.

This alternative would meet the objectives of the project, because it would allow for construction of residential units in the same general area. However, because the Alternate Site Alternative would require a reduction in the total amount of units developed, it would meet the project objectives to a proportionally lesser degree. This alternative would also preclude the development of the alternate site as a park, construction of which would be paid for by the applicant as a condition of approval of the proposed project. Under this alternative, the possibility of an arrangement between the applicant and the City that could lead to the creation of a park on all or part of the project site could exist, although the feasibility or likelihood of such an arrangement cannot be determined in this EIR.

6.3.1 Aesthetics

The Alternate Site Alternative would leave the project site in its current, mostly undeveloped state, but would lead to the development of the alternate site at a residential density equal to that of the proposed project. This alternative would not avoid the project's less than significant impact related to blocking views of the distant San Gabriel Mountains from the bicycle and pedestrian path along the top of the Los Angeles River levee, but would instead relocate them to the alternate site, which is also visible from the levee. This alternative would reduce the project's less than significant impacts related to loss of on-site trees because the alternate site has been cleared of all trees. It might, however, lead to the loss of several off-site trees along its border with Oregon Avenue, if the trees along this border needed to be removed to construct on- or off-site improvements such as street widening, driveways, or expanded sidewalks. This alternative would lead to a reduction in the number of new on-site trees compared to the proposed project, because the alternate site is smaller and could not accommodate 352 new on-site trees. This alternative's overall impacts on scenic resources would be, like those of the proposed project, less than significant. The project site currently has relatively low visual quality, and this alternative would leave this visual quality unchanged. The current visual character of the project site is not consistent with its surroundings, which consist of residential development and developed open space, and this is a less than significant impact in either case. While this alternative would, like the proposed project, have a less than significant impact on the project site's visual character and quality, it would have a more negative impact on the site's visual character and quality than the proposed project by leaving it in a vacant, undeveloped condition. This alternative would lead to the alternate site being developed with housing rather than as the proposed Oregon Park. This would improve the current visual character and quality of the alternate site by converting it from a vacant lot to a new residential development that would be more consistent in character with its surroundings, which include residential development and other developed urban uses. The change in the planned future development of the alternate site from a proposed park to a residential development under this alternative would have roughly similar effects in terms of visual character and quality, since either the proposed park or the residential development envisioned under this alternative would be compatible in character and quality to their surroundings and would be an improvement over the site's existing condition. Neither this alternative nor the proposed project would conflict with applicable goals and policies related to aesthetics.

Alternate Site Photograph

Figure 6-1

Overall, the Alternate Site Alternative would displace the proposed project's aesthetic impacts to the alternate site rather than avoiding them. Therefore, the Alternate Site Alternative's overall impacts related to aesthetics are less than significant, and roughly equal to those of the proposed project.

6.3.2 Air Quality

The Alternate Site Alternative would reduce the total number of residential units constructed by approximately 69%, from 131 to 41 units. This alternative would therefore lead to a roughly similar reduction in operational emissions compared to the proposed project from a reduction in household emissions and vehicle trips, and would also have lower construction emissions because it would involve a reduced amount of construction on a smaller site. If the project's construction emissions shown in Table 4.2-4 in Section 4.2, *Air Quality* were reduced by 69%, all construction emissions would be below SCAQMD thresholds and LSTs, and Mitigation Measure AQ-1 would not be required. This alternative's air quality impacts would be less than those of the proposed project.

6.3.3 Biological Resources

Because the Alternate Site Alternative would avoid development of the project site, it would avoid the potentially significant but mitigable impacts of the proposed project on special-status species, including nesting raptors and migratory birds, at the project site. If this alternative involved tree removal at the alternate site, it might involve some of these same impacts, and thus also require implementation of mitigation measures BIO-1(a) (Preconstruction Bat Surveys) and BIO-1(b) (Raptor and Nesting Bird Protection). The alternate site, however, has less vegetation than the project site, and would involve less removal of trees and other vegetation. This alternative's impacts on biological resources would therefore be less than those of the proposed project.

6.3.4 Cultural Resources

While the Alternate Site Alternative would be located on a smaller site, it is assumed that the alternate site would, like the project site, need to be graded and prepared in order to construct the residential units and other improvements included in this scenario (such as driveways, underground utilities, etc.). This alternative would therefore still require implementation of mitigation measures CR-1(a) (Archaeological Resource Construction Monitoring), CR-1(b) (Unanticipated Discovery of Cultural Remains), CR-2(a) (Paleontological Resource Construction Monitoring), and CR-2(b) (Fossil Salvage). The relative potential for discovery of subsurface cultural resources on either the project site or the alternate site is unknown. The Reduced Density Alternative's impacts on cultural resources would therefore be roughly equal to those of the proposed project.

6.3.5 Geology and Soils

Review of the figures included in Section 4.5, *Geology and Soils* of this EIR, indicates that the alternate site, like the project site, is not located in an Alquist-Priolo earthquake zone subject to surface faulting, but is also subject to the same hazards of seismic shaking and liquefaction. The

alternate site would therefore be subject to approximately the same level of risk from these hazards as the project site. This alternative would lessen potentially significant but mitigable impacts from liquefaction hazards present on the project site, simply because it would expose 69% fewer houses to these hazards. Depending on the outcome of site-specific geotechnical studies for the alternate site, the 41 houses included in this alternative could still require implementation of mitigation measures GEO-2(a) (Placement of Compacted Fill) and GEO-2(b) (Building Foundations). Overall, this alternative's impacts related to geology and soils would be less than those of the proposed project.

6.3.6 Greenhouse Gas Emissions/Climate Change

Because of the 69% reduction in the total number of residential units under the Alternate Site Alternative, this alternative would lead to a roughly similar reduction in operational greenhouse gas (GHG) emissions compared to the proposed project from a reduction in household emissions and vehicle trips. Reductions in construction GHG emissions could also occur because of the reduced site size and amount of construction. Although the proposed project's GHG/climate change impacts would be less than significant, this alternative's GHG emissions/climate change impacts would be less than those of the proposed project.

6.3.7 Hazards & Hazardous Materials

While the impacts of the proposed project in relation to the potential release, use, or transport of hazardous materials, and other potential hazards, would be less than significant, because the Alternate Site Alternative would reduce the intensity of development on the project site by approximately 69%, this alternative would have fewer potential impacts related to the use and transport of hazardous materials. This alternative would also not involve demolition of structures potentially containing lead and asbestos (like the structures currently located on the project site), and thus would have reduced impacts related to potential releases of asbestos and lead. Overall, this alternative's impacts related to hazards and hazardous materials would be less than those of the proposed project.

6.3.8 Hydrology and Water Quality

As described under Section 6.2 (*Reduced Density Alternative)*, the proposed project would include 5.11 acres of non-permeable site area. Because the entire alternate site is only 3.3 acres in size, development of this alternative would lead to less increase in impermeable areas, and thus less potential for increased runoff and decreased groundwater recharge (at least on the alternate site) after construction. Potential impacts related to runoff and recharge during construction would also be reduced because of the smaller site size, but would be less than significant under either scenario with implementation of applicable regulations. This alternative would also lead to a lower increase in water usage due to the reduced amount of development. While both the project's impacts and this alternative's impacts related to hydrology and water quality, including potential increases in polluted runoff, sedimentation, erosion, and increased water usage, would be less than significant with compliance with existing regulations, the Alternate Site Alternative's overall impacts related to hydrology and water quality would be less than those of the proposed project.

6.3.9 Land Use and Planning

The proposed project would be consistent with the City's adopted General Plan, 2010 Strategic Plan, and Sustainable City Plan with incorporation of measures from other sections of the EIR related to biological resources [BIO-1(a), BIO-1(b)] and noise (N-5). The Alternate Site Alternative would avoid development of the project site, but would still potentially require implementation of these mitigation measures. Because development at the alternate site could still require tree removal, it may require implementation of mitigation measures BIO-1(a) (Preconstruction Bat Surveys) and BIO-1(b) (Raptor and Nesting Bird Protection). As described in Section 6.3.10, the minimum standards for windows and sliding glass doors contained in Mitigation Measure N-5 could still be required for homes directly facing the I-710. Similar noise mitigation might be required for residential units directly facing Del Amo Boulevard, which is a heavily travelled arterial directly adjacent to the alternate site. Mitigation measures relating to railroad noise would not be required at the alternate site because of its increased distance from the railroad. This alternative would have some of the same beneficial policy consistency impacts as the proposed project, such as creating new housing in proximity to transit, facilitating the housing production and affordability goals set forth in the City's RHNA, and encouraging infill development. It would place the 41 dwelling units closer to available transit on Del Amo Boulevard and to the Del Amo Blue Line station, but would not achieve housing related goals to as great a degree as the proposed project because it would create fewer dwelling units. It would not include the on-site recreational open space proposed under the project. It is assumed that it would not include construction of the off-site park since the site for that park would now be occupied by the project, and would therefore be less consistent with Policy 4.1 from the Open Space Element of the General Plan to create recreational open space. Overall, the Alternate Site alternative's impacts related to land use and planning would be less than significant and roughly similar to those of the proposed project.

6.3.10 Noise and Vibration

The Alternate Site Alternative would lead to fewer homes being built than under the proposed project, thus lowering project-generated operational noise levels because of a less intensive level of activity and fewer project-generated vehicle trips. This alternative would also introduce fewer new residents to the alternate site, and thus expose fewer people to off-site noise sources such as the I-710 Freeway. However, because the I-710 Freeway is located slightly closer to the alternate site (approximately 0.21 miles) than it is to the project site (approximately 0.25 miles), the portions of Mitigation Measure N-5 requiring minimum standards for windows and sliding glass doors in homes directly facing the I-710 could still be required. Similar noise mitigation might also be required for residential units directly facing Del Amo Boulevard, which is a heavily travelled arterial directly adjacent to the alternate site. The portions of Mitigation Measure N-5 relating to railroad noise would not be required because the railroad is located further from the alternate site (approximately 0.25 miles) than from the project site (directly adjacent). Construction-related noise would be reduced because of the reduced amount of total development and smaller site size. Operational noise impacts would also be reduced because of the reduced amount of development, and proportional decreases in traffic-generated noise. Overall, this alternative's noise and vibration impacts would be less than those of the proposed project.

6.3.11 Population and Housing

Because the Alternate Site Alternative would involve development of 41 rather than 131 residential units on a currently vacant site, it would have reduced, but still less than significant impacts, related to potential inducement of population growth when compared to the proposed project. This alternative would meet the project objective of providing expanded housing opportunities, as explained in the description of this alternative in Section 6.1, to a lesser degree than the proposed project.

6.3.12 Public Services and Recreation

Development of the proposed project would increase demand for public services and recreational facilities. While these impacts would be less than significant, the Alternate Site Alternative would reduce these impacts because it would involve less development. Therefore, this alternative's impacts on Public Services and Recreation would be less than those of the proposed project.

6.3.13 Transportation and Traffic

Because the alternate site is currently vacant, it has little or no vehicle trips associated with it. The Alternate Site Alternative would result in both temporary construction traffic and long-term operational traffic that would be added to the area's street system, but to a lesser degree than the proposed project because it would involve less development. While the impacts of project-related traffic have been determined to be less than significant in this EIR, the Alternate Site Alternative would reduce these impacts, and its transportation and traffic impacts are therefore less than those of the proposed project.

6.3.14 Utilities/Service Systems

Development of the proposed project would increase demand on utilities and service systems. While these impacts have been determined to be less than significant or, in the case of wastewater, less than significant with incorporation of Mitigation Measure U-2 (Wastewater Infrastructure), the Alternate Site Alternative would further lessen these impacts because of the lower amount of total development, and its impacts on utilities and service systems would therefore be less than those of the proposed project.

6.4 REVISED ACCESS ALTERNATIVE

As described below, the project does not have any potentially significant impacts that would be reduced by this alternative. This alternative considers development of the proposed project, but with revisions to site access. This alternative addresses comments made during the public NOP scoping process (described in Section 1.1 of this EIR) relating to site access, requesting that the following alternatives or options be considered in the EIR:

- Make the streets within the development public rather than private streets, and make the community publicly accessible and non-gated, rather than a gated private community.

- Create a second regular access point at Oregon Avenue, rather than having it be an emergency-only access point.

Comments were also received during the NOP scoping process that the EIR should examine alternatives related to on- and off-site parking, and the potential to widen Oregon Avenue north of West 48th Street in order to improve vehicular flow in and around the project site. However, availability of parking is not an environmental impact under CEQA, and widening Oregon Avenue north of West 48th Street is not a feasible alternative at this time because more than a dozen mobile homes are directly adjacent to that portion of Oregon Avenue (which is approximately one lane wide in this location), and these mobile homes would need to be removed or relocated in order to accomplish this alternative.

This alternative therefore analyzes the potential impacts, compared to the proposed project, of implementing the two suggestions shown in bullet points above. It is assumed that, in order to implement the second regular access point at Oregon Avenue, some form of traffic control would have to be implemented on Oregon Avenue north of West 48th Street in order to force traffic from the proposed project to not use this street segment in order to access Del Amo Boulevard. This is a reasonable assumption given that this street is only one lane wide in this location, and adding project traffic to this one-lane segment in addition to existing traffic would not be acceptable in terms of traffic flow and safety. Instead, this alternative assumes that project traffic could access or leave the project site via Oregon Avenue, but would be required to take West 48th Street to Daisy Avenue after that point, from where trips would be distributed across the remainder of the street network as under the proposed project.

This alternative would meet all of the objectives of the project, because it would not affect any of the project components that directly achieve those project objectives. For example, the same number of residential units and the same on-site amenities would be constructed under either the proposed project or this alternative.

6.4.1 Aesthetics

The Revised Access Alternative would only affect vehicular circulation, and would thus have the same less than significant impacts on the aesthetics of the project site and its surroundings as the proposed project.

6.4.2 Air Quality

The Revised Access Alternative would redirect some project-related vehicle trips from Daisy Avenue south of West 48th Street to Oregon Avenue, but overall trip distribution would not be significantly affected because these trips would then be forced back onto Daisy Avenue via West 48th Street and onto the same street network as under the proposed project. Because this alternative would generate the same amount of traffic as the proposed project, and in all other respects would be the same as the proposed project, it would not lead to changes in the estimated amount of emissions. It would therefore have the same significant but mitigable air quality impacts as the proposed project.

6.4.3 Biological Resources

The Revised Access Alternative would only affect vehicular circulation, and would thus have the same significant but mitigable impacts on biological resources as the proposed project.

6.4.4 Cultural Resources

The Revised Access Alternative would only affect vehicular circulation, and would thus have the same significant but mitigable impacts related to cultural resources as the proposed project.

6.4.5 Geology and Soils

The Revised Access Alternative would only affect vehicular circulation, and would thus have the same significant but mitigable impacts related to geology and soils as the proposed project.

6.4.6 Greenhouse Gas Emissions/Climate Change

As stated under Section 6.4.2, the Revised Access Alternative would have the same estimated emissions as the proposed project because it would not affect vehicular trip generation, and would not substantially affect vehicular trip distribution. This alternative would therefore have the same significant but mitigable impacts related to greenhouse gas emissions and climate change as the proposed project.

6.4.7 Hazards & Hazardous Materials

The Revised Access Alternative would not affect vehicular trip generation, and would not substantially affect vehicular trip distribution. The minor change in trip distribution, described in Section 6.4.13, would not lead to substantial differences in hazards related to the transport of hazardous materials. This alternative would in all other respects be the same as the proposed project, and would thus have the same less than significant impacts related to hazards and hazardous materials. Emergency access issues are discussed under Section 6.4.13, *Transportation and Traffic*.

6.4.8 Hydrology and Water Quality

The Revised Access Alternative would only affect vehicular circulation, and would thus have the same less than significant impacts related to hydrology and water quality as the proposed project.

6.4.9 Land Use and Planning

The proposed project would be consistent with the City's adopted General Plan, 2010 Strategic Plan, and Sustainable City Plan with incorporation of measures from other sections of the EIR related to biological resources [BIO-1(a), BIO-1(b)] and noise (N-5). The Revised Access Alternative would still require implementation of these mitigation measures, which do not relate to vehicular circulation, which is the only aspect of the project affected by this alternative. This alternative would have the same beneficial policy consistency impacts as the proposed

project, such as creating new housing in proximity to transit, facilitating the housing production and affordability goals set forth in the City's RHNA, and encouraging infill development.

One of the goals of the City's Land Use Element is to "…maintain its physical facilities and public rights-of-way at a high level of functional and aesthetic quality…" As analyzed under the heading of "Land Use and Planning" in Table 4.9-1 of this EIR, the private roadways, open space, and community amenities included in the proposed project would be managed and maintained by a Homeowner's Association (HOA). Under this alternative, however, roadways internal to the project site would be public roadways, and would be the responsibility of the City to maintain.

As discussed in Section 6.4.13, creating two regularly and publicly accessible points of ingress and egress could improve emergency access to the project site, which could in turn improve the project's consistency with the following City goals and policies relating to public safety listed in Table 4.9-1 of this EIR:

- Seismic Safety Element Development Goal 5, which calls on the City to strive to encourage urbanization patterns which preserve and/or create greater earthquake safety for residents and visitors;
- Public Safety Element Development Goal 7, which calls on the City to assure continued safe accessibility to all urban land uses throughout the City; and
- Public Safety Element Development Goal 9, which calls on the City to design for adequate access for firefighting equipment and police surveillance.

Making the project site's streets accessible to the public and providing two access points would improve accessibility and connectivity to the project site for vehicles and other modes of mobility, such as pedestrians and bicyclists, and especially connectivity to the trails along the Los Angeles River and Dominguez Gap Wetlands for non-residents of the project site. This would improve the project's consistency with the following City goals and policies:

- Mobility Element MOP Policy 1-1, which calls on the City to design streets as "complete streets" that accommodate all modes of transportation (see Table 4.9-1);
- Mobility Element MOP Policy 1-9, which calls on the City to increase mode shift of transit, pedestrians, and bicyclists (see Table 4.9-1);
- Mobility Element Policy 4-1, which calls on the City to consider effects on overall mobility and various travel modes when evaluating transportation impacts of new developments or infrastructure projects (see Table 4.9-1); and
- Goal 7 of the Transportation portion of the Long Beach Strategic Plan, which calls on the City to increase bike ridership from 1% to 10% by 2016 (see Table 4.9-2).

Overall, the Revised Access Alternative would improve potential policy consistency as discussed above, when compared to the proposed project.

6.4.10 Noise and Vibration

The Revised Access Alternative would not affect vehicular trip generation, and would not substantially affect vehicular trip distribution. The minor change in trip distribution, described in Section 6.4.13, would not lead to substantial differences in noise exposure on the project site or the surrounding neighborhood. This alternative would in all other respects be the same as the proposed project, and would thus have the same significant but mitigable impacts related to noise.

6.4.11 Population and Housing

The Revised Access Alternative would only affect vehicular circulation, and would thus have the same less than significant impacts related to population and housing as the proposed project.

6.4.12 Public Services and Recreation

The Revised Access Alternative would, as described under Sections 6.4.9 and 6.4.13, improve public accessibility to the project site, including the proposed on-site recreational amenities, but would be the same as the proposed project in all other respects. While this would improve public access to the proposed recreational facilities, it could also lead to substantial physical deterioration of these facilities, which may or may not be designed to accommodate the level of use they would receive if they were publicly accessible. Because this alternative could lead to substantial physical deterioration of recreational facilities, it would have greater impacts related to recreation than the proposed project. Public services impacts would remain unchanged.

6.4.13 Transportation and Traffic

The Revised Access Alternative would redirect some project-related vehicle trips from Daisy Avenue south of West 48th Street to Oregon Avenue. These trips would then be forced back onto Daisy Avenue via West 48th Street and onto the same street network as under the proposed project. Because this alternative would generate the same amount of traffic as the proposed project, and in all other respects would be the same as the proposed project, it would not lead to changes in traffic patterns that would substantially affect levels of service or other performance measures on the local or regional street system. This alternative may improve emergency access and evacuation to and from the project site by providing two regularly and publicly accessible means of access. This could further reduce the project's already less than significant impacts related to emergency access. Overall, this alternative's traffic and transportation impacts would be less than those of the proposed project.

6.4.14 Utilities/Service Systems

The Revised Access Alternative would only affect vehicular circulation, and would thus have the same significant but mitigable impacts related to utilities and service systems as the proposed project.

6.5 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

The environmental analysis contained in the EIR determined that the proposed project would result in several potentially significant but mitigable environmental impacts. Each of the alternatives considered would reduce or avoid one or more of the proposed project's less than significant or significant but mitigable impacts, as discussed below.

The No Project Alternative would avoid or reduce the proposed project's potential impacts (which are less than significant or less than significant with mitigation incorporated) in all environmental impact areas except Aesthetics and Land Use and Planning, in which it would have roughly equal impacts. Consequently, the No Project Alternative is considered environmentally superior. This alternative would meet none of the project the objectives (stated in Section 2.0, *Project Description,* and discussed throughout this alternatives analysis) because it would not carry out the proposed project. Section 15126.6(e)(2) of the *CEQA Guidelines* requires that, if the environmentally superior alternative is the No Project Alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives. The environmentally superior alternative other than the No Project Alternative is the Alternate Site Alternative, which would avoid or reduce the proposed project's potential impacts in all environmental impact areas except Aesthetics, Cultural Resources, and Land Use and Planning, in which it would have roughly equal impacts. This alternative would meet the objectives of the project, because it would allow for construction of residential units in the same general area. However, because the Alternate Site Alternative would require a reduction in the total amount of units developed, it would meet the project objectives to a proportionally lesser degree.

Table 6-2 indicates whether each alternative's environmental impact is greater than, less than, or similar to the proposed project.

Table 6-2
Comparison of Environmental Impacts of Alternatives

Issue	No Project	Reduced Density	Alternate Site	Revised Access
Aesthetics	=	-	=	=
Air Quality	-	-	-	=
Biological Resources	-	=	-	=
Cultural Resources	-	=	=	=
Geology and Soils	-	-	-	=
GHG Emissions/ Climate Change	-	-	-	=
Hazards & Hazardous Materials	-	-	-	=
Hydrology and Water Quality	-	+	-	=
Land Use and Planning	=	=	=	-
Noise and Vibration	-	-	-	=
Population and Housing	-	-	-	=
Public Services and Recreation	-	-	-	+
Transportation and Traffic	-	-	-	-
Utilities and Service Systems	-	-	-	=
Overall	**-**	**-**	**-**	**-**

+Impacts greater than those of the proposed project
- Impacts less than those of the proposed project
= Impacts similar impact to the proposed project

7.0 REFERENCES AND REPORT PREPARERS

7.1 REFERENCES

7.1.1 Bibliography

Army Corp of Engineers. 2013. *Los Angeles River/Rio Hondo Diversion 1 Levee System – periodic inspection report No 1 generalized executive summary*. Retrieved from: http://www.spl.usace.army.mil/Portals/17/docs/LeveeSafetyProgram/LARiverRioHondo1.pdf. March 2015.

Army Corp of Engineers. NA. *Levee Inspection*. Retrieved from: http://www.usace.army.mil/Missions/CivilWorks/LeveeSafetyProgram/LeveeInspections.aspx. March 2015.

Byrd, Brian F., and L. Mark Raab. 2007. *Prehistory of the Southern Bight: Models for a New Millennium, In California Prehistory*, edited by T. L. Jones and K. A. Klar, pp. 215-228. Altimira Press, New York.

Bean, Walton. 1968. *California: An Interpretive History*. McGraw-Hill Book Company, New York.

Bean, Lowell John, and Charles R. Smith. 1978. *Gabrielino. In California*, edited by Robert F. Heizer, pp. 538–549. Handbook of North American Indians, Vol. 8, W. C. Sturtevant, general editor, Smithsonian Institution, Washington, D.C.

Blackburn, Thomas. 1963. *Ethnohistoric Descriptions of Gabrielino Material Culture*. Annual Report, Archaeological Survey. University of California, Los Angeles.

Bureau of Land Management (BLM). 2009. *Assessment of Mitigation of Potential Impacts to Paleontological Resources*. BLM Instruction Memorandum No. 2009-011, available online at http://www.blm.gov/wo/st/en/info/regulations/Instruction_Memos_and_Bulletins/national_instruction/2009/IM_2009-011.html

California Air Pollution Control Officers Association (CAPCOA). *CEQA & Climate Change*. January 2008. Accessed at http://www.capcoa.org/wp-content/uploads/downloads/2010/05/CAPCOA-White-Paper.pdf.

California Air Resources Board. *Ambient Air Quality Standards*. http://www.arb.ca.gov/research/aaqs/aaqs2.pdf. 2014.

California Department of Conservation. *Seismic Hazards Zone Report for the Long Beach 7.5-minute quadrangle, Los Angeles County, California*.1998. Retrieved from: http://gmw.consrv.ca.gov/shmp/download/quad/LONG_BEACH/reports/longb_eval.pdf. March 2015.

California Department of Fish and Wildlife. *Biogeographic Information and Observation System (BIOS)*. 2014. Retrieved from http://bios.dfg.ca.gov. August 7, 2014.

California Department of Fish and Wildlife. *California Natural Diversity Database (CNDDB): RareFind 5, Version 5*. 2007. Retrieved from http://www.dfg.ca.gov/biogeodata/cnddb/ August 7, 2014.

California Division of Mines and Geology. *Seismic Hazards Map – Long Beach quadrangle*. 1999. Retrieved from: http://gmw.consrv.ca.gov/shmp/download/quad/LONG_BEACH/maps/ozn_longb.pdf. March 2015.

California Energy Commission. *Inventory Draft 2009 Biennial Report to the Governor and Legislature*. Staff Draft Report. March 2009.

California Energy Commission. 2013. *Energy Consumption Data Management System*. Accessed online on December 17, 2014 at www.ecdms.energy.ca.gov.

California Energy Commission. *California Energy Almanac, 2013 Total Electricity System Power, data as of September 2014*. Available: http://energyalmanac.ca.gov/electricity/total_system_power.html

California Energy Commission. *California Energy Almanac, Overview of Natural Gas in California – Natural Gas Supply*. Available: http://energyalmanac.ca.gov/naturalgas/overview.html

California Energy Commission. *2014 Integrated Energy Policy Report*. Available: http://www.energy.ca.gov/2014publications/CEC-100-2014-001/CEC-100-2014-001-CMF.pdf.

California Gas and Electric Utilities. *California Gas Report*. 2012.

Cal Recycle website. *Long Beach Disposal Rate Summary*. http://www.calrecycle.ca.gov/LGCentral/reports/diversionprogram/JurisdictionDiversionPost2006.aspx (accessed November 2014 and March 2015).

California Air Districts. 2013. *CalEEMod User's Guide*. http://www.aqmd.gov/caleemod/doc/UsersGuide.pdf

California Air Pollution Control Officers Association. *CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA)*. January 2008.

California Air Resources Board. October 2011. *Greenhouse Gas Inventory Data – 2000 to 2011*. Available: http://www.arb.ca.gov/cc/inventory/data/data.htm

California Air Resources Board. August 2013. *Greenhouse Gas Inventory Data – 2020 Emissions Forecast*. Available: http://www.arb.ca.gov/cc/inventory/data/forecast.htm

California Climate Action Registry (CCAR) General Reporting Protocol, *Reporting Entity-Wide Greenhouse Gas Emissions*, Version 3.1, January 2009.

California Climate Change Center. *Climate Scenarios for California*. 2006.

California Climate Change Center. *The Impacts of Sea-Level Rise on the California Coast*. May 2009.

California Department of Finance (DOF). May 2014. *E-5 Population and Housing Estimates for Cities, Counties, and the State, January 1, 2011-2014, with 2010 Benchmark*. Accessed August 22, 2014. Accessed at: http://www.dof.ca.gov/research/demographic/reports/estimates/e-5/2011-20/view.php

California Department of Transportation. 2012. *California Manual on Uniform Traffic Control Devices*.

California Department of Water Resources. October 2008. *Managing an Uncertain Future: Climate Change Adaption Strategies for California's Water*. Available: http://www.water.ca.gov/climatechange/docs/ClimateChangeWhitePaper.pdf

California Energy Commission. *Environmental Health and Equity Impacts from Climate Change and Mitigation Policies in California: A Review of the Literature*. March 2009: http://www.energy.ca.gov/2009publications/CEC-500-2009-038/CEC-500-2009-038-D.PDF

California Environmental Protection Agency (CalEPA). *Climate Action Team Biennial Report*. Final Report. April 2010.

California Environmental Protection Agency (CalEPA), March 2006. *Climate Action Team Report to Governor Schwarzenegger and the Legislature*. http://www.climatechange.ca.gov/climate_action_team/reports/2006-04-03_FINAL_CAT_REPORT_EXECSUMMARY.PDF

California Natural Resources Agency. December 2009. *2009 California Climate Adaption Strategy.* Available: http://www.energy.ca.gov/2010publications/CNRA-1000-2010-010/CNRA-1000-2010-010.PDF

California Office of Historic Preservation. May 2001. *California Office of Historic Preservation Technical Assistance Series #1: California Environmental Quality Act (CEQA) and Historical Resources*. Available: http://www.sohosandiego.org/links/ceqa.pdf

CalRecycle. 2013. *Jurisdiction Diversion/Disposal Rate Detail, Long Beach*. Accessed on November 12, 2014. Accessed at http://www.calrecycle.ca.gov/LGCentral/Reports/DiversionProgram/JurisdictionDiversionDetail.aspx?JurisdictionID=267&Year=2013

CalRecycle. 2014a. *Facility/Site Summary Details: Puente Hills Materials Recovery Facility (19-AA-1043)*. Accessed on November 12, 2014. Accessed at http://www.calrecycle.ca.gov/SWFacilities/Directory/19-AA-1043/Detail/

CalRecycle. 2014b. *Facility/Site Summary Details: Southeast Resource Recovery Facility (19-AK-0083)*. Accessed on November 12, 2014. Accessed at http://www.calrecycle.ca.gov/SWFacilities/Directory/19-AK-0083/Detail/

City of Carson Planning Division. *Development Project Status.* http://carson.ca.us/department/communitydevelopment/devstatusreport.asp.

City of Long Beach, 2010. *City of Long Beach General Plan Historic Preservation Element*. Electronic document. http://www.lbds.info/planning/advance_planning/general_plan.asp. Accessed October 2, 2014.

City of Long Beach. *2013-2021 Housing Element of the General Plan*. January 2014. http://www.lbds.info/civica/filebank/blobdload.asp?BlobID=4185. Accessed March 3, 2015.

City of Long Beach. Website. http://www.longbeach.gov/.

City of Long Beach. *General Plan.* http://www.lbds.info/planning/advance_planning /general_plan.asp.

City of Long Beach. *City of Long Beach FY 2013 – FY 2017 Consolidated Plan*. 2013.

City of Long Beach. *Conservation Element, City of Long Beach General Plan Program*. April 1973. Retrieved from: http://www.lbds.info/civica/filebank/blobdload.asp?BlobID=4092. December 2014.

City of Long Beach Municipal Code website. http://municipalcodes.lexisnexis.com/codes /longbeach.

City of Long Beach. *Seismic Safety Element, City of Long Beach General Plan*. October 1988. Retrieved from: http://www.lbds.info/civica/filebank/blobdload.asp?BlobID=2544. March 2015.

City of Long Beach Development Services Department website. *Best Management Practices*. NA. Retrieved from: http://www.lbds.info/building/engineering_n_development_services/best_management_practices.asp. March 2015.

City of Long Beach. *Sustainable City Action Plan*. February 2010.

County of Los Angeles Department of Public Works. . *Los Angeles County flood control district opens historic Los Angeles River wetlands project*. May 2008. Retrieved from http://dpw.lacounty.gov/wmd/documents/DominguezGap_article.cfm. March 2015.

DeDiego- Forbis T., R. Douglas, D. Gorsline, E. Nava-Sanchez, L. Mack, and J. Banner. *Late Pleistocene (Last Interglacial) terrace deposits, Bahia Coyote, Baja California Sur, Mexico*. Quaternary International 120:29–40, 2004.

Dumke, Glenn S. 1944. *The Boom of the Eighties in Southern California*. 6th printing. Huntington Library Publications, San Marino, California.

Engelhardt, Zephyrin, O.F.M. 1927a. *San Fernando Rey, the Mission of the Valley*. Franciscan Herald Press, Chicago.

Engelhardt, Zephyrin, O.F.M. 1927b. *San Gabriel Mission and the Beginning of Los Angeles*. Mission San Gabriel, San Gabriel, California.

Erlandson, Jon M. 1991. *Early Maritime Adaptations on the Northern Channel Islands*. In Hunter-Gatherers of Early Holocene Coastal California, edited by J. M. Erlandson and R. Colten. Perspectives in California Archaeology, Vol. 1. Institute of Archaeology, University of California, Los Angeles.

Federal Highway Administration (FHWA). 2006. *FHWA Highway Construction Noise Handbook. (FHWAHEP-06-015; DOT-VNTSC-FHWA-06-02)*. August. http://www.fhwa.dot.gov/environment/construction_noise/handbook

Federal Transit Administration (FTA). 2006. *Transit Noise and Vibration Impact Assessment, Final Report*. May 2006.

Fehr & Peers. *The Riverwalk Transportation Impact Analysis Final Report*. March 2015.

Fehr & Peers. *Traffic Calming.org* website. http://trafficcalming.org/. March 2015.

Glassow, Michael A, L. Wilcoxen, and J. M. Erlandson. 1988. *Cultural and Environmental Change during the Early Period of Santa Barbara Channel Prehistory*. In The Archaeology of Prehistoric Coastlines, edited by G. Bailey and J. Parkington pp. 64–77. Cambridge University Press, Cambridge, England.

Gust, S. and C.L. Burres. *Paleontological monitoring report for the City of Laguna Hills, community center and sports complex, Laguna Hills, Orange County, California*. Prepared for City of Laguna Hills. On file at RMW Paleo Associates, A Division of SWCA, Mission Viejo, California. 2000.

Haley & Aldrich, Inc. *ASTM Phase I Environmental Site Assessment, Will J. Reid Scout Camp*. July 2013.

Institute of Transportation Engineers [ITE]. 2012. *Trip Generation*, ninth ed.

Intergovernmental Panel on Climate Change [IPCC]. *Revised 2006 IPCC Guidelines for National Greenhouse Gas Inventories*. [Penman,J.; Gytarsky, M.; Hiraishi, T.; Irving, W.; Krug, T.]. Paris: OECD, 2006.

Intergovernmental Panel on Climate Change [IPCC], 2007: Summary for Policymakers. In: *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* [Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M.Tignor and H.L. Miller (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

Intergovernmental Panel on Climate Change [IPCC], 2013: Summary for Policymakers. In: *Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Stocker, T.F., D. Qin, G.-K. Plattner, M. Tignor, S. K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex and P.M. Midgley (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

Intergral Partners Funding, LLC. March 2014. *Design-Pahse Geotechnical Investigation Proposed 133-Unit Residential Development (Vesting Tentative Tract No. 72608), 4747 Daisy Avenue, City of Long Beach, California.*

Jefferson, G. T., H. L. Fierstine, J. R. Wesling, and T. Ku. Pleistocene Terrestrial Vertebrates from near Point San Luis, and Other Localities in San Luis Obispo County, California. Bulletin of the Southern California Academy of Science. 9(11), pp. 26'-38, 1992.

Jennings, C. W. *Geologic Map of California: Long Beach sheet*. California Division of Mines and Geology. 1:250,000. 1962.

Johnson, J. R., T. W. Stafford, Jr., H. O. Ajie, and D. P. Morris. 2002. *Arlington Springs Revisited*. In Proceedings of the Fifth California Islands Symposium, edited by D. Browne, K. Mitchell, and H. Chaney, pp. 541–545. USDI Minerals Management Service and the Santa Barbara Museum of Natural History, Santa Barbara, California.

Jones, Terry L. and Kathryn A. Klar. 2007. *California Prehistory: Colonization, Culture, and Complexity*. AltaMira Press, Berkeley, California.

Johnson, Paul C., Dorothy Krell, John S. Weir, Harry Downie, Adrian Wilson, Joe Seney, Philip Spencer, and France Carpentier. 1972. *The California Missions A Pictorial History*. Sunset Books, Lane Publishing Co., Menlo Park, California.

Kimley Horn. *Preliminary Hydrology Study, Vesting TTM 72608, Long Beach, CA*. May 2014.

King, Chester D. 1994. *Native American Placenames in the Santa Monica Mountains National Recreation Area, Agoura Hills*. Topanga Anthropological Consultants, California.

Koerper, Henry C., and Christopher E. Drover. 1983. *Chronology Building for Coastal Orange County: The Case from CA-ORA-119-A*. Pacific Coast Archaeological Society Quarterly 19(2):1–34.

Koerper, Henry C., Roger D. Mason, and Mark L. Peterson. 2002. *Complexity, Demography, and Change in Late Holocene Orange County*. In Catalysts to Complexity: Late Holocene Societies of the California Coast, edited by Jon M. Erlandson and Terry L. Jones, pp. 63–81. Perspectives in California Archaeology, Vol. 6, Costen Institute of Archaeology, University of California, Los Angeles.

Kowta, Makoto. 1969. *The Sayles Complex, A Late Milling Stone Assemblage from the Cajon Pass and the Ecological Implications of its Scraper Planes*. University of California Publications in Anthropology 6:35–69. Berkeley, California.

Kroeber, Alfred J. 1925. *Handbook of the Indians of California. Bulletin 78, Bureau of American Ethnology, Smithsonian Institution*. Government Printing Office, Washington, D.C. Reprinted 1976 by Dover Publications, Inc., New York.

Langenwalter, Paul E., II, Matthew A. Boxt, Lawrence M. Boxt, M.D., and Theodore T. Miller, M.D. 2001. *A Sea Otter (Enhydra lutris) Femur with Embedded Projectile Point Fragment from a Late Prehistoric Camp Site in Long Beach, California*. Pacific Coast Archaeological Society Quarterly 37(1).

Lee, K.L. and Albaisa, A.*Earthquake induced settlement in saturated sands, Journal of the Soil Mechanics and Foundations Division, ASCE*. 1974. Vol. 100, No. GT4

Long Beach Board of Water Commissioners. 2011. *2010 Urban Water Management Plan*. Revised September 15, 2011. Accessed at http://www.lbwater.org/sites/default/files/file_attach/pdf/2010_uwmp.pdf. Accessed on November 5, 2014.

Long Beach, City of, Development Services Planning Bureau. 2014. *2013-2021 Housing Element*. Accessed on September 1, 2014. Accessed at http://www.lbds.info/civica/filebank/blobdload.asp?BlobID=4185

Long Beach, City of. Website (http://www.longbeach.gov/citymanager/maprogram/city.asp). Accessed September, 2014.

Long Beach, City of. *Construction and Demolition Ordinance*. Website. Accessed on March 9, 2015. Accessed at http://www.lbds.info/civica/filebank/blobdload.asp?BlobID=2529

Long Beach, City of. January 2014. *Environmental Impact Report CSULB Foundation Retail Project*. Accessed on November 11, 2014. Accessed at http://www.lbds.info/planning/environmental_planning/environmental_reports.asp

Long Beach, City of, Environmental Services Bureau. Website (http://www.longbeach-recycles.org/home/index.htm). Accessed March 9, 2015.

Long Beach, City of, Gas and Oil Department. Website (http://www.longbeach.gov/lbgo/serrf/). Accessed March 9, 2015.

Long Beach, City of, Parks, Recreation and Marine Department. Website (http://www.longbeach.gov/park/parks_and_open_spaces/intro.asp). Accessed October, 2014.

Long Beach, City of, Public Works Department. Website (http://www.longbeach.gov/pw/stormwater_management/lb_stormwater_plan.asp). Accessed on March 9, 2015.

Long Beach, City of, Public Works Department. 2010. *Stormwater Systems Map*. (http://www.longbeach.gov/civica/filebank/blobdload.asp?BlobID=22299). Accessed on November 11, 2014.

Long Beach Public Library (LBPL). November 2012. *Facts and Figures*. Website (http://www.lbpl.org/info/about/facts_and_figures.asp). Accessed on: February 2015.

Long Beach Unified School District (LBUSD).May 2014. *School Facilities Needs Analysis*.

Long Beach Unified School District (LBUSD). Website (http://www.lbusd.k12.ca.us/Schools/). Accessed on: October 13, 2014.

Long Beach Unified School District (LBUSD). *Developer Fees – Guide to School Facility Fees*. July 2014.

Long Beach Water Department (LBWD). Water Services. Website (http://www.lbwater.org/water-services). Accessed on March 9, 2015.

Long Beach Water Department (LBWD). Sewer Services. Website (www.lbwater.org/sanitary-sewers). Accessed on March 9, 2015.

Los Angeles Airport Land Use Commission. 2003. *Long Beach Airport, Airport Influence Area Map*. Accessed at: http://planning.lacounty.gov/assets/upl/project/aluc_airport-long-beach.pdf.

Los Angeles Times. *A district-by-district look at the proposed water restrictions.* By Thomas Suh Lauder. April 8, 2015.

Mason, Roger D., and Mark L. Peterson. 1994. *Newport Coast Archaeological Project: Newport Coast Settlement Systems–Analysis and Discussion, Volume 1, part 1 of 2. Prepared by The Keith Companies*. On file, South Central Coastal Information Center, California State University, Fullerton.

McCawley, William. 1996. *The First Angelinos: The Gabrielino Indians of Los Angeles*. Malki Museum/Ballena Press Cooperative Publication, Banning or Novato, California.

Metropolitan Water District of Southern California. Website. (www.bewaterwise.com). Accessed March 9, 2015.

Metropolitan Water District of Southern California. November 2010. *Regional Urban Water Management Plan*. Accessed on November 10, 2014. Accessed at http://www.mwdh2o.com/mwdh2o/pages/yourwater/RUWMP/RUWMP_2010.pdf

Metropolitan Water District of Southern California. February 9, 2015. *Persistent drought conditions could compel Metropolitan to limit imported water supplies for region this summer*. Accessed March 9, 2015. Accessed at http://www.mwdh2o.com/mwdh2o/pages/news/press_releases/2015-02/Allocation_scenarios_introduced.pdf.

Metropolitan Water District of Southern California. March 2, 2015. *Metropolitan General Manager issues statement on revised State Water Project allocation*. Accessed March 9, 2015. Accessed at http://www.mwdh2o.com/mwdh2o/pages/news/press_releases/2015-03/GMstatement_revisedSWPallocation.pdf

Mithun, Marianne. 2004. *The Languages of Native North America.* Cambridge University Press, Cambridge, Massachusetts. Originally published 1999.

Moratto, Michael J. 1984. *California Archaeology*. Academic Press, New York.

National Oceanic & Atmospheric Administration (NOAA). *Annual Greenhouse Gas Index*. September 2010. http://www.esrl.noaa.gov/gmd/aggi/.

Norris, R. M. and R. W. Webb. *Geology of California, Second Edition*. John Wiley and Sons, Inc. 1990.

O'Neil, Stephen. 2002. *The Acjachemen in the Franciscan Mission System: Demographic Collapse and Social Change*. Master's thesis, Department of Anthropology, California State University, Fullerton.

Parmesan, C. 2004. *Ecological and Evolutionary Responses to Recent Climate Change*.

Parmesan C, Galbraith H. 2004. *Observed Ecological Impacts of Climate Change in North America*. Arlington, VA: Pew Cent. Glob. Clim. Change

Reinman, Fred M. 1964. *Maritime Adaptations on San Nicolas Island, California*. University of California Archaeological Survey Annual Report 1963–1964:47–80.

Rick, Torben C., Jon M. Erlandson, and René Vellanoweth. 2001. *Paleocoastal Marine Fishing on the Pacific Coast of the Americas: Perspectives from Daisy Cave, California*. American Antiquity 66:595–613.

Robinson, W. W. 1979. Land in California: *The Story of Mission Lands, Ranchos, Squatters, Mining Claims, Railroad Grants, Land Scrip, Homesteads*. University of California Press, Berkeley.

Rolle, Andrew. 2003. *California: A History. Revised and expanded sixth edition*. Harlan Davidson, Inc., Wheeling, Illinois.

Ramirez, Robert, Hannah Haas, and James W. Steely, 2014. *Cultural Resources Study for the Riverwalk Residential Development Project, Long Beach, Los Angeles County, California*. Report on file at the South Central Coastal Information Center, California State University, Fullerton.

Sanitation Districts of Los Angeles County (LACSD). Website. Accessed on March 9, 2015. Accessed at http://www.lacsd.org/aboutus/default.asp.

Sanitation Districts of Los Angeles County (LACSD). *Average Wastewater Generation Factors. Table 1, Loadings for Each Class of Land Use*. Accessed on March 9, 2015. http://www.lacsd.org/civica/filebank/blobdload.asp?BlobID=3531.

Shumway, Burgess McK. 2007. *California Ranchos. 2nd ed*. The Borgo Press.

Society of Vertebrate Paleontology (SVP) (2010). *Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources. Society of Vertebrate Paleontology*, p. 1–11.

South Coast Air Quality Management District. 1993. *CEQA Air Quality Handbook*.

South Coast Air Quality Management District. 2011. *SQAQMD Air Quality Significance Thresholds*. https://www.aqmd.gov/ceqa/handbook/signthres.pdf.

South Coast Air Quality Management District. 1993. *CEQA Air Quality Handbook.*

South Coast Air Quality Management District. http://www.aqmd.gov/CEQA/handbook/LST/appC.pdf

South Coast Air Quality Management District. September 2010. *Proposed Tier 3 Quantitative Thresholds – Option 1.*

Southern California Association of Governments [SCAG]. 2001. *Employment Density Study Summary Report.*

Southern California Association of Governments (SCAG). *Final 2008 Regional Comprehensive Plan*. 2008. Accessed on October 4, 2013. Accessed at http://www.scag.ca.gov/NewsAndMedia/Pages/RegionalComprehensivePlan.aspx

Southern California Association of Governments (SCAG). April 2012. *Regional Transportation Plan/Sustainable Communities Strategy 2012-2035*. Accessed on September 1, 2014. Accessed at http://rtpscs.scag.ca.gov/Documents/2012/final/f2012RTPSCS.pdf

Southern California Association of Governments [SCAG]. *Adopted 2012 RTP Growth Forecast.* Website. http://www.scag.ca.gov/forecast/index.htm. Accessed March 2014.

Southern California Edison (SCE). Webpage – *Among the Nation's Leading Utilities for Renewable Energy*. Available: https://www.sce.com/wps/portal/home/about-us/environment/renewable-power/!ut/p/b1/hc9NC4JAEAbg39LBY-

7ommm3FcXWQyYK6V5CY9sEc0Mt6d-nUQehj7m9w_PCDGIoRazOb6XIu1LWeTVmZu41yydrGgMNk9gG6lCXRLqnwRYGkA0AvgyBf_0dYlPiJ8ZiIPoS-w7FiWv8Bq7xBrYP3joIRxBhoDiCTUwIBjBf4MeRAWKiksXz4YzUBbYEYg0_8oY36rUZ1qeuu7QrBRTo-14VUoqKqwd5VuBT5STbDqVTiS7nFEo6Z8W9nz0A7QfZHA!!/dl4/d5/L2dBISEvZ0FBIS9nQSEh/?from=renewables, accessed March 2015.

State of California. *Executive Order B-29-15.* Accessed April 9, 2015. Accessed at http://gov.ca.gov/docs/4.1.15_Executive_Order.pdf.

State Water Resources Control Board. *State Water Board Drought Year Water Actions, Proposed Emergency Conservation Regulation Schedule.* Accessed April 9, 2015. Accessed at http://www.waterboards.ca.gov/waterrights/water_issues/programs/drought/executive_order_schedule.shtml.

Transportation Research Board. 2000. *Highway Capacity Manual*, fourth ed.

True, Delbert L. 1993. *Bedrock Milling Elements as Indicators of Subsistence and Settlement Patterns in Northern San Diego County, California*. Pacific Coast Archaeological Society Quarterly 29(2):1–26.

United Nations (n.d.) *Gateway to the United Nations Systems Work on Climate Change: Durban conference delivers breakthrough in international community's response to climate change*. Accessed March 2014. Retrieved from: http://www.un.org/wcm/content/site/climatechange/pages/gateway/the-negotiations/durban

United Nations Framework Convention on Climate Change (UNFCCC). August 2007. *United Nations Framework Convention on Climate Change.* Available: http://unfccc.int/files/essential_background/convention/status_of_ratification/application/pdf/unfccc_conv_rat.pdf

United Nations Framework Convention on Climate Change (November 2011). *Outcome of the work of the Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol at its sixteenth session.* Accessed March 2014. Retrieved from: http://unfccc.int/files/meetings/durban_nov_2011/decisions/application/pdf/awgkp_outcome.pdf

United Nations Framework Convention on Climate Change (March 15, 2012). *Report of the Conference of the Parties on its seventeenth session, held in Durban from 28 November to 11 December 2011*. Retrieved from: http://unfccc.int/resource/docs/2011/cop17/eng/09a01.pdf

United States Department of Agricultural (USDA). *Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition.* Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436. 1999.

United States Department of Agricultural (USDA). Web Soil Survey. Soil Survey Area: *Los Angeles County, California.* Retrieved from http://websoilsurvey.nrcs.usda.gov/app. August 7, 2014.

United States Department of Energy, Energy Information Administration. *Annual Energy Review 2009*. August 2010. http://www.eia.gov/aer/envir.html.

United States Department of Transportation, Federal Transit Administration. 2006. *Transit Noise and Vibration Impact Assessment.*

United States Environmental Protection Agency (U.S. EPA). Climate Change Technology Program (CCTP). December 2007. http://www.epa.gov/climatechange/policy/cctp.html.

United States Environmental Protection Agency (U.S. EPA). *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2010*. U. S. EPA #430-R-11-005. April 2012. http://www.epa.gov/climatechange/emissions/usinventoryreport.html

United States Fish and Wildlife Service (USFWS) (2014a). *Critical Habitat Portal*. Retrieved from http://criticalhabitat.fws.gov. August 7, 2014.

United States Fish and Wildlife Service (USFWS) (2014b). *National Wetlands Inventory*. Retrieved from http://wetlands.fws.gov. August 7, 2014.

United States Environmental Protection Agency. 2014. *EPA Construction General Permit*. Retrieved from: http://water.epa.gov/polwaste/npdes/stormwater/EPA-Construction-General-Permit.cfm. March 2015.

United States Geologic Survey. *Seismic Design Maps for International Residential Code.* 2006 & 2009. Retrieved from: http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/IRC-2006-Figure-R301-2-2-48states.pdf. March 2015.

Valentine J. W. and R. W. Rowland. *Major Features of the Marine Pliocene and Pleistocene Fossil Record of Northwesternmost Baja California, Mexico Pacific Section of the SEPM abstracts with Programs*. 1970.

Wallace, William. 1955. *Suggested Chronology for Southern California Coastal Archaeology*. Southwestern Journal of Anthropology 11:214–230.

Wallace, William. 1978. *Post-Pleistocene Archaeology, 9000 to 2000 B.C. In California*. Edited by R. F. Heizer, pp. 25–36. Handbook of North American Indians, Vol. 8, W. C. Sturtevant, general editor, Smithsonian Institution, Washington D.C.

Woodring, W. P., M. N. Bramlette, and W. S. W. Kew. *Geology and Paleontology of Palos Verdes Hills, California*. U. S. Geological Survey Professional Paper 207. 1946.

World Meteorological Organization. *A summary of current and climate change findings and figures*. March 2013. http://www.wmo.int/pages/mediacentre/factsheet/documents/Climate-Change-Info-Sheet-136_fr.pdf

Workman, Boyle. 1935. *The City that Grew*. Southland Publication Co., Los Angeles.

7.1.2 Persons Contacted

Craig Chalfant, Planner. Long Beach Development Services, Planning Bureau. January-March 2015.

Barbi Clark, Development Project Manager. Long Beach Development Services, Housing and Community Improvement Bureau. March 2015.

Edward Galligher, Vice President, Acquisitions and Entitlements, Integral Communities. April 2015.

Fernando Eggleston, Engineering Technician, Long Beach Water Department. December 17, 2014.

John Signo, Senior Planner, City of Carson. January 27, 2015.

Karen Abrahamson, Attendance Clerk, Perry Lindsey Middle School. October 13, 2014.

Javier Ramirez, Community Services Attendant, Long Beach Fire Department, October 1, 2014.

Melvin McGuire, Sergeant, Long Beach Police Department, October 1, 2014.

Susan Ahn, Facilities Project Manager, Long Beach Unified School District, November 7, 2014.

7.2 REPORT PREPARERS

This EIR was prepared by the City of Long Beach, with the assistance of Rincon Consultants, Inc. Consultant staff involved in the preparation of the EIR are listed below.

Rincon Consultants, Inc.

Joe Power, AICP, Principal in Charge
Greg Martin, AICP, Project Manager
Ryan Birdseye, Senior Program Manager
Heather Imgrund, Senior Planner
Jillian Moore, Associate Biologist
Robert Ramirez, Cultural Resources Principal Investigator
Hannah Haas, Archaeologist
Donald Nielsen, Associate Planner
Christina McAdams, Environmental Scientist
Karly Kaufman, Associate Environmental Planner
Sarah Richman, MESM
Lindsey Sarquilla, Associate Environmental Planner
Kellie Knauss, Aviation Planner/Regulatory Specialist
Wade Sherman, Graphics Technician

Traffic Study- Linscott, Law & Greenspan, Engineers
Richard E. Barretto, Principal
Daniel A Kloos, PE, Senior Transportation Engineer