Draft Environmental Impact Report

Irvine Gateway Village Project

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Prepared for:

CITY OF IRVINE
1 Civic Center Plaza
Irvine, California 92606
Contact: Erica Hong, Senior Planner

Prepared by:

DUDEK

27271 Las Ramblas, Suite 340
Mission Viejo, California 92691
Contact: Rachel Struglia, PhD, AICP

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
µg/m^3	micrograms per cubic meter
AAA	All American Asphalt
AB	Assembly Bill
ACC	Advanced Clean Cars
ACM	asbestos-containing material
ADA	Americans with Disabilities Act
ADT	average daily traffic
AERMOD	American Meteorological Society/Environmental Protection Agency Regulatory Model
AFY	acre-feet per year
amsl	above mean sea level
API	area of potential impacts
AQMP	air quality management plan
Basin	Orange County Groundwater Basin
Basin Plan	Water Quality Control Plan for the Santa Ana River Basin
BenMAP	Benefits Mapping and Analysis Program
BMP	best management practice
BRTR	Biological Resources Technical Report
CAAP	Climate Action and Adaptation Plan
CAAQS	California Ambient Air Quality Standards
CalARP	California Accidental Release Prevention
CalEEMod	California Emissions Estimator Model
CALGreen	California Green Building Code
Cal/OSHA	California Occupational Safety and Health Administration
CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Highway Patrol
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CBC	California Building Code
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFC	California Fire Code
CFCs	chlorofluorocarbons
CFR	Code of Federal Regulations
CH_4	methane

Acronym/Abbreviation	Definition
CHP	California Highway Patrol
CIWMB	California Integrated Waste Management Board
CMP	Congestion Management Plan
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNRA	California Natural Resources Agency
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
CRPR	California Rare Plant Rank
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
CY	cubic yard
DA	Development Area
dB	decibel
dBA	A-weighted decibel
DDT	dichlorodiphenyltrichloroethane
DMA	drainage management area
DOC	Department of Conservation
DPM	diesel particulate matter
DPR	California Department of Parks and Recreation
DTSC	Department of Toxic Substances Control
DTSC-SL	Department of Toxic Substances Control–modified screening level
DU	dwelling unit
du/ac	dwelling units per acre
DWR	California Department of Water Resources
EB	eastbound
EIR	environmental impact report
EISA	Energy Independence and Security Act
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESL	Environmental Screening Level
EV	electric vehicle
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FESA	federal Endangered Species Act
FHSZ	Fire Hazard Severity Zone

Acronym/Abbreviation	Definition
FMMP	Farmland Mapping and Monitoring Program
FMZ	fuel modification zone
FPPA	Farmland Protection Policy Act
FTA	Federal Transit Authority
GHG	greenhouse gas
gpm	gallons per minute
GSP	Groundwater Sustainability Plan
GWP	global warming potential
HAP	hazardous air pollutant
HCFC	hydrochlorofluorocarbon
HERO	Human and Ecological Risk Office
HFC	hydrofluorocarbon
HHRA	Human Health Risk Assessment
HIA	health impact assessment
HMBP	Hazardous Materials Business Plan
HOA	homeowners' association
HPI	Healthy Places Index
HRA	health risk assessment
HSC	Health and Safety Code
I	Interstate
IFC	International Fire Code
in/sec	inches per second
IPD	City of Irvine Police Department
IRCWM Plan	Central Orange County Integrated Regional and Coastal Watershed Management Plan
IRWD	Irvine Ranch Water District
JOST	Jeffrey Open Space Trail
kBTU	kilo–British thermal units
kg/MT	kilograms per metric ton
kV	kilovolt
kWh	kilowatt-hours
L_{10}	sound level exceeded 10% of the time
L_{50}	sound level exceeded 50% of the time
L_{90}	sound level exceeded 90% of the time
LBP	lead-based paint
LCD	liquid crystal display
LCFS	Low Carbon Fuel Standard
LCI	Governor's Office of Land Use and Climate Innovation
L_{eq}	equivalent continuous sound level
LHMP	Local Hazard Mitigation Plan

Acronym/Abbreviation	Definition
LID	Low Impact Development
LOS	level of service
LRA	Local Responsibility Area
LRTP	Long Range Transportation Plan
LST	localized significance threshold
LT	long-term (sound measurement location)
MATES V	Multiple Air Toxics Exposure Study V
MBTA	Migratory Bird Treaty Act
mg/kg	milligram per kilogram
mgd	million gallons per day
MLD	Most Likely Descendant
MM	Mitigation Measure
MMT	million metric tons
MPAH	Master Plan of Arterial Highways
mph	miles per hour
MPO	metropolitan planning organization
MRZ	Mineral Resource Zone
MS4	Municipal Separate Storm Sewer System
MT	metric ton
M_W	moment magnitude
MWS	Modular Wetlands Systems
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NB	northbound
NCCP/HCP	Natural Community Conservation Plan & Habitat Conservation Plan, County of Orange Central & Coastal Subregion
NESHAP	National Emission Standards for Hazardous Air Pollutants
NF_3	nitrogen trifluoride
NHPA	National Historic Preservation Act
NHTSA	National Highway Traffic Safety Administration
NO_2	nitrogen dioxide
NOP	Notice of Preparation
NO_x	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NWW	Non-Wetland Waters
O_3	ozone
OCFA	Orange County Fire Authority

Acronym/Abbreviation	Definition
OCHCA	Orange County Health Care Agency
OCTA	Orange County Transportation Authority
OCWD	Orange County Water District
OCWR	OC Waste & Recycling
OHWM	ordinary high water mark
OSHA	Occupational Safety and Health Administration
PA	Planning Area
PCB	polychlorinated biphenyl
PDF	Project Design Feature
PFAS	perfluorooctanesulfonic acid
PFC	perfluorocarbon
Phase I ESA	Phase I Environmental Site Assessment
Phase II ESA	Phase II Environmental Site Assessment
PM	particulate matter
$PM_{2.5}$	fine particulate matter
PM_{10}	coarse particulate matter
PMP	Parks Master Plan
POC	point of connection
ppm	parts per million
PPP	plans, programs, or policies
PPV	peak particle velocity
PRC	California Public Resources Code
PRIMP	Paleontological Resources Impact Mitigation Program
RCP	reinforced concrete pipe
RFS	Renewable Fuel Standard
RHNA	Regional Housing Needs Assessment
RPS	Renewables Portfolio Standard
RSL	regional screening level
RTP	Regional Transportation Plan
RWQCB	Santa Ana Regional Water Quality Control Board
SAMP	Sub-Area Master Plan
SB	southbound
SB	Senate Bill
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCCIC	South Central Coastal Information Center
SCE	Southern California Edison
SCS	Sustainable Communities Strategy

Acronym/Abbreviation	Definition
SDC	Seismic Design Category
SEMS	Standardized Emergency Management System
SF_6	sulfur hexafluoride
SGMA	Sustainable Groundwater Management Act
SHMA	Seismic Hazards Mapping Act
SJVAPCD	San Joaquin Valley Air Pollution Control District
SLCP	short-lived climate pollutant
SLM	sound level meter
SMP	soil management plan
SO_2	sulfur dioxide
SO_x	sulfur oxides
SPCC	spill prevention, control, and countermeasure
SR	State Route
SRA	State Responsibility Area
SSC	Species of Special Concern
ST	short-term (sound measurement location)
Submitting Agencies	Orange County Water District, Irvine Ranch Water District, and City of La Habra
SWPPP	stormwater pollution prevention plan
SWRCB	State Water Resource Control Board
TAC	toxic air contaminant
TCR	tribal cultural resource
TDM	Transportation Demand Management
TDP	Transportation Design Procedure
TISG	Transportation Impact Study Guide
TMDL	total maximum daily load
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
UST	underground storage tank
UWMP	Urban Water Management Plan
veh/h	vehicles per hour
VHFHSZ	Very High Fire Hazard Severity Zone
VMT	vehicle miles traveled
VOC	volatile organic compound
WQMP	water quality management plan
ZEV	zero-emission vehicle

1 Executive Summary

1.1 Introduction

This draft environmental impact report (Draft EIR) evaluates the potential for significant environmental impacts from the proposed Irvine Gateway Village Project (project). This summary highlights the major areas of importance in the environmental analysis for the project, as required by Section 15123 of the California Environmental Quality Act (CEQA) Guidelines. It also provides a brief description of the project, alternatives to the project, and areas of controversy known to the City of Irvine (City). In addition, this chapter provides a table summarizing (1) the potential environmental impacts that would occur as the result of the project, (2) the level of impact significance before mitigation, (3) the proposed mitigation measures that would avoid or reduce significant environmental impacts, and (4) the level of impact significance after mitigation measures are implemented.

1.2 Project Overview

The proposed project is the development of a new, approximately 105-acre residential village with approximately 1,360 residential units, called Gateway Village (Planning Area 2). The project would also include development of parks, a community garden, paseos, and an approximately 2,750-foot extension of the Jeffrey Open Space Trail (JOST) east from Portola Parkway to the entrance of the new Gateway Preserve. The project would include 25% affordable housing, consistent with the Surplus Lands Act.

Chapter 3, Project Description, provides a detailed description of the project. A summary of that information is provided in this section.

1.2.1 Project Location and Setting

The approximately 105-acre project site is located in north Irvine, at the northeast corner of Portola Parkway and Jeffrey Road.[1] The site is bounded by Portola Parkway to the south, Jeffrey Road/Hicks Haul Road to the west, and Bee Canyon Access Road to the east. Hicks Canyon Wash is to the north. North Irvine is an area of recent development in the City, including the development of the residential communities of Portola Springs and Orchard Hills. The project site consists primarily of active agricultural fields, with equipment storage and laydown areas in the northern portion of the site.

Hicks Canyon Wash forms the northern boundary of the project site. Just north of Hicks Canyon Wash is a road that stretches east to the Irvine Ranch Conservancy Native Seed Farm and various other special use sites leased to third parties, including a landscape designer, a pump supplier, and an excavating contractor. Following Hicks Haul Road to the north are avocado groves, undeveloped open space, and the closed All American Asphalt (AAA) plant. The final phase of the Orchard Hills development, a single-family residential development (Neighborhood 4, Summit at Orchard Hills), is under construction directly to the west of the project site.

[1] This document uses Irvine directionality, where “north” is the Santa Ana Mountains, “south” is the Pacific Ocean, “west” is the Orchard Hills development, and “east” is Bee Canyon Access Road.

1.2.2 Project Purpose and Objectives

The underlying purpose of the project is to develop a new residential community with a variety of housing types in north Irvine.

The objectives for the project are as follows:

1. **Housing Stock.** Provide diverse housing types and opportunities within the City that address a variety of lifestyles, life stages, and economic segments of the marketplace.
2. **Affordable Housing.** Consistent with Goal 4 of the City's General Plan Housing Element, provide affordable housing to support balanced housing options at the least cost possible to residents.
3. **RHNA Goals.** Contribute new housing units to the City's housing stock to help satisfy the State of California Regional Housing Needs Assessment (RHNA) for the 2021–2029 planning period, allowing the City to advance their fair share of regional housing growth goals.
4. **City Revenue Generation.** Generate net revenue for the City of Irvine General Fund.
5. **Attractive Community and Amenities.** Develop a cohesive architectural and landscape themed community with amenities that both residents and guests seek. Create gathering spaces and encourage outdoor vehicle-free movement by providing parks, paseos, streetside green spaces, and outdoor amenity areas. Establish recreational amenities within walking distance of residential neighborhoods.
6. **Circulation Network.** Complete the comprehensive circulation network with integrated mobility options by connecting pedestrians and bicyclists traveling to a non-vehicular bridge across Portola Parkway to the broader Irvine community to the south and west of Gateway Village. Establish connectivity between land uses through the extension of the JOST to its connection point with the 700-acre Gateway Preserve via the network of trails, which sustains the City's goals to enhance quality living environments through parks and open space.

1.2.3 Project Components

The project would consist of developing a new residential village and associated parks, a community garden, and paseos, as well as extending the JOST east from Portola Parkway to the entrance of the new Gateway Preserve. Components of the project include the following:

- **Zoning and Land Use Changes.** To support the components listed below, the project requires a General Plan Amendment to change the City's Land Use Map from Recreation to Medium High Density Residential, with High Density Residential to be applied on the affordable housing portion of the project site only. Additionally, text, tables, and figure updates in the Land Use Element would be made to establish Planning Area 2 (Gateway Village). Additional General Plan updates include revisions to the figures in the Circulation Element; updates to figures, tables, and text in the Conservation and Open Space Element; and updates to figures in the Safety Element. A zone change to the Irvine Zoning Ordinance is also required to change the zoning classification of the project site from 1.5 – Recreation to 2.4J – Medium High Density Residential; add Chapter 9-2, Planning Area 2; and amend Section 3-3-1, Section 3-37-15, and Chapter 9-6 for consistency purposes.
- **Other Entitlements.** The project also requires Tentative Tract/Parcel Maps to subdivide the project site; Master Plans; a Park Plan; a Master Landscape and Trails Plan; Park Designs; and the annexation of County of Orange land parcels within the boundaries of the project site.

- **Residential Development.** The project would consist of approximately 1,360 two- and three-story attached and detached homes over approximately 65.5 acres. Density ranges for different residential development areas would range from 10 to 22 dwelling units per acre at the lowest density to 30 to 40 dwelling units per acre at the highest density. The project would include single-family and multifamily housing types.
- **Parks.** The project would include the construction of five parks totaling approximately 7.2 acres, consisting of neighborhood parks, linear parks, and an approximately 4.9-acre public park complete with parking, restrooms, and trail staging for the Gateway Preserve.
- **Jeffrey Open Space Trail.** The proposed project would include the extension of the JOST, which links the conservation and open space lands within the City, north approximately 2,750 feet from Portola Parkway to South Park at the entrance to the forthcoming Gateway Preserve; this extension would include a pedestrian bridge over Portola Parkway. The total acreage of the JOST extension under the proposed project would be approximately 9.5 acres.
- **Utilities.** The proposed project would include the extension of all utilities to the project site, including domestic water, sewer, reclaimed water, stormwater, electricity, telecommunications, and natural gas. These utilities would be provided by Irvine Ranch Water District, Southern California Edison, AT&T, Cox Communications, and SoCalGas.
- **Jeffrey Road Improvements.** Jeffrey Road improvements along the western project frontage were completed in 2024 by The Irvine Company as part of the Orchard Hills development. The roadway segment of Jeffrey Road north of Portola Parkway is a four-lane facility, and the intersection of Jeffrey Road/"A" Street would be striped to provide one northbound through lane and one northbound shared through lane/right-turn lane onto "A" Street.

Details related to project construction, including activities, phasing, durations, and staging are provided in Chapter 3.

1.3 Impact Summary

Table 1-1, Summary of Project Impacts, which is provided at the end of this chapter, provides a complete list of the project's environmental impacts, including the level of significance before and after mitigation, based on the analysis and conclusions presented in Chapter 4, Environmental Analysis. As detailed in Table 1-1, the project would result in significant and unavoidable project-specific and cumulative impacts to agriculture and forestry, air quality, greenhouse gas (GHG) emissions, recreation, and transportation, even with implementation of mitigation measures. The table also provides project design features (PDFs) that would be incorporated into the design of the project as part of the City's standard practice.

The project would result in conversion of 67.46 acres of agricultural farmland to non-agricultural uses, resulting in significant and unavoidable project-specific and cumulative agricultural impacts. There are no feasible mitigation measures that would reduce or avoid the loss of this farmland.

The project would result in a significant and unavoidable impact relating to a potential conflict with the South Coast Air Quality Management District (SCAQMD) 2022 Air Quality Management Plan even after implementation of all feasible mitigation measures. The project would also result in a cumulatively considerable increase in criteria air pollutants. Operational emissions would continue to exceed the SCAQMD significance threshold for volatile organic compounds (VOCs) even after implementation of mitigation measures. Accordingly, the potential of the project to violate any air quality standard or contribute substantially to an existing or projected air quality violation would be significant and unavoidable even with mitigation incorporated.

Regarding the project's ability to generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, emissions during project operations would exceed the City's threshold for GHG emissions, even after mitigation. Impacts to a potential conflict an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs would also be significant and unavoidable. As such, the project would result in significant and unavoidable project-specific and cumulative GHG impacts regardless of the application of feasible mitigation. Specifically, as detailed in Section 4.8, Greenhouse Gas Emissions and Section 4.11, Land Use and Planning, the proposed project would conflict with certain key attributes of the 2022 CARB Scoping Plan Update, Appendix D. Therefore, the proposed project would conflict with a land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect, resulting in significant and unavoidable land use and planning impacts at the project-level and cumulatively.

Because the proposed project includes the construction of parks and the JOST extension, potential adverse physical effects on the environment from construction of these elements are assessed throughout this Draft EIR. Mitigation is required to reduce impacts in several environmental resource areas, as assessed throughout Chapter 4 of this document and summarized in Table 1-1. However, as described in this section, agriculture and forestry, air quality, GHG emissions, and transportation impacts relating to the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment, would remain significant and unavoidable after mitigation; this would also contribute to a significant and unavoidable cumulative impact.

Even with implementation of mitigation measures, the project would have a significant and unavoidable impact related to conflicts or inconsistencies with CEQA Guidelines Section 15064.3(b) due to increased vehicle miles traveled. This would also contribute to a significant and unavoidable cumulative impact.

For information regarding how the alternatives to the project, as identified in Section 1.4, would address these same environmental impacts, see Table 6-2, Comparison of Impacts from the Alternatives, in Chapter 6, Alternatives.

1.4 Project Alternatives

CEQA Guidelines Section 15126.6 requires that an EIR describe and evaluate alternatives to the project that feasibly attain most of the basic objectives of the project and would avoid or substantially lessen any of the significant effects of the project. The following alternatives are evaluated in Chapter 6 of this EIR:

1. **No Project/No Development.** This alternative involves the circumstances under which the project does not proceed and legacy agricultural uses would continue on the project site.
2. **No Project/Community Park.** This alternative involves the circumstances under which the project does not proceed and the project site is developed solely with parks and recreational facilities, consistent with the City General Plan and the project site's zoning designation of Recreation. Development under this alternative would be consistent with City of Irvine Parks Master Plan, which identifies a new community park ("Gateway Park") on the proposed project site.
3. **Reduced Residential.** This alternative involves a reduced residential development scenario with fewer residential units and structures and a smaller buildout footprint than the proposed project. The alternative, consistent with the proposed project, includes parks, paseos, and an extension of the JOST. This alternative's residential unit count would be reduced by 30%: 645 market-rate units and 216 affordable units, for a total of 861 units. Accordingly, it is assumed that this alternative's residential development footprint would also be reduced by 30%. Therefore, this alternative is assumed to maintain more open space than the proposed project for residents and the public.

1.5 Known Areas of Controversy

The City of Irvine, as the lead agency, has identified areas of concern based on the Notice of Preparation (NOP) of an EIR, which is included in Appendix A to this Draft EIR. The NOP for the proposed project was circulated for comment period from October 16, 2024, through November 15, 2024, to determine the scope and extent of environmental issues to be addressed in this Draft EIR. During this period, written agency and public comment letters were received in response to the NOP. These comment letters are summarized in Table 2-1 of Chapter 2, Introduction, of this Draft EIR.

The written comments received in response to the NOP have been taken into consideration in the preparation of this Draft EIR for comments that address environmental issues. The seven written comment letters from agencies concerned cultural resources and recommendations for outreach to Native American tribes; biological resources as related to habitat, biological baseline, special-status species, and recommended mitigation measures; transportation as related to potential impacts to traffic safety and operations, recommended studies, agency coordination, street design, and construction traffic control; air quality and GHG emissions as related to the project's consistency with regional goals and visions; and wildfire as related to a granted fuel modification easement along the southeast edge of Bee Canyon Access Road. The four written comment letters from the private organizations and the public generally concerned air quality, biological resources, transportation/traffic, park facilities, and population growth. Overall, the public comments received during the scoping period showed that the most known controversy was centered on an increase in population and traffic congestion.

1.6 Issues to Be Resolved

CEQA Guidelines Section 15123 requires an EIR summary to identify "issues to be resolved including the choice among alternatives and whether or how to mitigate the significant effects." This Draft EIR has presented mitigation measures and project alternatives, and the City Council will consider the comments received and the findings in the Final EIR when considering the proposed project. In considering whether to approve the proposed project, the City Council will take into consideration the environmental consequences of the project with mitigation measures and project alternatives, as well as other factors related to feasibility. The City Council will also consider the extent to which the project alternatives would meet the underlying purposes of the project and whether the alternatives would meet the City's specific project objectives.

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Table 1-1. Summary of Project Impacts

Environmental Topic	Level of Significance Prior to Mitigation	Mitigation Measures/Project Design Features	Level of Significance After Mitigation
Aesthetics			
Would the project have a substantial adverse effect on a scenic vista?	Less than significant	None	Less than significant
Would the project substantially damage scenic resources including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	No impact	None	No impact
In non-urbanized areas, would the project substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	Less than significant	None	Less than significant
Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	Less than significant	None	Less than significant
Would the project have a cumulative effect on aesthetic resources?	Less than significant	None	Less than significant
Agriculture and Forestry Resources			
Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	Potentially significant	None	Significant and unavoidable
Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?	No impact	None	No impact
Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	No impact	None	No impact
Would the project result in the loss of forest land or conversion of forest land to non-forest use?	No impact	None	No impact
Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	Less than significant	None	Less than significant
Would the project have a cumulative effect on agriculture and forestry resources?	Potentially significant	None	Significant and unavoidable
Air Quality			
Would the project conflict with or obstruct implementation of the applicable air quality plan?	Potentially significant	**PDF-AQ/GHG-1 All-Electric Residential Development.** All proposed residential development would use all-electric appliances and end uses (including heating, ventilation, and air conditioning; water heating; and induction cooking). **PDF-AQ/GHG-2 Energy-Efficient Appliances.** During construction activities, the project applicant or its designee would install ENERGY STAR®–rated appliances within the residential and recreational land uses, including but not limited to refrigerators, dishwashers, clothes washers, and ceiling fans. **PDF-AQ/GHG-3 Exceedance of Title 24, Part 6 Standards.** The project would exceed the requirements of the 2022 California Code of Regulations Title 24, Part 6, Building Energy Efficiency Standards by 10%. **MM-AQ-1: Construction Equipment Exhaust Minimization.** Prior to the commencement of any construction activities, the applicant or its designee shall provide evidence to the City of Irvine (City) of the following: For off-road	Significant and unavoidable

Table 1-1. Summary of Project Impacts

Environmental Topic	Level of Significance Prior to Mitigation	Mitigation Measures/Project Design Features	Level of Significance After Mitigation
		equipment with engines rated at 25 horsepower or greater, no construction equipment shall be used that is less than Tier 4 Final. An exemption from the above requirement may be granted if the applicant documents that equipment with Tier 4 Final engines is not reasonably available, and the required corresponding reductions in criteria air pollutant emissions can be achieved for the project through other combinations of construction equipment. Before an exemption may be granted by the City's Community Development Director, the applicant's construction contractor shall demonstrate (1) that at least 3 construction fleet owners/operators in Orange County were contacted and that those owners/operators confirmed Tier 4 Final equipment could not be located within Orange County during the desired construction schedule and (2) that the proposed replacement equipment has been evaluated using California Emissions Estimator Model (CalEEMod) or other industry standard emission estimation method and documentation provided to the City to confirm that project-generated emissions will not exceed the estimated maximum daily construction criteria air pollutant emissions (with mitigation) set forth in Table 4.3-12 of the Draft EIR. **MM-AQ-2: Additional Construction Equipment Emission Reductions.** Prior to the issuance of grading permits, the project applicant or its designee shall provide evidence to the City of Irvine (City) that the following strategies shall be implemented during the project's construction phase: A. Use electric or hybrid powered equipment for small pieces of equipment under 25 horsepower (e.g., forklifts), as commercially available. B. Use cleaner-fuel equipment, such as replacing diesel fuel with compressed natural gas or renewable diesel, as commercially available. Commercially available equipment is herein defined as equipment sourced within 50 vehicle miles of the project site and within 10% of the cost of the diesel-fueled equivalent equipment. The project applicant must contact at least three contractors or vendors within Orange County and submit justification to the City if the specified equipment is not commercially available. **MM-AQ-3: Use of Super-Compliant Low-VOC Paint During Construction.** During construction, the project shall use super-compliant low–volatile organic compound (VOC) paint (less than 10 grams per liter VOC) for all interior and exterior paint applications for residential and nonresidential land uses. **MM-AQ-4: Limit Truck and Equipment Idling During Construction.** The project applicant shall reduce idling time of heavy-duty trucks either by requiring them to be shut off when not in use or limiting the time of idling to no more than 3 minutes (thereby improving upon the 5-minute idling limit required by the state Airborne Toxics Control Measure, 13 CCR 2485). The project applicant shall post clear signage reminding construction workers to limit idling of construction equipment. **MM-AQ-5: Low-VOC Cleaning Supplies and Paint Educational Program.** Prior to the occupancy of any on-site development, the applicant or its designee shall provide evidence to the City of Irvine that the applicant/phase developer has developed a Green Cleaning Product and Paint education program to be made available at rental and purchasing offices and/or on websites. The educational program shall include a flyer (hardcopy and/or digital) that includes, at a minimum, an explanation of what volatile organic compounds (VOCs) are, how VOCs affect us, and where to find low-VOC alternatives for cleaning supplies and paint, as well as including additional resources for learning more. **MM-AQ-6: Use of Low-VOC Cleaning Supplies and Paint for Spaces Operated by Homeowner's Association.** Prior to the issuance of building permits, the applicant or its designee shall provide evidence to the City of Irvine that for applicant (or its designee) and homeowner's association–operated spaces that provisions are in place to ensure that only zero– or low–volatile organic compound (VOC) cleaning supplies and super-compliant VOC paints (less than 10 grams per liter VOC) are used during project operation.	

Table 1-1. Summary of Project Impacts

Environmental Topic	Level of Significance Prior to Mitigation	Mitigation Measures/Project Design Features	Level of Significance After Mitigation
		MM-AQ-7: Use of Zero-Emission Landscape Equipment for Homeowner's Association Land. Only zero-emissions landscaping equipment shall be used during project operation on homeowner's association land. Gasoline-fueled landscaping equipment shall be prohibited consistent with the City's Ordinance No. 23-25. **MM-AQ-8: Landscape Maintenance Equipment Emission Reduction.** The project applicant shall implement the following landscape maintenance equipment emission reduction measures: ▪ **Include Outdoor Electrical Outlets.** Prior to the issuance of building permits, the project applicant or its designee shall provide evidence to the City of Irvine that the design plans include electrical outlets on the exterior of the structure to facilitate use of electrical lawn and garden equipment. ▪ **Encourage Use of Existing Yard Equipment Exchange and Rebate Programs.** The project's future homeowner's association shall educate future residents about the South Coast Air Quality Management District Electric Lawn Mower Rebate Program and the Commercial Electric Lawn and Garden Equipment Exchange Program. When conventional gasoline-powered yard equipment (e.g., lawn mowers, leaf blowers and vacuums, shredders, trimmers, and chainsaws) are exchanged for electric and rechargeable-battery-powered yard equipment, direct greenhouse gas (GHG) emissions from fossil-fuel combustion are displaced by indirect GHG emissions associated with the generation of electricity used to power the equipment.	
Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	Potentially significant	**PDF-AQ/GHG-1 through PDF-AQ/GHG-3** (see above) **MM-AQ-1 through MM-AQ-8** (see above) **MM-GHG-1** (see Greenhouse Gas Emissions section of this table)	Significant and unavoidable
Would the project expose sensitive receptors to substantial pollutant concentrations?	Potentially significant	**MM-AQ-1** (see above)	Less than significant with mitigation incorporated
Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	Less than significant	None	Less than significant
Would the project have a cumulative effect on air quality resources?	Potentially significant	**PDF-AQ/GHG-1 through PDF-AQ/GHG-3** (see above) **MM-AQ-1 through MM-AQ-8** (see above) **MM-GHG-1** (see Greenhouse Gas Emissions section of this table)	Significant and unavoidable
Biological Resources			
Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	Potentially significant	**MM-BIO-1: Avian Nest Avoidance.** Construction activities shall avoid the migratory bird nesting season (typically January 1 through October 31 for white-tailed kite, and from February 1 through August 31 for all other species), as feasible, to reduce any potential significant impact to birds that may be nesting within or adjacent to the construction area. If construction activities must occur during the migratory bird nesting season, an avian nesting survey within 500 feet of impact areas must be conducted by a qualified wildlife biologist no more than 72 hours prior to initial ground-disturbing activities, including vegetation removal. If construction activities cease for more than 3 consecutive days, avian nesting surveys must be repeated no more than 3 days prior to resumption of construction activities. If an active bird nest is found, the nest location shall be added to construction plans and an appropriate no-disturbance buffer shall be established around the nest, the size of which shall be determined by the biologist based on the species' sensitivity to disturbance (typically 300 feet for passerines and 500 feet for raptors and special-status species). The no-disturbance buffer shall be clearly demarcated in the field with highly visible construction fencing or flagging, and construction personnel shall avoid the buffer area until the juveniles have fledged or the nest is no longer considered active, as determined by a qualified biologist. A qualified biologist shall serve as a construction monitor during those periods when construction activities will occur near active nest areas to ensure that no inadvertent impacts to active nests occur. White-tailed kite is a California Department of Fish and Wildlife fully protected species, and a permitting pathway is not available to the project for take of the species. Therefore, the 500-foot buffer cannot be reduced if a white-tailed kite nest is found within the project site.	Less than significant with mitigation incorporated

Table 1-1. Summary of Project Impacts

Environmental Topic	Level of Significance Prior to Mitigation	Mitigation Measures/Project Design Features	Level of Significance After Mitigation
		MM-BIO-2: Demarcation of Disturbance Limits. To prevent inadvertent disturbance to sensitive vegetation and species adjacent to the proposed project area, temporary fencing and/or staking shall be installed prior to construction activities around the perimeter of the work areas, as feasible depending on topography and large vegetation. All construction activities, including equipment staging and maintenance, shall be conducted within the marked disturbance limits to prevent inadvertent disturbance to sensitive biological resources outside the limits of work. The marked disturbance limits shall be maintained throughout vegetation removal and grading, and any windblown trash generated by the project that collects on the fence will be regularly removed. Silt fencing shall be installed at disturbance limits where aquatic resources occur within 100 feet. Temporary 6-foot-high chain-link fencing covered with dust cloth shall be installed at disturbance limits where occupied least Bell's vireo habitat occur within 500 feet. **MM-BIO-3: Pre-Construction Burrowing Owl Survey**. A qualified biologist shall conduct a pre-construction survey for burrowing owls prior to initial ground-disturbing activities, including vegetation removal, to assess whether any burrowing owls have colonized the site prior to the start of construction. The pre-construction survey shall be completed no more than 14 days before initiation of site preparation or grading activities, and a second survey shall be completed within 24 hours of the start of site preparation or grading activities. If ground-disturbing activities are delayed or suspended for more than 30 days after the pre-construction surveys, the pre-construction surveys shall be repeated to ensure burrowing owl has not colonized the site since it was last disturbed. The pre-construction survey will occur within suitable habitat for burrowing owl, as determined by the biologist, and will be conducted in accordance with methods described in the CDFW 2012 Staff Report. If burrowing owls have colonized the project site prior to the initiation of ground-disturbing activities, the applicant/developer shall immediately inform the California Department of Fish and Wildlife (CDFW). Prior to ground disturbance, the applicant/developer shall prepare a Burrowing Owl Management Plan, which shall be submitted to CDFW for review and approval at least 30 days prior to initiation of ground-disturbing activities. If burrowing owls are detected after ground-disturbing activities have been initiated, CDFW shall be notified in writing and a Burrowing Owl Management Plan shall be submitted to CDFW for review and approval within 2 weeks of detection; construction activities shall not occur within 400 feet of an active burrow until CDFW approves the Burrowing Owl Management Plan. The Burrowing Owl Management Plan shall include, at a minimum, the following. 1. An impact assessment that details the number and location of occupied burrow sites and acres of burrowing owl habitat with a qualitative description of the habitat vegetation characteristics that will be impacted. 2. Avoidance measures, including no-disturbance buffers clearly delineated at a 250-foot radius around all occupied burrows located on site or within 250 feet of the disturbance footprint, with posted signs demarcating the avoidance area and by using stakes, flags, and/or rope or cord to minimize the disturbance of burrowing owl habitat. No construction shall occur within the avoidance buffer(s) without the consent of a monitoring biologist. The buffer shall remain in place until it is determined that occupied burrows have been vacated. 3. Monitoring requirements. No take of burrowing owl shall occur without prior authorization in the form of an Incidental Take Permit (ITP) pursuant to California Fish and Game Code Section 2081. If overwintering or nesting burrowing owls are observed during the survey and impacts to burrowing owl cannot be feasibly avoided through implementation of the Burrowing Owl Management Plan, the applicant/developer will consult with CDFW and obtain appropriate take authorization from through the California Endangered Species Act ITP process. In the event an ITP is needed, occupied habitat that is temporarily impacted shall be restored to its original construction immediately following the completion of construction and compensatory mitigation for the permanent loss of occupied burrowing owl habitat shall be fulfilled through habitat replacement of equal or better functions and values to those impacted by the project at a minimum 1:1 ratio, or as otherwise determined through the ITP process. Mitigation shall be achieved through off-site conservation of habitat and/or purchase of appropriate credits at a CDFW-approved mitigation bank. If mitigation is not purchased through a mitigation bank, and lands are conserved separately, a cost estimate shall be prepared to estimate the initial startup costs and ongoing annual costs of management activities for the management of the conservation easement area(s) in perpetuity. The funding source shall be in the form of an	

Table 1-1. Summary of Project Impacts

Environmental Topic	Level of Significance Prior to Mitigation	Mitigation Measures/Project Design Features	Level of Significance After Mitigation
		endowment to help the qualified natural lands management entity that is ultimately selected to hold the conservation easement(s). The endowment amount shall be established following the completion of a project-specific Property Analysis Record to calculate the costs of in-perpetuity land management. The Property Analysis Record shall take into account all management activities required in the ITP to fulfill the requirements of the conservation easement(s), which are currently in review and development. **MM-BIO-4: Least Bell's Vireo Mitigation.** Prior to initial ground-disturbing activities, including vegetation removal, the applicant/developer shall prepare a mitigation plan in accordance with the requirements for conditional coverage identified in the Implementing Agreement for the Natural Community Conservation Plan & Habitat Conservation Plan, County of Orange Central and Coastal Subregion (NCCP/HCP). The mitigation plan shall be developed in coordination with the Wildlife Agencies (U.S. Fish and Wildlife Service and California Department of Fish and Wildlife) and the Natural Communities Coalition (NCC) and shall include, at a minimum, the following: 1. Compensatory mitigation requirements for impacts to occupied least Bell's vireo habitat, which shall be, at a minimum, 1:1 for low-quality habitat, 2:1 for moderate-quality habitat, and 3:1 for high-quality habitat, or as otherwise determined during coordination with the Wildlife Agencies. Compensatory mitigation shall be met through habitat restoration/enhancement activities at an appropriate location (which may include the reserve or other open space) and which may include planting of riparian trees and shrubs and/or brown-headed cowbird trapping. 2. Requirements for monitoring and adaptive management of least Bell's vireo habitat within the NCCP/HCP Reserve, including brown-headed cowbird trapping, consistent with Chapter 5 of the NCCP/HCP. 3. Design modifications and other on-site measures that are consistent with the project's purposes, and which avoid or minimize impacts and provides appropriate feasible protections for least Bell's vireo. At a minimum, the following measures shall be included: a. **Seasonal Avoidance.** To avoid direct impacts nesting individuals and eggs/young, vegetation-disturbing activities within suitable and occupied least Bell's vireo habitat shall occur from September 16 (or sooner if a Wildlife Agency–approved project biologist demonstrates to the satisfaction of the Wildlife Agencies that all nesting is complete) through March 14 to avoid the least Bell's vireo breeding season. For other project-related construction that cannot be restricted to outside the least Bell's vireo breeding season, construction noise monitoring and reduction will be provided as detailed below. b. **Noise Monitoring.** To minimize potential adverse impacts to least Bell's vireo from construction-related noise and vibration, non-vegetation clearing construction-related activities within 500 feet of occupied and suitable least Bell's vireo habitat would be timed to occur outside of the breeding season to the extent feasible. For construction-related activities within 500 feet (152.40 meters) of occupied or suitable least Bell's vireo habitat, and that must occur within the least Bell's vireo breeding season, on-site noise reduction techniques shall be implemented to limit construction-related noise within the occupied habitat areas to levels that do not exceed 60 A-weighted decibel (dBA) hourly energy equivalent level (Leq) or pre-construction ambient noise levels, whichever is greater. Noise reduction techniques shall be implemented as necessary to ensure that noise thresholds are not exceeded. These techniques may include but are not limited to installation of temporary sound barriers, utilization of quieter equipment, adherence to equipment maintenance schedules, and/or shifting construction work away from occupied areas. c. **Biological Monitoring.** All construction-related activities within 500 feet of occupied least Bell's vireo habitat shall be monitored by a Wildlife Agency–approved biologist. The biologist shall submit weekly letter reports (including photographs of impact areas) via email to the Wildlife Agencies while construction-related activities within 500 feet of occupied habitat are ongoing. The weekly reports will document that authorized impacts were not exceeded and all avoidance and protection measures were complied with. The reports will also summarize the duration of vireo monitoring, the location of construction activities, the type of construction that occurred, and equipment used. The reports will specify numbers, locations, and sex of vireos (if present); observed vireo behavior (particularly in relation to construction activities); and any remedial measures employed to avoid impacts to vireo individuals. Raw field notes should be available upon	

Table 1-1. Summary of Project Impacts

Environmental Topic	Level of Significance Prior to Mitigation	Mitigation Measures/Project Design Features	Level of Significance After Mitigation
		request by the Wildlife Agencies. Any unauthorized impacts to vireo or vireo habitat shall be reported to the Wildlife Agencies within 24 hours. A final report shall be submitted to the Wildlife Agencies and the NCC within 60 days of project completion that includes (1) as-built construction drawings with an overlay of occupied habitat that was impacted and avoided, (2) photographs of avoided occupied habitat areas, and (3) other relevant summary information documenting that authorized impacts were not exceeded and that all mitigation plan measures were generally complied with. Prior to initial ground-disturbing activities, including vegetation removal, the applicant/developer shall obtain concurrence from the Wildlife Agencies that the NCCP/HCP conditions of coverage for least Bell's vireo have been satisfied and that incidental take of least Bell's vireo is authorized under the terms of the NCCP/HCP. If it is determined that incidental take of least Bell's vireo resulting from the project is not conditionally covered under the NCCP/HCP, take authorization shall be obtained authorization shall be obtained through the federal Section 7 Consultation or Section 10 processes and state 2080.1 consistency determination or 2081 Incidental Take Permit requirements. **MM-BIO-5: Crotch's Bumble Bee Pre-Construction Surveys.** Pre-construction surveys for Crotch's bumble bee shall be conducted within the construction footprint prior to initial ground-disturbing activities, including vegetation removal, that would occur during the Crotch's bumble bee queen flight season through the gyne (reproductive female) flight season (February 1 through October 31). The pre-construction survey shall be conducted by a qualified biologist familiar with the species' behavior and life history and shall include (1) a habitat assessment and (2) focused surveys, both of which shall be based on recommendations described in the Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species, released by the California Department of Fish and Wildlife (CDFW) on June 6, 2023, or the most current version at the time of construction. If suitable habitat is not completely cleared during the year of the initial habitat assessment and pre-construction surveys, additional pre-construction surveys shall be repeated within remaining suitable habitat each year ground-disturbing construction activities are scheduled to occur within suitable habitat during the queen flight season through the gyne flight season (February 1 through October 31). Additional pre-construction surveys would not be necessary once all suitable habitat is removed. ▪ The habitat assessment shall, at a minimum, include historical and current species occurrences; document potential habitat on site, including foraging, nesting, and/or overwintering resources; and identify which plant species are in bloom and their percent cover. Incidental observations of potential nest resources shall also be noted. For the purposes of this mitigation measure, nest resources are defined as abandoned small mammal burrows, bunch grasses with a duff layer, thatch, hollow trees, brush piles, and human-made structures that may support bumble bee colonies, such as rock walls, rubble, and furniture. Potential overwintering resources are defined as bare soil, leaf litter, pine needle duff layer, and bunch grasses. ▪ In each year that a habitat assessment is conducted, if nesting resources are determined to be present in the impact area, focused surveys shall be conducted. Focused surveys shall be performed by a biologist who is in possession of a valid Memorandum of Understanding with CDFW (and a valid Scientific Collecting Permit, if applicable) and include at least three survey passes spaced 2 to 4 weeks apart. The timing of these surveys shall coincide with the Colony Active Period for Crotch's bumble bee (April 1 through August 31) and shall coincide with the presence of floral resources on site. Surveys may occur between 1 hour after sunrise and 2 hours before sunset. Focused surveys shall not be conducted during wet conditions (e.g., foggy, raining, or drizzling) and surveyors shall wait at least 1 hour following cessation of rain to start or resume surveys. Focused surveys shall be conducted when conditions include sunny to partly sunny skies, a temperature greater than 60°F, and sustained wind speeds less than 8 mph, unless other bees or butterflies are flying, in which case focused surveys can be conducted outside of these weather parameters.	

Table 1-1. Summary of Project Impacts

Environmental Topic	Level of Significance Prior to Mitigation	Mitigation Measures/Project Design Features	Level of Significance After Mitigation
		▪ A written survey report shall be submitted to the City and CDFW within 30 days of the completion of pre-construction surveys. The report shall include survey methods, weather conditions, and survey results, including a detailed habitat assessment, floral resources blooming and percent cover, bumble bee species observed, floral species that bumble bees were observed visiting, nesting and overwintering habitat surveyed, and a figure showing the locations of any Crotch's bumble bee nest sites or individuals observed. The survey report shall include the qualifications/resumes of the surveyor(s) and approved taxonomist(s) for identification of photo vouchers. If Crotch's bumble bee nests are observed, the survey report shall also include avoidance measures, and the location information shall be submitted to the California Natural Diversity Database at the time of, or prior to, submittal of the survey report. ▪ If Crotch's bumble bee is not detected during the focused surveys, no further action or mitigation would be required. If nest resources occupied by Crotch's bumble bee are detected, avoidance measures shall be implemented including, but not limited to, the establishment of no-disturbance zones within 50 feet of the nest, or within a distance determined by a qualified biologist through evaluation of topographic features and/or distribution of floral resources. Construction shall not occur within the no-disturbance zone(s) until the colony is no longer active (i.e., no bees are seen flying in or out of the nest for 3 consecutive days, indicating the colony has completed its nesting season and the next season's queens have dispersed from the colony). If the avoidance of nests is not feasible, or if take of foraging individuals is anticipated, the applicant/developer shall consult with CDFW regarding the need for incidental take authorization pursuant to Section 2081 of the California Fish and Game Code. ▪ Mitigation for take of Crotch's bumble bee will be fulfilled through compensatory mitigation at a minimum 1:1 nesting habitat replacement of equal or better functions and values to those impacted by the project, or as otherwise determined through the Incidental Take Permit process. Mitigation shall be accomplished either through off-site conservation or through a CDFW-approved mitigation bank. If mitigation is not purchased through a mitigation bank, and lands are conserved separately, a cost estimate shall be prepared to estimate the initial start-up costs and ongoing annual costs of management activities for the management of the conservation easement area(s) in perpetuity. The funding source shall be in the form of an endowment to help the qualified natural lands management entity that is ultimately selected to hold the conservation easement(s). The endowment amount shall be established following the completion of a project-specific Property Analysis Record to calculate the costs of in-perpetuity land management. The Property Analysis Record shall take into account all management activities required in the Incidental Take Permit to fulfill the requirements of the conservation easement(s), which are currently in review and development. **MM-BIO-6: Biological Monitoring.** To prevent impacts to areas outside the limits of disturbance, a qualified biologist shall be present on site to monitor during initial ground disturbance or vegetation removal activities. Biological monitoring shall include the following tasks and responsibilities: ▪ **Tailgate Briefings.** Conduct a pre-construction briefing at the tailgate with construction personnel prior to vegetation removal or initial ground disturbance to outline the biological resources present at the subject work location, prohibition of littering, locations of covered trash receptacles, work location specific disturbance limits, procedures/training for minimizing harm to or harassment of wildlife encountered during construction. ▪ **Pre-Construction Sweeps.** Conduct pre-construction sweeps where construction work is scheduled for the day in areas with suitable habitat to support special-status wildlife or plants. Flush wildlife species from occupied areas immediately prior to vegetation-clearing and earth-moving activities during pre-construction sweeps. ▪ **Spot Checks.** Supervise and conduct regular spot checks during construction work, focusing on areas determined to have potential to support special-status species (as determined by a qualified biologist), to ensure against direct and indirect impacts to biological resources that are intended to be protected and preserved.	

Table 1-1. Summary of Project Impacts

Environmental Topic	Level of Significance Prior to Mitigation	Mitigation Measures/Project Design Features	Level of Significance After Mitigation
		▪ **Relocating Wildlife.** A qualified biologist shall capture animals that are in immediate harm's way and cannot move out of the work area on their own and relocate them to nearby undisturbed areas with suitable habitat located outside of the construction area but as close to their origin as possible. All wildlife moved during project activities shall be documented by the biologist on site. ▪ **Dust Control Monitoring**. Periodically monitor the construction site to see that dust is minimized. If the biological monitor determines that dust is adversely affecting special-status species, the monitor will require the construction personnel to implement best available control measures to reduce dust. Examples of such best available control measures include periodic watering of work areas, application of environmentally safe soil stabilization materials, and/or roll compaction. ▪ **Open-Hole Inspections.** At the end of each workday, any open holes (including large/steep excavations) shall be inspected by the on-site biologist and subsequently fully covered to prevent entrapment of wildlife species. If fully covering the excavations is impractical, ramps will be used to provide a means of escape for wildlife that enter the excavations, or open holes will be securely fenced with exclusion fencing. If common wildlife species are found in a hole, the biological monitor shall immediately be informed, and the animal(s) shall be removed. **MM-BIO-7: Coastal California Gnatcatcher Monitoring.** To minimize potential indirect impacts to coastal California gnatcatcher, construction-related activities within 500 feet of occupied habitat shall be timed to occur outside the coastal California gnatcatcher breeding season (February 15 through August 30). Should construction activities occur within 500 feet of coastal sage scrub habitat east of Bee Canyon Access Road during the breeding season (between February 15 and August 30), pre-construction surveys for coastal California gnatcatcher shall be conducted in all suitable habitat within 500 feet. Pre-construction surveys shall be conducted by a permitted coastal California gnatcatcher biologist and shall include three site visits, conducted 1 week apart, with the final site visit conducted no more than 7 days prior to the start of construction. If coastal California gnatcatcher is not detected, no further mitigation related to this species shall be required. If coastal California gnatcatcher is detected but breeding behaviors are not observed, work may proceed and weekly surveys shall continue until the individual(s) leave the area, breeding behaviors and/or nesting is detected, the breeding season ends, or construction ends. If breeding and/or an active nest is observed, the limits of the occupied habitat and a 500-foot avoidance buffer shall be delineated on construction plans, and all construction personnel working near the nest buffer shall be made aware of the presence of occupied gnatcatcher habitat. To the extent feasible, no construction activities shall occur within the 500-foot avoidance buffer during the breeding season. Should it be necessary for construction activities to occur within 500 feet of occupied habitat during the breeding season, noise monitoring would be required to ensure that project-related activities do not result in noise levels above 60 A-weighted decibels (dBA) equivalent continuous sound level (L_{eq}) (1 hour) or the ambient noise level, whichever is higher. If any project activities exceed 60 dBA or the designated existing ambient noise level, construction activities shall be halted until noise reduction measures (such as a sound wall) can be implemented to reduce noise levels to below 60 dBA hourly L_{eq} or ambient noise levels, whichever is higher.	
Would the project 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?	Less than significant	None	Less than significant
Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	Potentially significant	**MM-BIO-2 and MM-BIO-6** (see above) **MM-BIO-8: Waters and Wetland Mitigation.** Prior to impacts within waters regulated by the Regional Water Quality Control Board (RWQCB), the applicant/developer shall coordinate with the Santa Ana RWQCB (Region 8) to ensure conformance with the requirements of the Porter–Cologne Water Quality Control Act, including applicable requirements to obtain an individual Wastewater Discharge Requirement. Prior to impacts within waters regulated by California Department of Fish and Wildlife (CDFW), the applicant/developer shall coordinate with CDFW (South Coast Region 5) to ensure conformance with California Fish and Game Code Section 1602, including applicable requirements to obtain a Lake and Streambed Alteration Agreement.	Less than significant with mitigation incorporated

Table 1-1. Summary of Project Impacts

Environmental Topic	Level of Significance Prior to Mitigation	Mitigation Measures/Project Design Features	Level of Significance After Mitigation
		Permanent impacts to jurisdictional aquatic resources shall be mitigated through the completion of a restoration program at an applicant/developer-sponsored mitigation site. The total mitigation requirement will be 0.32 acres, providing a 2:1 mitigation-to-impact ratio, of which at least 0.03 acres shall be composed of establishment/re-establishment, ensuring no net loss of waters of the state. The balance of the mitigation requirement shall be met through a combination of creation, re-establishment, and/or enhancement. A habitat mitigation and monitoring plan shall be prepared in accordance with resource agency guidelines and shall be approved by the Resource Agencies (i.e., RWQCB and CDFW). The habitat mitigation and monitoring plan shall include, but is not limited to, a conceptual planting plan including planting zones, grading, and irrigation, as applicable; a conceptual planting plant palette; a long-term maintenance and monitoring plan; annual reporting requirements; and proposed success criteria. Any applicant-sponsored mitigation shall be conserved and managed in perpetuity via a conservation easement and any entity performing long-term management of the mitigation lands shall be funded in perpetuity.	
Would the project 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?	No impact	None	No impact
Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	Potentially significant	**MM-BIO-9: Tree Ordinance Tree Inventory and Permit.** Prior to issuance of a grading permit for the project, a tree inventory shall be conducted within the project development area to identify and map tree species subject to the City tree removal permit. If significant trees subject to a tree removal permit are identified within the project development area, a tree removal permit shall be obtained from the City prior to issuance of the grading permit and conditions of the tree removal permit shall be implemented.	Less than significant with mitigation incorporated
Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	No impact	None	No impact
Would the project have a cumulative effect on biological resources?	Potentially significant	**MM-BIO-1 through MM-BIO-9** (see above)	Less than significant with mitigation incorporated
Cultural Resources			
Would the project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	No impact	None	No impact
Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	Potentially significant	**MM-CUL-1: Cultural Resources Sensitivity Training.** Prior to the initiation of ground-disturbing activities, construction crews shall be made aware of the potential to encounter cultural resources and the requirement for cultural monitors to be present during these activities. Topics addressed should include definitions and characteristics of cultural resources and tribal cultural resources, regulatory requirements and penalties for intentionally disturbing cultural resources, and protocols to be taken in the event of an inadvertent discovery. **MM-CUL-2: Cultural Resources Monitoring and Inadvertent Discovery Protocols**. A Cultural Resources Monitoring and Inadvertent Discovery Plan (Plan) shall be prepared by an archaeological principal investigator meeting the Secretary of the Interior's Professional Qualification Standards for Archaeology, and subject to City of Irvine (City) review prior to initiation of construction. The Plan shall detail, at a minimum, requirements for archaeological monitoring (as applicable); roles and responsibilities; inadvertent discovery, management, and communication protocols; and daily and post-construction reporting. An archaeological monitor shall be present during all initial ground-disturbing activities for the project in areas with the highest perceived archaeological sensitivity. This includes areas along Hicks Canyon Wash and throughout the northeastern portion of the project area, which has not been subject to past mass-grading efforts. Areas of lower sensitivity, including areas previously graded for agricultural use shall be subject to weekly spot checks. Archaeological monitoring may be adjusted (increased, decreased, or discontinued) at the recommendation of the	Less than significant with mitigation incorporated

Table 1-1. Summary of Project Impacts

Environmental Topic	Level of Significance Prior to Mitigation	Mitigation Measures/Project Design Features	Level of Significance After Mitigation
		archaeological principal investigator based on inspection of exposed cultural material and the observed potential for soils to contain intact cultural deposits or otherwise significant archaeological material. The archaeological monitor shall have the authority to temporarily halt work to inspect areas for potential cultural material or deposits. In the event that unanticipated archaeological deposits or features are exposed during construction activities, all construction work occurring within 50 feet of the find shall immediately stop until the archaeological principal investigator is provided access to the project site and can assess the significance of the find and determine whether additional study is warranted. The work exclusion buffer may be adjusted as appropriate to allow work to feasibly continue at the recommendation of the archaeological principal investigator. Should it be required, temporary flagging shall be installed around the resource to avoid any disturbance from construction equipment. The potential for avoidance and preservation in place should be the primary consideration of this initial process. The significance of the find shall be assessed as outlined in the California Environmental Quality Act (CEQA) Guidelines and statute (14 CCR 15064.5[f]; California Public Resources Code Section 21082). If the archaeological principal investigator observes the discovery to be potentially significant under CEQA, additional efforts, such as the preparation of an archaeological treatment plan, testing, and/or data recovery, are warranted prior to allowing construction to proceed in this area. Daily monitoring logs shall be completed by the on-site archaeological monitor. Within 60 days following completion of construction, the archaeological principal investigator shall provide an archaeological monitoring report to the City. This report shall include the results of the cultural monitoring program (even if negative), including a summary of any findings or evaluation/data recovery efforts, and supporting documentation that demonstrates that all mitigation measures defined in this environmental impact report were appropriately met. Appendices shall include archaeological monitoring logs and documentation relating to any newly identified or updated cultural resources. This report shall be submitted to the South Central Coastal Information Center once considered final.	
Would the project disturb any human remains, including those interred outside of dedicated cemeteries?	Potentially significant	**MM-CUL-3: Unanticipated Discovery of Human Remains.** In accordance with Section 7050.5 of the California Health and Safety Code and the requirements of the California Environmental Quality Act (CEQA) Guidelines Section 15064.5(e), if human remains are found, the Orange County Coroner (County Coroner) shall be immediately notified of the discovery. No further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains shall occur until the County Coroner has determined the appropriate treatment and disposition of the human remains. If the County Coroner determines that the remains are, or are believed to be, Native American, the County Coroner shall notify the Native American Heritage Commission (NAHC) within 24 hours. In accordance with California Public Resources Code Section 5097.98, NAHC must immediately notify the person or persons it believes to be the Most Likely Descendant of the deceased Native American. The Most Likely Descendant shall complete inspection after being granted access to the site and make recommendations for the treatment and disposition, in consultation with the landowner, of the human remains and associated grave goods.	Less than significant with mitigation incorporated
Would the project have a cumulative effect on cultural resources?	Potentially significant	**MM-CUL-1 through MM-CUL-3** (see above)	Less than significant with mitigation incorporated
Energy			
Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	Less than significant	None	Less than significant
Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	Less than significant	None	Less than significant
Would the project have a cumulative effect on energy resources?	Less than significant	None	Less than significant

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Environmental Topic	Level of Significance Prior to Mitigation	Mitigation Measures/Project Design Features	Level of Significance After Mitigation
Geology and Soils			
Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:			
a. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42?	No impact	None	No impact
b. Strong seismic ground shaking?	Less than significant	None	Less than significant
c. Seismic related ground failure including liquefaction?	Less than significant	None	Less than significant
d. Landslides?	Less than significant	None	Less than significant
Would the project result in substantial soil erosion or the loss of topsoil?	Less than significant	None	Less than significant
Would the project 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?	Less than significant	None	Less than significant
Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	Less than significant	None	Less than significant
Would the project 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?	No impact	None	No impact
Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	Potentially significant	**MM-GEO-1: Paleontological Resources Impact Mitigation Program**. Prior to commencement of any grading activity on site, the applicant shall retain a qualified paleontologist per the 2010 Society of Vertebrate Paleontology guidelines. The paleontologist shall prepare a Paleontological Resources Impact Mitigation Program for the Project. The Paleontological Resources Impact Mitigation Program shall be consistent with the 2010 Society of Vertebrate Paleontology guidelines and shall outline requirements for preconstruction meeting attendance and worker environmental awareness training, where monitoring is required within the proposed project site based on construction plans and/or geotechnical reports, procedures for adequate paleontological monitoring and discoveries treatment, and paleontological methods (including sediment sampling for microvertebrate fossils), reporting, and collections management. The qualified paleontologist shall attend the pre-construction meeting and a qualified paleontological monitor, per the 2010 Society of Vertebrate Paleontology guidelines, shall be on site during all rough grading and other significant ground-disturbing activities (including augering) in previously undisturbed, fine-grained Pleistocene alluvial deposits. In the event that paleontological resources (e.g., fossils) are unearthed during grading, the paleontological monitor will temporarily halt and/or divert grading activity to allow recovery of paleontological resources. The area of discovery will be roped off with a 50-foot-radius buffer. Once documentation and collection of the find is completed, the paleontological monitor will remove the rope and allow grading to recommence in the area of the find.	Less than significant with mitigation incorporated
Would the project have a cumulative effect on geology and soils resources?	Potentially significant	**MM-GEO-1** (see above)	Less than significant with mitigation incorporated
Greenhouse Gas Emissions			
Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	Potentially significant	**PDF-AQ/GHG-1 through PDF-AQ/GHG-3** (see above) **MM-GHG-1: Electric Vehicle Charging Infrastructure.** The project applicant or designee shall provide electric vehicle (EV) charging infrastructure that meets or exceeds 2022 California Green Building Standards Code Tier 2 standards A4.106.8.1 for single-family homes and A4.106.8.2 for multifamily dwellings to encourage use of EVs, consistent with Appendix D, Table 3, of the 2022 CARB Scoping Plan.	Significant and unavoidable

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		MM-GHG-2: Energy Conservation. Prior to the issuance of building permits, the project applicant or its designee shall provide evidence to the City that the residential and recreational building design plans include the following energy conservation measures: a) A solar photovoltaic electricity-generating system shall be installed at the proposed on-site amenity building to the extent feasible. b) Outdoor lighting shall be light emitting diode (LED) or other high-efficiency lightbulbs. c) Prior to the issuance of building permits, the Project applicant or its designee shall submit building plans illustrating installation of cool pavements in place of dark pavements within walkways and patios. Walkways and patios shall use natural grey or uncolored concrete with a Solar Reflectance Index (SRI) value of 0.39. d) Information on energy efficiency, energy efficient lighting and lighting control systems, energy management, and existing energy incentive programs shall be provided to future residents of the project. **MM-GHG-3: Water Use Efficiency and Water Conservation.** Prior to the issuance of building permits, the project applicant or its designee shall provide evidence to the City of Irvine that the residential and recreational building design plans include water use efficiency and conservation measures, including the following: a) High-efficiency appliances/fixtures to reduce water use, and/or include water-efficient landscape design b) Low-flow or high-efficiency water fixtures c) Water-efficient landscapes with lower water demands than required by the California Department of Water Resources 2015 Model Water Efficient Landscape Ordinance d) Planting of native and drought-tolerant plant species where permissible under fuel modification requirements e) Educational materials provided to future tenants and building occupants about water saving behaviors and water-conserving landscaping **MM-GHG-4: Solid Waste Reduction.** Prior to the issuance of building permits for the project, the project applicant shall provide building plans that include the following solid waste reduction measure: a) Provide storage areas for recyclables and organic waste in new construction, and food waste storage, if a pick-up service is available.	
Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	Potentially significant	**PDF-AQ/GHG-1 through PDF-AQ/GHG-3** (see above) **MM-GHG-1 through MM-GHG-4** (see above)	Significant and unavoidable
Would the project have a cumulative effect on greenhouse gas emissions?	Potentially significant	**PDF-AQ/GHG-1 through PDF-AQ/GHG-3** (see above) **MM-GHG-1 through MM-GHG-4** (see above)	Significant and unavoidable
Hazards and Hazardous Materials			
Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	Potentially significant	**MM-HAZ-1: Pre-Demolition Hazardous Materials Abatement.** Prior to issuance of a demolition and/or grading permit, the applicant or its designee shall ensure that demolition or renovation plans and contract specifications incorporate appropriate abatement procedures for the removal of materials containing asbestos, lead, polychlorinated biphenyls, hazardous material, hazardous wastes, petroleum and oil products, and universal waste items. Survey for and abatement of these materials must be completed by a licensed contractor in accordance with state regulations. Further, all abatement work shall be done in accordance with federal, state, and local regulations, including, but not limited to, those of the U.S. Environmental Protection Agency (which regulates disposal), federal Occupational Safety and Health Administration, U.S. Department of Housing and Urban Development, California Occupational Safety and Health Administration (which regulates employee exposure), California Department of Public Health (which certifies lead paint workers), and the South Coast Air Quality Management District. **MM-HAZ-2: Soil Management Plan.** Prior to the issuance of a grading permit, the project applicant/developer or their designated contractor shall retain a qualified environmental consultant to prepare a soil management plan (SMP) that outlines the proper screening, handling, characterization, transportation, and disposal procedures for	Less than significant with mitigation incorporated

Table 1-1. Summary of Project Impacts

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		contaminated or potentially contaminated soils on site. The SMP shall include health and safety and training procedures for workers who may come in contact with contaminated soils. The SMP shall include on-site soil management requirements to avoid fugitive dust and stormwater runoff, including stockpile management, and response and reporting procedures in the event of a release of contaminated soils or violation of air quality or water quality rules (of the South Coast Air Quality Management District and Santa Ana Regional Water Quality Control Board, respectively). The SMP shall be implemented by the project applicant or their designated contractor for all confirmed and suspected contaminated soils that require excavation and off-site disposal. The SMP shall also include procedures for the identification and proper abandonment of underground storage tanks, piping, sumps, or other features, should any be identified during demolition and construction activities. The SMP shall include procedures to meet all applicable federal, state, and local regulations (including those of the Orange County Health Care Agency and South Coast Air Quality Management District) associated with handling, excavating, stockpiling, and disposing of contaminated soils; the proposed disposal facility that will accept the contaminated soils; and appropriate procedures, notifications, permitting requirements, handling, and disposal requirements for decommissioning any underground storage tanks.	
Would the project 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?	Potentially significant	**MM-HAZ-1 and MM-HAZ-2** (see above)	Less than significant with mitigation incorporated
Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	No impact	None	No impact
Would the project be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	No impact	None	No impact
For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	No impact	None	No impact
Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	Less than significant	None	Less than significant
Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	Potentially significant	**MM-WF-1 and MM-WF-2** (see Wildfire section of this table)	Less than significant with mitigation incorporated
Would the project have a cumulative effect on hazards or hazardous materials?	Potentially significant	**MM-HAZ-1 and MM-HAZ-2** (see above)	Less than significant with mitigation incorporated
Hydrology and Water Quality			
Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	Less than significant	None	Less than significant
Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	Less than significant	None	Less than significant
Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:			
a. Result in substantial erosion or siltation on or off site;	Less than significant	None	Less than significant

Table 1-1. Summary of Project Impacts

Environmental Topic	Level of Significance Prior to Mitigation	Mitigation Measures/Project Design Features	Level of Significance After Mitigation
b. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site;	Less than significant	None	Less than significant
c. 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; or	Less than significant	None	Less than significant
d. Impede or redirect flood flows?	No impact	None	No impact
In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation?	No impact	None	No impact
Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	Less than significant	None	Less than significant
Would the project have a cumulative effect on hydrology or water quality resources?	Less than significant	None	Less than significant
Land Use and Planning			
Would the project physically divide an established community?	No impact	None	No impact
Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	Potentially significant	**MM-GHG-1 through MM-GHG-4** (see above) **MM-TRA-1 through MM-TRA-4** (see Transportation section of this table) **MM-CUL-1 and MM-CUL-2** (see above) **MM-GEO-1** (see above) **MM-TRC-1** (see Tribal Cultural Resources section of this table) **MM-AQ-2 and MM-AQ-4** (see above) **MM-WF-1 and MM-WF-2** (see Wildfire section of this table)	Significant and unavoidable
Would the project have a cumulative effect on land use resources?	Potentially significant	**MM-GHG-1 through MM-GHG-4** (see above)	Significant and unavoidable
Noise			
Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	Less than significant	None	Less than significant
Would the project result in generation of excessive groundborne vibration or groundborne noise levels?	Less than significant	None	Less than significant
For a project located within the vicinity of a private airstrip or 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?	No impact	None	No impact
Would the project have a cumulative effect on noise resources?	Less than significant	None	Less than significant
Population and Housing			
Would the project induce substantial unplanned 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)?	Less than significant	None	Less than significant

Table 1-1. Summary of Project Impacts

Environmental Topic	Level of Significance Prior to Mitigation	Mitigation Measures/Project Design Features	Level of Significance After Mitigation
Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	No impact	None	No impact
Would the project have a cumulative effect on housing and/or population resources?	No impact	None	No impact
Public Services			
Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:			
Fire protection?	Less than significant	None	Less than significant
Police protection?	Less than significant	None	Less than significant
Schools?	Less than significant	None	Less than significant
Parks?	Less than significant	None	Less than significant
Other public facilities?	Less than significant	None	Less than significant
Would the project have a cumulative effect on public services resources?	Less than significant	None	Less than significant
Recreation			
Would the project 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?	Less than significant	None	Less than significant
Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	Potentially significant	All mitigation measures that would affect recreational resources impacts (no new measures)	Significant and unavoidable
Would the project have a cumulative effect on recreation resources?	Potentially significant	All mitigation measures that would affect recreational resources impacts (no new measures)	Significant and unavoidable
Transportation			
Would the project conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	Less than significant	None	Less than significant
Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	Potentially significant	**MM-TRA-1: Affordable and Below Market Rate Housing.** The project shall include affordable and below market housing integrated into the design. Individuals living in affordable multifamily housing have lower rates of car ownership and higher rates of other transportation modes, such as transit, bicycling, and walking. **MM-TRA-2: Pedestrian Network Improvement.** The project shall include pedestrian network improvements. Providing sidewalks and an enhanced pedestrian network encourages people to walk instead of drive, and this mode shift results in a reduction in vehicle miles traveled. **MM-TRA-3: Expanded Bikeway Network.** The project shall include expansion of the bikeway network. Providing bike lanes and an enhanced bikeway network can increase access to and from transit hubs. This encourages a mode shift from vehicles to bicycles and displaces vehicle miles traveled.	Significant and unavoidable
Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	Potentially significant	**MM-TRA-4: Traffic Signal Installation.** The project shall include a traffic signal at "A" Street on Jeffrey Road if and when the extension of Jeffrey Road to SR-241 is built, to satisfy both TDP-3 and TDP-12 criteria in the Buildout Approved Plus Project condition.	Less than significant with mitigation incorporated
Would the project result in inadequate emergency access?	Less than significant	None	Less than significant
Would the project have a cumulative effect on transportation resources?	Potentially significant	**MM-TRA-1 through MM-TRA-4** (see above)	Significant and unavoidable

Table 1-1. Summary of Project Impacts

Environmental Topic	Level of Significance Prior to Mitigation	Mitigation Measures/Project Design Features	Level of Significance After Mitigation
Tribal Cultural Resources			
Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:			
a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?	Less than significant	None	Less than significant
b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?	Potentially significant	**MM-TCR-1: Tribal Cultural Resources Monitoring**. Prior to the issuance of grading permits, the applicant/developer shall retain a Native American monitor (tribal monitor), initially attempting to retain such tribal monitor from the Gabrieleño Band of Mission Indians–Kizh Nation. The applicant/developer shall allow 45 days from initial contact with the above-listed Tribe to enter into a contract with the Tribe for monitoring services. If the applicant/developer can demonstrate they were unable to secure an agreement from the above-referenced Tribe, or if the contracted Tribe fails to fulfill its obligation under the contract terms, then the applicant/developer may retain an alternative qualified tribal monitor approved by the City. A copy of the executed contract(s) shall be submitted to the Irvine Community Development Department prior to the issuance of any permit necessary to commence ground-disturbing activities. A tribal monitor shall be present on a full-time basis during ground-disturbing activities, including mass grading of the site, and for any trenching or improvements when such activities extend below artificial fill deposits into native soils. If determined necessary by the tribal monitor, further monitoring shall continue until grading and excavation is complete or until the tribal monitor determines, based on field observations, that there is no likelihood of encountering tribal cultural resources (TCRs). Alternatively, monitoring shall be reduced from full time to part time or spot-checking if determined appropriate by the tribal monitor based on monitoring results. The tribal monitor shall complete daily monitoring logs providing descriptions of the day's activities, including construction activities, locations, soil, and any cultural materials identified. If TCRs are discovered during grading or excavation, the construction contractor shall divert all earthmoving activity within and around the immediate area of discovery (within 100 feet) until the tribal monitor or Tribe has had a reasonable opportunity to assess the nature and significance of the find. Project personnel shall not collect or move any TCR materials until the find has been assessed and evaluated. Project personnel shall not collect or move any human remains, items of patrimony, or associated grave goods.	Less than significant with mitigation incorporated
Would the project have a cumulative effect on tribal cultural resources?	Potentially significant	**MM-TCR-1** (see above)	Less than significant with mitigation incorporated
Utilities and Service Systems			
Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	Less than significant	None	Less than significant
Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	Less than significant	None	Less than significant
Would the project result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	Less than significant	None	Less than significant
Would the project generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	Less than significant	None	Less than significant

Table 1-1. Summary of Project Impacts

Environmental Topic	Level of Significance Prior to Mitigation	Mitigation Measures/Project Design Features	Level of Significance After Mitigation
Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	Less than significant	None	Less than significant
Would the project have a cumulative effect on utilities and/or service systems resources?	Less than significant	None	Less than significant
Wildfire			
Would the project substantially impair an adopted emergency response plan or emergency evacuation plan?	Less than significant	None	Less than significant
Due to slope, prevailing winds, and other factors, would the project exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	Potentially significant	**MM-WF-1: Pre-Construction Requirements.** Prior to the commencement of construction activities, the project applicant/developer shall ensure the following requirements are met in accordance with Orange County Fire Authority (OCFA) Guideline B-01, Fire Master Plans for Commercial & Residential Development, Appendix A, Access During Construction. Access and water supply during construction shall comply with California Fire Code Chapter 33 and the provisions listed below. Construction activities that do not comply with these requirements may be suspended at the discretion of the fire code official until a reasonable level of compliance is achieved. At no time shall construction impair/obstruct existing fire lanes or access to the operation of an existing fire hydrant (or hydrants) serving other structures. The developer shall provide alternative access routes, fire lanes, and other mitigation features when existing roadways or fire hydrants may need to be moved or altered during construction to ensure adequate fire and life-safety protection. Such alternatives and features shall be submitted to OCFA for review and approval prior to alteration of existing conditions **Lumber Drop Inspection:** An inspection shall be scheduled with an OCFA inspector to verify that access roadways, fire lanes, and operable fire hydrants have been provided for buildings under construction and prior to bringing combustible materials on site. The inspection shall verify the following: ▪ The street address of the site shall be posted at each entrance. Projects on streets without names or street signs posted at the time of construction shall include the project name, tract number, or lot number for identification. ▪ Gates through construction fencing shall be equipped with a Knox padlock or breakaway lock/chain. ▪ When required by the OCFA inspector, fire lanes shall be posted with “Fire Lane – No Parking” signs, or “No Parking Areas” will be identified to maintain obstruction-free areas during construction. ▪ Provisions shall be made to ensure that fire hydrants are not blocked by vehicles or obstructed by construction material or debris. A 3-foot clear space shall be provided around the perimeter of each hydrant and no parking or similar obstructions shall be allowed along the adjacent road within 15 feet of a hydrant. Inoperable fire hydrants shall be bagged. **Temporary Fire Access Roads:** Temporary access roads (construction roads that do not match the final location and configuration of permanent roads as approved on a Fire Master Plan) and temporary hydrants may be permitted for single-family residential model construction or a single detached custom home less than 5,500 square feet in area with the conditions listed below. They may be allowed on a case-by-case basis for other structures with additional requirements, as determined by the fire code official. Conditions allowing the construction of these temporary access roads and hydrants include the following: ▪ Plans for temporary access shall be submitted to the OCFA Planning and Development Services Section. Plans will show proposed temporary roadway locations, location of models, space dedicated to storage of construction materials, and parking for work crews and construction vehicles. The plans shall clearly state that they have been submitted for temporary access and hydrants. ▪ Plans shall be stamped and signed by a licensed civil engineer stating that the temporary access road can support 94,000 pounds of vehicle weight in all weather conditions. Plans shall also provide manufacturer’s documentation that demonstrates suitability of the material, specifically as a road stabilizer.	Less than significant with mitigation incorporated

Table 1-1. Summary of Project Impacts

Environmental Topic	Level of Significance Prior to Mitigation	Mitigation Measures/Project Design Features	Level of Significance After Mitigation
		▪ Parking plans shall include details on how the construction site will enforce fire lanes and no-parking zones. ▪ Aboveground invasion lines are acceptable for water supply, as follows: - Drawings shall show details of how the line will be secured in place (e.g., size, depth, and interval of rebar tie-downs) and protected from vehicular damage (e.g., K-rails or bollards). - An invasion line may be run underground if the depth of bury can support the 94,000-pound weight of a fire apparatus. - The temporary water line must provide the required fire flow; calculations may be required. - The pipe shall be listed for fire service. - Fire hydrants shall consist of a minimum 6-inch-diameter barrel with one 2.5-inch outlet and one 4-inch outlet. This shall be noted on the plan. ▪ All other access and water requirements shall apply (e.g., width, approach clearance, premises identification, locks, gates, barriers). ▪ The approved plan for temporary access and water supply shall be available at the construction site prior to bringing combustible building materials on site. ▪ An inspection by OCFA personnel is required to verify adherence to the approved plan prior to bringing combustible materials on site. **Phased Access:** Incremental installation of permanent access roadways as shown on a Fire Master Plan may be permissible for commercial and residential developments. If phased installation is anticipated, the site superintendent or designee shall review the installation process with an OCFA inspector during the lumber drop inspection or pre-construction meeting. Depending on the complexity of the installation, size of the project, and other project-specific factors, the inspector may allow phased installation to proceed immediately or may first require that all or some of the following items are satisfied: ▪ The extent of building construction ▪ Location of operable hydrants serving all buildings under construction ▪ The location of construction fencing, barriers, and vehicle access gates ▪ The location of all temporary or permanent “fire lane—no parking” signs ▪ Equipment/materiel staging locations ▪ Worker parking areas In addition, the following requirements for phased access shall be met: ▪ Phasing plans shall be stamped and signed by a licensed civil engineer stating that the access road can support 94,000 pounds of vehicle weight in all weather conditions. The final road section less the final lift of asphalt topping may be acceptable if certified by the engineer. ▪ The phasing plan shall identify any anticipated areas where fire department access roadways may be temporarily inaccessible due to trenching, slurry coating, striping, or other construction activities after they have been installed and inspected. The plan shall indicate the anticipated period of impairment and include provisions for providing plating over trenches and alternative access routes, notification to the fire department, and/or other forms of mitigation when such roadways are impaired. ▪ A parking plan shall be provided for the construction site detailing how the fire lane no-parking regulations will be enforced. The plan shall include a clause stating that “the job-site superintendent is responsible for informing the work crews of parking requirements and that the entire job site is subject to shutdown by the OCFA inspector if parking is in violation of fire lane posting.” ▪ The approved phasing plan shall be available at the construction site prior to bringing combustible building materials on site. A lumber drop inspection by an OCFA inspector will be required prior to the commencement of each phase; additional inspection fees will be due for each phase. ▪ All other access and water requirements shall apply (e.g., width, approach clearance, premises identification, locks, gates, barriers).	

Table 1-1. Summary of Project Impacts

Environmental Topic	Level of Significance Prior to Mitigation	Mitigation Measures/Project Design Features	Level of Significance After Mitigation
		MM-WF-2: Fire-Resistant Landscape Plan. The proposed landscape plan shall be implemented in accordance with defensible space principles discussed in the project-specific Fire Behavior Analysis and Fuel Modification Plan (Appendices J-1 and J-3 to the Draft EIR) and using fire-resistant plant material in accordance with the Orange County Fire Authority (OCFA) Fuel Modification Zone Plant List. Some plant communities and their associated plant species have increased flammability based on plant physiology (resin content), biological function (flowering, retention of dead plant material), physical structure (bark thickness, leaf size, branching patterns), and overall fuel loading. Given the project site's proximity to High and Very High Fire Hazard Severity Areas, the project landscape plan shall not include plants that are highly flammable. The landscape plan shall be submitted to OCFA for review and approval prior to issuance of building permits. No plant that is listed as undesirable (according to OCFA's 2014 Orange County Undesirable Plants List) shall be included within the proposed project without prior approval by OCFA.	
Would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	Potentially significant	**MM-WF-1 and MM-WF-2** (see above)	Less than significant with mitigation incorporated
Would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	Less than significant	None	Less than significant
Would the project have a cumulative effect on wildfire?	Potentially significant	**MM-WF-1 and MM-WF-2** (see above)	Less than significant with mitigation incorporated

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2 Introduction

This draft environmental impact report (Draft EIR) was prepared in accordance with the California Environmental Quality Act (CEQA) to evaluate the potential environmental effects associated with implementation of the proposed Irvine Gateway Village Project (project). It was prepared in accordance with Title 14, Section 15000 et seq. of the California Code of Regulations (CEQA Guidelines) and the rules, regulations, and procedures for implementing CEQA as adopted by the City of Irvine (City). Consistent with CEQA Guidelines Section 15161, this document is a project-level EIR and evaluates the potential environmental impacts associated with a specific project. As the lead agency for the proposed project, the City must complete an environmental review to determine if the project would potentially result in significant adverse environmental effects. A detailed description of the proposed project is provided in Chapter 3, Project Description.

2.1 Gateway Project Background

The Irvine Gateway Village Project that is the subject of this Draft EIR would be sited on an approximately 105-acre project site in north Irvine at the northeast corner of Portola Parkway and Jeffrey Road and is proposed for approximately 1,360 residential units with a mix of two- and three-story attached and detached homes. The project would also include development of parks, a community garden, paseos, and a 2,750-foot extension of the Jeffrey Open Space Trail (JOST) east from Portola Parkway to the entrance of the Gateway Preserve. The project would include 25% affordable housing, consistent with the Surplus Lands Act.

The JOST is a recreational resource for the residents of the City. It is an important element in the City's overall Open Space system, linking the conservation and open space lands within the City. It provides a key linkage extending from the Pacific Ocean to the Santa Ana Mountains and Cleveland National Forest (City of Irvine 2024). The existing JOST runs south to north along Jeffrey Road from Interstate 5 to Portola Parkway. The JOST is currently being extended westward and over Interstate 5 from Walnut Avenue to Barranca Parkway. The proposed project would include the extension of the JOST northward from Portola Parkway to South Park at the entrance to the forthcoming Gateway Preserve.

The Gateway Preserve is a separate project that the City is in the process of planning and developing. The Gateway Preserve would create a 700-acre open space preserve in the hills above north Irvine adjacent to the proposed project site. The Gateway Preserve Project would include the redevelopment of the closed All American Asphalt plant, which has long been a concern of local residents, into a park, interpretive center, and staging area for hiking.

2.2 Purpose of the California Environmental Quality Act Process

CEQA Guidelines Section 15002 states that the basic purposes of CEQA are to:

- Inform governmental decision makers and the public about the potential significant environmental effects of proposed government actions (including the discretionary approval of development projects);
- Identify the ways that environmental damage can be avoided or significantly reduced; and
- Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible.

If a project will be approved involving significant environmental effects, the lead agency must also disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose.

This Draft EIR provides project-level analysis of the potential environmental effects related to implementation of the proposed project. The level of impact analysis in this Draft EIR corresponds to the degree of specificity deemed appropriate in accordance with CEQA Guidelines Section 15146. This Draft EIR addresses the potentially significant environmental impacts that could occur as a result of construction and operation of the project. This document also identifies appropriate and feasible mitigation measures, where necessary, and includes project alternatives that could be adopted to reduce or avoid potential significant environmental effects.

This Draft EIR is an informational document for public agencies and members of the public, allowing informed decisions to be made regarding the purpose, objectives, and components of the proposed project. This Draft EIR is the primary reference document for the formulation and implementation of a mitigation monitoring and reporting program for the project, in compliance with California Public Resources Code (PRC) Section 21081.6.

2.3 Legal Authority and Lead Agency

This Draft EIR was prepared in accordance with all criteria, standards, and procedures of CEQA (PRC Section 21000 et seq.) and the CEQA Guidelines (14 CCR 15000 et seq.).

Pursuant to CEQA Section 21067 and CEQA Guidelines Article 4 and Section 15367, the City is the lead agency under whose authority this Draft EIR has been prepared. "Lead agency" refers to the public agency that has the principal responsibility for carrying out or approving a project. Serving as the lead agency and before taking action to approve the project, the City has the obligation to (1) ensure that this Draft EIR was completed in accordance with CEQA; (2) review and consider the information contained in this Draft EIR as part of its decision-making process; (3) certify that this Draft EIR reflects the City's independent judgment and analysis; (4) ensure that all significant impacts on the environment are eliminated or substantially lessened, where feasible; and, if necessary, (5) make written findings for each unavoidable significant environmental effect stating the reasons why mitigation measures or project alternatives identified in this Draft EIR are infeasible and citing the specific benefits of the proposed project that outweigh its unavoidable adverse effects (14 CCR 15090–15093).

Pursuant to CEQA Guidelines Sections 15040 through 15043, and upon completion of the CEQA review process, the City will have the legal authority to do any of the following:

- Approve the project.
- Require feasible changes in any or all activities involved in the project to substantially lessen or avoid significant effects on the environment.
- Disapprove the project, if necessary, to avoid one or more significant effects on the environment that would occur if the project was approved as proposed.
- Approve the project even though the project would cause a significant effect on the environment if the City makes a fully informed and publicly disclosed decision that (1) there is no feasible way to lessen the effect or avoid the significant effect and (2) expected benefits from the project would outweigh significant environmental impacts of the project.

This Draft EIR fulfills the CEQA environmental review requirements for the proposed General Plan Amendment, Zone Change, Tentative Tract/Parcel Map, Master Plans, Park Plan, Master Landscape and Trails Plan, Park Design Plans, annexation of County of Orange land parcels within the boundaries of the project site, and all other governmental discretionary and ministerial actions related to the project.

This Draft EIR is an informational document intended for use by City decision makers, trustee and responsible agencies, and members of the general public in evaluating the physical environmental impacts of the proposed project. This Draft EIR is the primary reference document for the formulation and implementation of a mitigation monitoring and reporting program for the project, in compliance with PRC Section 21081.6. Environmental impacts cannot always be mitigated to a level considered less than significant. In accordance with Section 15093(b) of the CEQA Guidelines, if a lead agency approves a project that has significant impacts that are not substantially mitigated (i.e., significant unavoidable impacts), the agency shall state in writing the specific reasons for approving the project, based on the final CEQA documents and any other information in the public record. This is defined in Section 15093 of the CEQA Guidelines as "a statement of overriding considerations."

2.4 Responsible and Trustee Agencies

PRC Section 21104 requires that all EIRs be reviewed by state responsible and trustee agencies (see also 14 CCR 15082 and 15086[a]). As defined by CEQA Guidelines Section 15381, "the term 'Responsible Agency' includes all public agencies other than the Lead Agency which have discretionary approval power over the project." A trustee agency is defined in CEQA Guidelines Section 15386 as "a state agency having jurisdiction by law over natural resources affected by a project which are held in trust for the people of the State of California."

The proposed project would encompass small portions of two parcels owned by OC Waste & Recycling (OCWR) that are associated with rights-of-way for Bee Canyon Access Road and an unnamed bisecting dirt road. Negotiations between the City and the Orange County Real Estate Department may resolve the encroachment issues. If the parcel encroachment issue remains unresolved prior to finalization of the project's Vesting Tentative Parcel Map and completion of the EIR, the project would result in direct impacts on OCWR-owned property, and OCWR would then assume a responsible agency role under CEQA because the County would be required to issue discretionary approval(s) to allow for project implementation (i.e., encroachment permit[s] and potentially other discretionary approvals). Otherwise, OCWR would be a reviewing agency under CEQA based on the initial review of the project's potential indirect impacts.

2.5 Summary of the Project Analyzed in This Environmental Impact Report

The proposed project includes the development of approximately 1,360 two- to three-story homes, including both attached and detached configurations, with an average site density between 10 and 40 units per acre. Access to the project site would be provided via three full-access driveways along Jeffrey Road and a right-in/right-out driveway on Portola Parkway. The project would create essential public access points, trails, and other improvements in the Gateway Preserve to be located north of the site. The project would also include the extension of the JOST and creation of a new public park located at the terminus of the JOST. The public park is expected to include parking, restrooms, and trail staging.

2.5.1 Requested Approvals

The following discretionary and ministerial actions under the jurisdiction of the City would be required. This Draft EIR covers all state and local government and quasi-government approvals that may be needed to implement the project, whether they are explicitly listed in this section or elsewhere in this Draft EIR or not (14 CCR 15124[d]). Details regarding each of these approvals are provided in Chapter 3.

Discretionary Approvals

Transportation Commission

- Traffic Study Review: The Transportation Commission will review the traffic study for the project and provide recommendations to the approval body.

Subdivision Committee

- Tentative Tract/Parcel Map Review: The Subdivision Committee will review the subdivision maps for the project and provide recommendations to the approval body. The Subdivision Committee is the approval authority for parcel maps and a recommending body to the Planning Commission and/or City Council for approval of Tentative Tract Maps.

Community Services and Library Commission

- Park Plan and Park Design Review: The Community Services and Library Commission advises the City Council regarding park, library, recreational, and cultural programs that would be of interest and benefit to the City's residents and advises on the development and improvement of the City's recreational facilities, including Park Plans, to the approval body. The Community Services Commission has the final review and approval authority for Park Designs for public or private parks equal to or greater than 1 acre in size.

Planning Commission

- General Pan Amendment and Zone Change Review: The Planning Commission will review the associated General Plan Amendment and Zone Change and provide a recommendation to the City Council.
- Other Entitlements: The Planning Commission will provide a review of Tentative Tract/Parcel Maps to subdivide the site; Master Plans; a Park Plan; a Master Landscape and Trails Plan; Park Designs; and the annexation of County of Orange land parcels within the boundaries of the project site. The Planning Commission is the approval authority for tentative tract maps, residential master plans, park plans (and modifications), master landscape and trails plans, and park designs for private parks when the park design application is submitted with a master plan. The Planning Commission could also review these applications and forward a recommendation to the City Council.
- Recommendation of Certification of EIR: The Planning Commission will review the Draft EIR and make a recommendation to the City Council to certify or reject this Draft EIR, along with appropriate CEQA findings and the mitigation monitoring and reporting program.

City Council

- General Plan Amendment: The City Council will be asked to provide approval of proposed changes to the City's Land Use Map from Recreation to Medium-High Density Residential on the site with High Density

Residential to be applied on the affordable housing portion of the site only. Additionally, text, table, and figure updates in the Land Use Element would be made to establish Planning Area 2 (Gateway Village). Additional General Plan updates include revisions to the figures in the Circulation Element; updates to figures, tables, and text in the Conservation and Open Space Element; and updates to figures in the Safety Element.

- Zone Change: City Council approval of proposed changes to the Irvine Zoning Ordinance is also required to change the zoning classification of the project site from 1.5–Recreation to 2.4J–Medium-High Density Residential; add Chapter 9-2, Planning Area 2; and amend Section 3-3-1, Section 3-37-15 and Chapter 9-6 for consistency.
- Other Entitlements: The City Council will be asked to provide approval of Tentative Tract/Parcel Maps to subdivide the site; Master Plans; a Park Plan; a Master Landscape and Trails Plan; Park Designs; and the annexation of the County of Orange land parcels within the boundaries of the project site.
- Certification of EIR: The City Council will certify or reject this Draft EIR, along with appropriate CEQA findings and the mitigation monitoring and reporting program.

Administrative Approvals

- The Director of Community Development has the review and approval authority for park designs for private parks under 1 acre.
- The Director of Community Services has the review and approval authority for park designs for all public parks under 1 acre.

Ministerial Approvals

City of Irvine Subsequent Implementing Approvals

The City of Irvine has the authority for the following:

- Approval of Water Quality Master Plan documents
- Approvals for storm drain infrastructure
- Approvals of public dry utility (electrical, gas, and telecommunication) infrastructure
- Issuance of grading permits
- Issuance of building permits
- Issuance of street improvements permit
- Issuance of park/landscape permits

Additional Agency Approvals

The following agencies have the authority for approvals as listed below:

- Local Agency Formation Commission of Orange County: Approval of annexation of county parcels located within the boundaries of the project site
- Irvine Ranch Water District: Approvals for water and sewer Infrastructure
- County of Orange: Encroachment Permit for Slope Along Bee Canyon Road

- California Department of Fish and Wildlife:
  - California Fish and Game Code Section 1602 Lake and Streambed Alteration Agreement for Hicks Canyon Wash
- Santa Ana Regional Water Quality Control Board:
  - Section 401 Permit for Hicks Canyon Wash
  - Stormwater Pollution Prevention Plan
  - Construction General Permit

2.5.2 Project of Statewide, Regional, or Area-Wide Environmental Significance

CEQA Guidelines Section 15206 identifies the types of projects considered to be of statewide, regional, or area-wide significance. When a project is so classified, its EIR must be submitted to the State Clearinghouse of the Governor's Office of Planning and Research, and the appropriate metropolitan area council of governments. This project meets the following criteria of a project of statewide, regional, or area-wide significance:

- The project has the potential for causing significant environmental effects extending beyond the City of Irvine.

2.6 Scope of this Environmental Impact Report

2.6.1 Notice of Preparation Scoping Process

The purpose of this Draft EIR is to evaluate the potential environmental impacts associated with implementation of the proposed project. The City concluded that the project would potentially have direct or indirect adverse effects on the environment. Accordingly, the City determined the need for preparation of an EIR for the project. The scope of this Draft EIR includes the potential environmental impacts identified in the Notice of Preparation (NOP) that was available for public review from October 16, 2024, through November 15, 2024, and agency and public written comments received in response to the NOP. The public scoping meeting was held at Irvine City Hall on October 23, 2024, with approximately four people in attendance in person and five people attending via Zoom. No comments were received during the public scoping meeting.

A summary of these public scoping meeting comments and written comment letters are provided in Table 2-1. The written comments and the NOP are included as Appendix A, NOP and Scoping Comments, of this Draft EIR.

Table 2-1. Summary of Notice of Preparation Comments

Commenter	Date	Summary of Environmental Issues Raised	EIR Chapter/ Section Where Comment Is Addressed
State Agency			
Native American Heritage Commission	November 8, 2024	▪ Recommendations for tribal consultation and consulting legal counsel regarding compliance with Assembly Bill 52, Senate Bill 18, and other applicable laws.	Section 4.5, Cultural Resources; Section 4.17, Tribal Cultural Resources

Table 2-1. Summary of Notice of Preparation Comments

Commenter	Date	Summary of Environmental Issues Raised	EIR Chapter/ Section Where Comment Is Addressed
Southern California Association of Governments (SCAG)	November 13, 2024	▪ Discussion of Connect SoCal 2024, including vision and goals ▪ Requests a discussion in the EIR to determine if the project is consistent with each SCAG goal and subgoal ▪ Discussion of Regional Growth Forecast and Forecasted Regional Development Pattern ▪ Recommendations regarding consistency with Connect SoCal 2024 and mitigation measures	Section 4.3, Air Quality; Section 4.8, Greenhouse Gas (GHG) Emissions; Section 4.13, Population and Housing
California Department of Transportation (Caltrans)	November 15, 2024	▪ Potential impacts associated with traffic safety and operations on State Highway System facilities (mainline, on/off ramps, intersections) ▪ Request for a vehicle miles traveled–based traffic impact study ▪ Recommendations to increase active transportation and transit use and safety measures ▪ Encourages the design of Complete Streets ▪ Requests a discussion of any existing transit services including regional rail services from the nearest train station ▪ Encourages the City to continue coordination with Orange County Transportation Authority ▪ Recommendation to enhance Class II bikeway along Portola Parkway and Jeffrey Road ▪ Recommendations regarding bike lane closures during construction ▪ Recommendation regarding equity and efforts to meet Regional Housing Needs Allocation	Section 4.16, Transportation
California Department of Fish and Wildlife (CDFW)	November 15, 2024	▪ Potential impacts to Crotch's bumble bee and recommendations for surveys and disclosure of Crotch's bumble bee, mitigation measures, and California Endangered Species Act Incidental Take Permit, if needed. ▪ Potential impacts to coastal California gnatcatcher and least Bell's vireo and recommendations for surveys, disclosure, and mitigation measures, if needed. ▪ Potential impacts to recreational trails and recommendations for mitigation measures.	Chapter 3, Project Description; Section 4.4, Biological Resources; Section 4.15, Recreation; Chapter 6, Alternatives

Table 2-1. Summary of Notice of Preparation Comments

Commenter	Date	Summary of Environmental Issues Raised	EIR Chapter/ Section Where Comment Is Addressed
		▪ Requests a thorough project description and range of feasible alternatives. ▪ Request for a biological baseline assessment. ▪ Request for the EIR to include direct and indirect impacts on biological resources. ▪ Request to include cumulative impacts on biological resources. ▪ Recommendations regarding nesting birds. ▪ Recommendations regarding general biological resource mitigation measures and compensatory mitigation measures. ▪ Recommendations regarding long-term management of mitigation lands, salvage, relocation and translocation of plants and animal species, scientific collecting permits, lake and streambed alteration, wetland resources, and use of native plants and trees. ▪ Discussion of CEQA requirements regarding incorporating the EIR into a database and CDFW filing fees.	
Local Agency			
Orange County Public Works	November 13, 2024	▪ Orange County Public Works received the NOP and has no comments at this time. ▪ They would like to be kept on the distribution list for the project.	N/A
OC Waste & Recycling (OCWR)	November 14, 2024	▪ Discussion of OCWR's role as a potential responsible, trustee, or reviewing agency under CEQA. ▪ Discussion of granted fuel modification easement to the City of Irvine and requests the EIR acknowledge a fuel modification zone along the southeast edge of Bee Canyon Access Road as an important design feature of the project. ▪ City Council Resolution requires the construction of a new public offramp or accessway from the State Route 241 Toll Road (Toll Road Accessway) to directly serve the FRB Landfill. ▪ Suggestions regarding implementation of the Toll Road Accessway associated with potential traffic impacts.	Chapter 3, Project Description; Section 4.3, Air Quality; Section 4.8, GHG Emissions; Section 4.12, Noise; Section 4.16, Transportation

Table 2-1. Summary of Notice of Preparation Comments

Commenter	Date	Summary of Environmental Issues Raised	EIR Chapter/ Section Where Comment Is Addressed
		▪ Request to discuss baseline conditions that account for FRB Landfill operations, including air quality, fugitive dust emissions, GHG, noise, odor emissions, socioeconomics, traffic, etc. ▪ Request to discuss encroachment issue resolution of two parcels owned by OCWR that are associated with rights-of-way for Bee Canyon Access Road. If unresolved, the County would be required to issue discretionary approval(s).	
Orange County Fire Authority (OCFA)	December 31, 2024	▪ Statement regarding OCFA services and operations. ▪ OCFA believes that the project will have a less than significant impact.	Section 4.9, Hazards and Hazardous Materials; Section 4.14, Public Services; Section 4.19, Wildfire
Private Organizations and Members of the Public			
Larry Lin	October 18, 2024	▪ Concerns regarding damage to natural water drainage and increased danger of wildfire. ▪ Concerns regarding congested traffic on Jeffrey Road during rush hour. ▪ Concerns regarding air quality and available park space.	Section 4.3, Air Quality; Section 4.4, Biological Resources; Section 4.14, Public Services; Section 4.15, Recreation; Section 4.16, Transportation; Section 4.19, Wildfire
Roger Goh	October 23, 2024	▪ Concerns regarding traffic on Portola Parkway and Jeffrey Road. ▪ Concerns regarding the increased need for amenities and retail.	Section 4.13, Population and Housing; Section 4.14, Public Services; Section 4.16, Transportation
Yihong Zhang	November 12, 2024	▪ Concerns regarding population increase in the area. ▪ Concerns regarding traffic/pollution, crowded commercial town centers, and less green areas.	Section 4.3, Air Quality; Section 4.13, Population and Housing; Section 4.14,

Table 2-1. Summary of Notice of Preparation Comments

Commenter	Date	Summary of Environmental Issues Raised	EIR Chapter/ Section Where Comment Is Addressed
			Public Services; Section 4.15, Recreation; Section 4.16, Transportation
Thaomi Ho	November 20, 2024	▪ Individual inquiring about what was sent due to having missed the delivery of the NOP.	N/A

Note: EIR = environmental impact report; CEQA = California Environmental Quality Act; N/A = not applicable; NOP = Notice of Preparation; FRB = Frank R. Bowerman.

2.6.2 Public Review of Draft EIR and Final EIR Preparation

This Draft EIR will be made available to interested individuals, organizations, government representatives, and agencies for a 45-day review period, commencing September 5, 2025, and ending October 20, 2025. The City of Irvine has provided a Notice of Availability of the Draft EIR with a Notice of Completion sent to the California Governor's Office of Planning and Research State Clearinghouse; by publication of an advertisement in the Irvine World News on September 4, 2025; and by direct notice to the parties included in the NOP distribution list. During the public review period, the Draft EIR will be available for review electronically on the City's website and a hard copy at the City's planning counter or by appointment.

Following the public review period, the City will prepare a Final EIR that will incorporate and respond to comments received during public review of the Draft EIR. The Final EIR will be made available to parties commenting on the Draft EIR and then will be sent to the City Planning Commission for consideration and then the City Council for certification and consideration of approval of the project.

2.6.3 Areas of Known Controversy

Public comments during scoping centered on an increase in population and traffic in the City.

2.6.4 Consultation and Coordination

Consultation and coordination occurred with the U.S. Army Corps of Engineers, California Department of Fish and Wildlife, Santa Ana Regional Water Quality Control Board (Region 8), Orange County Fire Authority, and County of Orange.

2.7 Organization of This Environmental Impact Report

This Draft EIR contains all of the information required to be included in an EIR, as specified by the CEQA statute and CEQA Guidelines (PRC Section 21000 et seq.; 14 CCR 15000 et seq.). CEQA requires that an EIR contain, at a minimum, the contents outlined below. Please also see Section 2.8 for documents incorporated by reference; for other sources cited in the text, references sections are included in Chapters 1–3, Sections 4.1–4.19, and

Chapters 5 and 6. The following provides a quick reference for locating the CEQA-required sections in this document:

- **Chapter 1: Executive Summary.** The executive summary provides a summary of the project and project alternatives, including a summary of the project impacts and cumulative impacts, recommended mitigation measures, and the level of significance after mitigation for each environmental issue.
- **Chapter 2: Introduction.** The introduction provides an overview of the project and the CEQA process and describes the purpose, scope, and components of this Draft EIR.
- **Chapter 3: Project Description.** The project description provides a detailed description of the project, including the location and project characteristics. The intended uses of this Draft EIR, project background, project objectives, and required project approvals are also addressed.
- **Chapter 4: Environmental Analysis.** The environmental analysis chapter analyzes the environmental impacts of the project. Impacts are organized into major environmental topic areas. Each topic area includes a description of the environmental setting, regulatory setting, significance criteria, project design features (PDFs) if applicable, individual impacts, mitigation measures, level of significance after mitigation, cumulative impacts, and references. The following specific environmental areas are addressed in Chapter 4 of this Draft EIR:
  - Section 4.1, Aesthetics
  - Section 4.2, Agriculture and Forestry Resources
  - Section 4.3, Air Quality
  - Section 4.4, Biological Resources
  - Section 4.5, Cultural Resources
  - Section 4.6, Energy
  - Section 4.7, Geology and Soils
  - Section 4.8, Greenhouse Gas Emissions
  - Section 4.9, Hazards and Hazardous Materials
  - Section 4.10, Hydrology and Water Quality
  - Section 4.11, Land Use and Planning
  - Section 4.12, Noise
  - Section 4.13, Population and Housing
  - Section 4.14, Public Services
  - Section 4.15, Recreation
  - Section 4.16, Transportation
  - Section 4.17, Tribal Cultural Resources
  - Section 4.18, Utilities and Service Systems
  - Section 4.19, Wildfire
- **Chapter 5: Other CEQA Considerations.** The Other CEQA Considerations chapter provides a summary of significant environmental impacts, including unavoidable, irreversible, and growth-inducing impacts. This chapter also includes effects found not to be significant, which provides a summary of environmental topic areas where preparation of the NOP indicated that the project would have no impact and therefore no additional discussion in this Draft EIR is warranted.

- **Chapter 6: Alternatives.** The Alternatives chapter provides a comparison between the project impacts and the impacts of three project alternatives: (1) No Project/No Development, (2) No Project/Community Park, and (3) Reduced Residential.
- **Chapter 7: List of Preparers.** The List of Preparers chapter provides a list of the organizations, persons consulted, and various individuals who contributed to the preparation of this Draft EIR. This section also includes a list of the lead agency personnel and technical consultants who helped prepare this Draft EIR.
- **Appendices.** The appendices include the NOP (including public comments) and technical studies prepared to support the analyses and conclusions in this Draft EIR. See Section 2.9, Documents Prepared for the Project, for a complete list of appendices.

The Final EIR will be prepared after the public review period for this Draft EIR has been completed. The Final EIR will include comments and recommendations received on the Draft EIR during the public review period; a list of persons, organizations, and public agencies commenting on the EIR; written responses to significant environmental issues identified in the comments received; and any other relevant information added by the City.

2.8 Documents Incorporated by Reference

Pursuant to CEQA Guidelines Section 15150, this Draft EIR has referenced several technical studies, analyses, and previously certified environmental documents. Information from these documents, incorporated by reference, is briefly summarized in the appropriate chapters and sections. The documents that were used to prepare this Draft EIR include the following:

- Irvine 2045 General Plan (City of Irvine 2024a)
- Irvine Municipal Code (Code of Ordinances) (City of Irvine 2025)
- Irvine Zoning Code (Code of Ordinances) (City of Irvine 2024b)

These reference documents, in accordance with CEQA Guidelines Section 15150(b), are available for review on the City's website.

2.9 Documents Prepared for the Project

The following appendices, including the NOP/scoping comments and technical studies, were prepared for the project and the project site and are incorporated into this Draft EIR:

- A: Notice of Preparation and Scoping Comments
- B-1: Air Quality and Greenhouse Gas Emission and Energy Estimates, prepared by Dudek in August 2025
- B-2: Health Risk Assessment, prepared by Dudek in January 2025
- B-3: CO Hotspots Intersection Volume Calculations
- C: Irvine Gateway Project Biological Resources Technical Report, prepared by Dudek in August 2025
- D: Cultural Resources Technical Report, prepared by Dudek in March 2025
- E-1: Preliminary Geotechnical Subsurface Evaluation, prepared by LGC Geotechnical Inc. in November 2024
- E-2: Irvine Gateway Village– Paleontological Resources Assessment, prepared by Dudek in January 2025
- F-1: Water Supply Assessment, prepared by Irvine Ranch Water District in April 2025

- F-2: Water Supply Verification, prepared by Irvine Ranch Water District in April 2025
- F-3: Preliminary Hydrology Report, prepared by Fuscoe in December 2024
- F-4: Preliminary Water Quality Management Plan, prepared by Fuscoe in December 2024
- G-1: Phase I Environmental Site Assessment, prepared by AEI in May 2023
- G-2: Limited Subsurface Investigation Report, prepared by AEI. in May 2023
- G-3: Phase II Environmental Site Assessment, prepared by Stantec in November 2024
- H-1: Ambient Noise Measurement Data, prepared by Dudek in February 2025
- H-2: Construction Noise Modeling Data, prepared by Dudek in February 2025
- I: Irvine Gateway Comprehensive Traffic Study, prepared by LSA, May 2025
- J-1: Fire Behavior Analysis and Report, prepared by Firesafe Planning in December 2024
- J-2: Evacuation Travel Time Analysis for Irvine Gateway Village, prepared by LSA, July 2025
- J-3: Conceptual Fuel Modification Plan, prepared by Firesafe Planning in April 2025
- J-4: Alternate Means and Methods for Fuel Modification, prepared by Firesafe Planning in April 2025
- K-1: Draft Sub-Area Master Plan for the Gateway Village Development, prepared by Stantec, February 2025
- K-2: Dry Utility Due Diligence Report, prepared by Moran Utility Service Inc., May 2023
- K-3: Recycled Water System Facilities, prepared by Stantec, May 2023
- K-4: Water and Sewer Will-Serve Letter, prepared by Irvine Ranch Water District, December 2024

2.10 Review of the Draft Environmental Impact Report

Upon completion of this Draft EIR, the City prepared and filed a Notice of Completion with the Governor's Office of Planning and Research, State Clearinghouse, to start the public review period (PRC Section 21161). Concurrently with the Notice of Completion, the City distributed a Notice of Availability in accordance with CEQA Guidelines Section 15087. The Notice of Availability was mailed to the agencies, organizations, and individuals who previously requested in writing to receive a copy. This Draft EIR was distributed to responsible and trustee agencies, other affected agencies, surrounding cities and municipalities, and all interested parties requesting a copy of this document in accordance with PRC Section 21092(b)(3). During the public review period, this Draft EIR, including the appendices, is available for review at the following locations:

In Person

Irvine City Hall, Planning Counter
1 Civic Center Plaza
Irvine, California 92606

Heritage Park Library
14361 Yale Avenue
Irvine, California, 92604

University Park Library
4512 Sandburg Way
Irvine, California, 92612

Online

- https://cityofirvine.org/community-development/current-environmental-reviews

Agencies, organizations, individuals, and all other interested parties not previously contacted, or who did not respond to the NOP, currently have the opportunity to comment on this Draft EIR during the public review period. Written or email comments on this Draft EIR should be addressed as follows:

Erica Hong, Senior Planner
City of Irvine
PO Box 19575
Irvine, California 92623-9575
Email: ehong@cityofirvine.org

Upon completion of the public review period, written responses to all substantive environmental comments are prepared and made available prior to the public hearing on the project before the City's Planning Commission, at which the project, the Final EIR, and requested entitlements are considered for recommendation to the Irvine City Council. The comments received and the responses to those comments will be included as part of the record for consideration for the project.

2.11 References

City of Irvine. 2024a. *Irvine 2045 General Plan*. https://cityofirvine.org/community-development/current-general-plan.

City of Irvine. 2024b. "Zoning." Zoning Code of the City of Irvine, California. Codified through Ordinance No. 24-08, adopted May 28, 2024 (Supplement No. 13). https://library.municode.com/ca/irvine/codes/zoning.

City of Irvine. 2025. "Code of Ordinances." Municipal Code of the City of Irvine, California. Codified through Ordinance No. 24-22, adopted January 28, 2025 (Supplement No. 18). https://library.municode.com/ca/irvine/codes/code_of_ordinances.

3 Project Description

This chapter provides a description of the proposed Irvine Gateway Village Project (project). Pursuant to Section 15124 of the California Environmental Quality Act (CEQA) Guidelines, this chapter describes the location, objectives, and characteristics of the proposed project, followed by a statement describing the intended uses of this draft environmental impact report (Draft EIR).

3.1 Project Overview

Brookfield Residential, partnering with the City of Irvine (the City), has proposed a new residential village with approximately 1,360 residential units, called Gateway Village (the proposed project), in the City of Irvine, California. The development would also include parks, paseos, and an extension of the Jeffrey Open Space Trail (JOST).

3.2 Project Location

The approximately 105-acre project site is located in north Irvine, at the northeast corner of Portola Parkway and Jeffrey Road. The site is bounded by Portola Parkway to the south, Jeffrey Road/Hicks Haul Road to the west, and Bee Canyon Access Road to the east. Hicks Canyon Wash is to the north. The regional location is shown on Figure 3-1, Project Location, and the local area is shown on Figure 3-2, Local Vicinity. The northern half of the project site is in a Very High Fire Hazard Severity Zone (CAL FIRE 2025).

3.3 Environmental Setting

North Irvine

North Irvine is an area of recent development within the City, including the development of the residential communities of Portola Springs and Orchard Hills. The residential community of Orchard Hills is currently in its final phase of development. State Route (SR) 261 and SR-241 provide highway access to the area. The developed areas of north Irvine sit adjacent to a large swath of open space called the Northern Open Space Preserve, which includes the approximately 700-acre Gateway Preserve, Limestone Canyon, and Blackstar Canyon and extends to the Cleveland National Forest.

Existing Land Uses

The project site consists primarily of active agricultural fields with equipment storage and laydown areas in the northern portion of the site. According to the California Department of Conservation, the site includes 64.46 acres of designated prime farmland, with small areas of unique farmland (DOC 2024). The current General Plan designation for the project site is Recreation, as shown on Figure 3-3, Existing Land Use, and the current zoning is 1.5 – Recreation, as shown on Figure 3-4, Existing Zoning.

Surrounding Land Uses

Hicks Canyon Wash forms the northern boundary of the project site. Just north of Hicks Canyon Wash is a road that stretches east to the Irvine Ranch Conservancy Native Seed Farm and various other special use sites leased to third parties, including a landscape designer, a pump supplier, and an excavating contractor. Following Hicks Haul

Road to the north are avocado groves, undeveloped open space, and the closed All American Asphalt (AAA) plant. The final phase of the Orchard Hills development (Neighborhood 4, Summit at Orchard Hills), a single-family residential development, is under construction directly to the west of the project site.

Surrounding Circulation Network

Highways

SR-241 is north of the project site, SR-133 is to the east, and SR-261 is to the west. All these highways are part of the Toll Roads system. Interstate (I) 5 is to the south of the project site.

Roadways

The project site would be accessible from Jeffrey Road and Portola Parkway, with one right-in/right-out access drive off Portola Parkway and three access points from Jeffrey Road.

An extension of Jeffrey Road from north of the project site to SR-241 is shown as an unconstructed roadway on the County of Orange Master Plan of Arterial Highways (OCTA 2025). Because the connection to SR-241 is not proposed to occur as part of this project, the City has proposed a temporary condition, which is a parking lot at the terminus of Jeffrey Road north of the project site.

Transit

The Orange County Transportation Authority provides 60 bus routes throughout Orange County, including local, community, and express routes. In addition, Irvine CONNECT, a free shuttle service, is provided by the City to connect the northern end of Irvine to the Irvine Train Station via Yale Avenue, with stops at parks, schools, hospitals, and shopping centers. The closest existing bus stops are located at the northwest and southwest corners of Jeffrey Road/Irvine Boulevard, which are approximately 1 mile away from the project site. The project would include a new transit stop and bus turnout on Jeffrey Road at approximately the northeast corner of Jeffrey Road and “C” Street. This new transit stop would serve the expanded Irvine CONNECT route to be implemented by the City, with the Irvine CONNECT shuttle route going adjacent to the Irvine Gateway Village project site.

Pedestrian and Bicycle Facilities

In the vicinity of the proposed project, sidewalks are currently provided on the south side of Portola Parkway and the west side of Jeffrey Road (south of Portola Parkway). On-street (Class II) bicycle lanes are currently provided on Portola Parkway and Jeffrey Road (south of Portola Parkway). The JOST, which currently terminates at Portola Parkway just south of the project site, is an open space corridor used by pedestrians and cyclists and will be extended to terminate at South Park, the entry point to the Gateway Preserve. A sidewalk on the north side of Portola Parkway along the project property frontage is proposed as a project design feature. Additionally, the cross-section for Jeffrey Road north of Portola Parkway is wide enough to provide two through lanes with on-street (Class II) bicycle lanes. The project would provide bicycle parking amenities that meet the requirements of the Irvine Zoning Ordinance.

Gateway Preserve

The City is in the process of planning for the development of a separate project, called the Gateway Preserve, which would create a 700-acre open space preserve in the hills above north Irvine adjacent to the proposed project site. The Gateway Preserve Project includes a vision for redevelopment of the now closed AAA plant—which has long been a

concern of local residents—into a park, interpretive center, and staging area for hiking. The project site is adjacent to the Gateway Preserve Project and the proposed public park at the northern edge of the project site would act as a transitional space and entry point to the Gateway Preserve. There is currently no specific plan for development of the AAA plant site, and any plans for development of that site would require a subsequent CEQA process.

Cumulative Setting

In many cases, the impact of an individual project may not be significant, but its cumulative impact may be significant when combined with impacts from other related projects. CEQA Guidelines Section 15355 defines cumulative impacts as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." CEQA Guidelines Section 15130(b) states that "the discussion [of cumulative impacts] need not provide as great detail as is provided for the effects attributable to the project alone." Section 15130(b) further states that a cumulative impacts discussion "should be guided by standards of practicality and reasonableness."

Cumulative impacts can also occur from the interactive effects of a single project. For example, the combination of noise and dust generated during construction activities can be additive and can have a greater impact than either noise or dust alone. However, substantial cumulative impacts more often result from the combined effect of past, present, and future projects located in proximity to a proposed project. Thus, it is important for a cumulative impacts analysis to be viewed over time and in conjunction with other related past, present, and reasonably foreseeable future projects, the impacts of which might compound or interrelate with those of the project under review.

As provided by CEQA Guidelines Section 15130(b), the following elements are necessary to an adequate discussion of cumulative impacts:

- Either: (A) a list of past, present, and reasonably anticipated future projects producing related or cumulative impacts, including those projects outside the control of the agency; or (B) a summary of projections contained in an adopted general plan or related planning document that is designed to evaluate regional or area wide conditions. Any such planning document shall be referenced and made available to the public at a location specified by the lead agency.
- A summary of the expected environmental effects to be produced by those projects with specific reference to additional information stating where that information is available.
- A reasonable analysis of the cumulative impacts of the relevant projects. An EIR shall examine reasonable options for mitigating or avoiding any significant cumulative effects of the proposed projects.

The AAA plant closed in 2024 and is considered qualitatively in the cumulative scenario.

For the analysis of cumulative impacts associated with the project, a cumulative project list was developed through consultation with the City. Table 3-1 lists these cumulative projects.

Table 3-1. Cumulative Projects

Project Name	Project Location	Project Description and Status
Pending Projects in North Irvine		
Gateway Preserve	North of the project site	The Irvine Conservancy is taking the lead on a Resource and Recreation Plan for this area that will require approval by the U.S. Fish and Wildlife Service.
Orchard Hills Residential Master-Neighborhood 4	West of Jeffrey Road and North of Portola Parkway	This development of 520 single-family homes is the final phase of buildout of the Orchard Hills neighborhood. The project is currently under construction.
AAA plant closure	North of the project site	Closure of the AAA plant will reduce truck traffic daily trips in the project area.
Pending or Current Projects Elsewhere in the City of Irvine		
Great Park Master Plan PA 51 GPA and Zone Change	West of the project site	A general plan amendment and zone change that includes maps and master plans for 1,834 dwelling units, 691 of which are from a previous entitlement. The remaining 1,143 units will be converted from non-residential uses.
Our Lady of Peace Korean Catholic Center	Intersection of Trabuco Road and Remington	This projects consists of construction of two 320-square-foot detached structures. Plans are currently under review by the City.
Orange County Metrolink Maintenance Facility	Perimeter Road south of Marine Way	This project proposes construction of a Metrolink maintenance facility consisting of five buildings, additional railroad tracks, access roads, and on-site improvements by the Southern California Rail Authority. Plans are currently under review by the City.
Great Park District 6 Residential	Marine Way	This project is a pre-application for a Traffic Study Scope for District 2 and District 6 of the Great Park Neighborhoods. Plans are currently under review by the City.
FivePoint Communities Master Plan Modification	El Toro Boulevard east of Marine Way	This project consists of modification of the previously approved Master Plan within Great Parks Neighborhood Development District 5 and a portion of District 6. The modification proposes changes to the building product mix and alternate plotting. Plans are currently under review by the City.
Cypress Village Residential Master Plan	Southeast corner of Sand Canyon Avenue and Great Park Boulevard	This residential master plan would result in construction of a total of 140 single-family dwelling units. The project has been approved by the City.
Planning Area 40 Master Plan	1 Marine Way	This Zoning Code and General Plan Amendment would allow the transfer of 675,237 square feet of office intensity from the Multi-Use General Plan Land Designation to the Research/Industrial Land Designation and from the 3.1H zoning designation to the 5.5D zoning designation. The project has been approved by the City.
Innovation Office Park Master Plan Modification	250 Progress	The modification of the Innovation Office Park Master Plan would reconfigure buildings, reduce the total number of buildings, modify on-site circulation, and identify the location of future parking. The project has been approved by the City.

Table 3-1. Cumulative Projects

Project Name	Project Location	Project Description and Status
Great Park Neighborhoods District 2 Map	Marine Way, Great Park District 2	This project consists of approval of three tentative parcel maps for District 2 within the Great Park Neighborhood.
Alton & Muirlands Industrial Building	Southeast corner of Alton Parkway and Muirlands Boulevard	The development of a 133,320-square-foot building for warehouse purposes would provide 15,700 square feet of light manufacturing area and 10,000 square feet of office space. The project has been approved by the City.
Irvine Marketplace Master Plan	Jamboree Road at I-5	This project is currently under construction.
Heritage Square Shopping Center Remodel	14100 Culver Drive	This remodel would result in renovation of the façade of two retail buildings and the construction of a new one-story supermarket building, in conjunction with on-site improvements including additional parking stalls, trash enclosures, and landscape/hardscape modifications. The project is currently under construction.
District 5 North	Intersection of Biome and Tank	This revision would introduce a new residential product type and reduce the total number of units by 43. The proposed residential units range in height from one to three stories and are between 1,603 and 3,225 square feet in area. The project is currently under construction.
City of Hope	Marine Way	This project consists of development of a new approximately 60,000-square-foot cancer treatment center and approximately 190,000-square-foot medical offices located in a portion of the FivePoint Gateway campus with a new aboveground parking structure along Barranca Parkway. The project is currently under construction.
Pacifica Place Master Plan	Northeast and southwest corners of Pacifica and Gateway	This master plan would result in construction of 889 apartment dwelling units across two multi-family residential buildings. This project also includes a request for a zone change and General Plan Amendment. The project is currently under construction.

Notes: AAA = All American Asphalt; I = Interstate.

3.4 Project Objectives

CEQA Guidelines Section 15124(b) states that the project description of an EIR shall contain "a statement of the objectives sought by the proposed project." Section 15124(b) further states that "the statement of objectives should include the underlying purpose of the project."

The underlying purpose of the project is to develop a new residential community with a variety of housing types in north Irvine. The proposed project's specific objectives are as follows:

1. **Housing Stock.** Provide diverse housing types and opportunities within the City that address a variety of lifestyles, life stages, and economic segments of the marketplace.
2. **Affordable Housing.** Consistent with Goal 4 of the City's General Plan Housing Element, provide affordable housing to support balanced housing options at the least cost possible to residents.

3. **RHNA Goals.** Contribute new housing units to the City's housing stock, to help satisfy the State of California Regional Housing Needs Assessment (RHNA) for the 2021–2029 planning period, allowing the City to advance their fair share of regional housing growth goals.
4. **City Revenue Generation.** Generate net revenue for the City of Irvine General Fund.
5. **Attractive Community and Amenities.** Develop a cohesive architectural and landscape themed community with amenities that both residents and guests seek. Create gathering spaces and encourage outdoor vehicle-free movement by providing parks, paseos, streetside green spaces, and outdoor amenity areas. Establish recreational amenities within walking distance of residential neighborhoods.
6. **Circulation Network.** Complete the comprehensive circulation network with integrated mobility options by connecting pedestrians and bicyclists traveling to a non-vehicular bridge across Portola Parkway to the broader Irvine community to the south and west of the project site. Establish connectivity between land uses through the extension of the JOST to its connection point with the 700-acre Gateway Preserve via the South Park trailhead, which sustains the City's goals to enhance quality living environments through parks and open space.

3.5 Proposed Project

The proposed project is the development of a new approximately 105-acre residential village with approximately 1,360 residential units, called Gateway Village. The project would also include development of parks, a community garden, paseos, and a 2,750-foot extension of the JOST north from Portola Parkway to the entrance of the new Gateway Preserve. The project would include 25% affordable housing, consistent with the Surplus Lands Act.

3.5.1 Project Components

Zoning and Land Use Changes

The proposed project would require a General Plan Amendment to change the City's Land Use Map from Recreation to Medium High Density Residential on the project site, with High Density Residential to be applied on the affordable housing portion of the project site only. Additionally, text, tables, and figure updates would be made in the Land Use Element to establish Planning Area 2 (Gateway Village). Additional General Plan updates include revisions to the figures in the Circulation Element; updates to figures, tables, and text in the Conservation and Open Space Element; and updates to figures in the Safety Element. A zone change to the Irvine Zoning Ordinance is also required to change the zoning classification of the project site from 1.5 – Recreation to 2.4J – Medium High Density Residential; add Chapter 9-2, Planning Area 2; and amend Section 3-3-1, Section 3-37-15, and Chapter 9-6 for consistency purposes.

Additional Entitlements

The proposed project requires Tentative Tract/Parcel Maps to subdivide the site; Master Plans; a Park Plan; a Master Landscape and Trails Plan; Park Designs; and the annexation of County of Orange land parcels within the boundaries of the project site.

Residential Development

The project would consist of approximately 1,360 two- and three-story attached and detached homes over 65.5 acres (Figure 3-5, Conceptual Site Plan). Density ranges for different residential development areas would range from 10 to 22 dwelling units per acre at the lowest density to 30 to 40 dwelling units per acre at the highest density.

Two- to three-story single-family attached and detached housing of varying types would be constructed in Development Areas (DAs) 1a through 1d, 2a through 2d, and 3a through 3e, as shown on Figure 3-5.

Attached units would be constructed in DAs 1a through 1d, 2a through 2d, and 3a through 3e, as shown on Figure 3-5.

Multifamily affordable housing DAs of approximately 340 units are proposed. These would be located in DAs 2d and 3c, as shown on Figure 3-5.

Parks

The proposed project would include the construction of five parks totaling approximately 7.2 acres, consisting of neighborhood parks, linear parks, and an approximately 4.9-acre public park complete with parking, restrooms, and trail staging for Gateway Preserve. In addition, a 1.2-acre landscape frontage would be included along Portola Parkway.

Jeffrey Space Open Trail

The JOST is a recreational resource for the residents of the City. It is an important element in the City's overall Open Space system, linking the conservation and open space lands within the City. It provides a key linkage extending from the Pacific Ocean to the Santa Ana Mountains and Cleveland National Forest (City of Irvine 2024). The existing JOST runs south to north along Jeffrey Road from I-5 to Portola Parkway. The JOST is currently being extended westward and over the I-5 from Walnut Avenue to Barranca Parkway. The proposed project would include the extension of the JOST north approximately 2,750 feet from Portola Parkway to South Park at the entrance to the forthcoming Gateway Preserve (Figure 3-5) and would include a pedestrian bridge over Portola Parkway. The total acreage of the JOST extension under the proposed project would be approximately 9.5 acres.

Utilities

The proposed project would include the extension of all utilities to the project site.

Irvine Ranch Water District

Domestic Water

A new domestic 12-inch-diameter water line under Portola Parkway would need to be extended from Wonderview Street at Portola Parkway to serve the proposed project; a new 8-inch-diameter water line would be extended from Jeffrey Road into the site along "C" Street; and a new 12-inch-diameter water line from Jeffrey Road would be extended along "C" Street and then into a 10-inch-diameter water line down "D" Street.

Sewer

A new 8-inch-diameter, 3,200-linear-foot sewer line would be constructed along "C" Street and down "D" Street and "E" Street to Portola Parkway and then to an existing 8-inch-diameter sewer line in the Stonegate development. In addition, a new 12-inch-diameter sewer line would be constructed on Woodhill, Boxberry, Encore, Ovation, Slate, and Crested Bird in Stonegate to accommodate the increased flows from the proposed project.

Reclaimed Water

A new 6-inch-diameter reclaimed water line would need to be added to the project site to connect to the existing recycled water line in Jeffrey Road that starts at 12 inches in diameter at Portola Parkway and reduces to 6 inches in diameter after "A" Street. The new line would connect under "A" Street, "C" Street, and "D" Street, where it transitions to 4 inches in diameter.

Stormwater Lines and Stormwater Detention Basin

Three existing storm drain laterals—48-inch, 18-inch, and 24-inch diameter—are located in Portola Parkway and a 102-inch-diameter storm drain is located in Jeffrey Road. The project site generally drains from the northeast to the southwest. A storm drain would be constructed in "C" Street to intercept off-site flows and convey them to point of connection (POC) 1 and POC-2 just south of South Park and to the Jeffrey Road storm drain. These pipes would be sized to convey 25-year peak flows. In addition, an underground storage tank to hold 17,500 cubic feet of storage would be constructed on site near POC-2. POC-3 would collect flows from the storm drain under "D" Street, which would flow down the center of the project site to the stormwater detention basin in the southeast of the site and ultimately out to Portola Parkway. POC-4 would also convey flows to the storm drain in Portola Parkway. A stormwater detention basin would be constructed in the southeastern corner of the project site to accommodate a 25-year storm event and 190,575 cubic feet of storage.

SCE: Electricity

Southern California Edison (SCE) has existing systems or the ability to upgrade their system to serve the project site (Moran 2023). There are existing underground distribution systems in Bee Canyon Access Road, Portola Parkway, and partially up Jeffrey Road north of Portola Parkway. The existing overhead system in Jeffrey Road is part of planned underground conversion with the realignment and widening of Jeffrey Road. The project would be served by SCE from Jeffrey Road.

AT&T, SCE, and Cox Communications: Telecommunications

AT&T has facilities in place and planned that would be available to serve the project (Moran 2023). There is an existing underground system in Portola Parkway and in Jeffrey Road for a certain extent north of Portola Parkway. AT&T has an overhead system that runs from the corner of Portola Parkway and Bee Canyon Access Road and goes north through the Gateway Preserve parcel and connects to the existing overhead system that SCE has on Jeffrey Road. The overhead system is on existing poles, which SCE will convert to an underground system with the Jeffrey Road construction.

Cox Communications has facilities underground in Portola Parkway and a portion of Jeffrey Road north of Portola Parkway that could serve the project site (Moran 2023). A Cox Communications underground system is also planned in a joint trench with SCE and AT&T in Jeffrey Road (Moran 2023).

SoCalGas: Natural Gas

SoCalGas has existing gas mains in Portola Parkway and Jeffrey Road. As part of the widening and realignment of Jeffrey Road, the existing 8-inch-diameter high-pressure main will be relocated into the new Jeffrey Road alignment. SoCalGas would need to run a new distribution main from Portola Parkway and up Jeffrey Road if natural gas service will be provided to this project (Moran 2023). Residential development would be all electric at the Irvine Gateway

Village Project. However, natural gas service would be required for the main Gateway Village Park and community amenities, where pools would be heated most efficiently with natural gas.

Jeffrey Road Improvements

Jeffrey Road improvements along the western project frontage were completed in 2024 by The Irvine Company. These improvements were included as part of the Orchard Hills development. The roadway segment of Jeffrey Road north of Portola Parkway is a four-lane facility, and the intersection of Jeffrey Road/"A" Street would be striped to provide one northbound through lane and one northbound shared through lane/right-turn lane onto "A" Street.

3.5.2 Project Construction

The project, including extension of the JOST and creation of parks, would be constructed in multiple phases over a total of 74 months from 2026 to 2032. Given the size of the proposed project, grading and implementing development activities across the project site would likely occur concurrently with multiple development areas under construction at the same time and built in response to market demands and according to logical and orderly completion of the project's streets, public utilities, and infrastructure. Development areas may be constructed out of the expected sequence, or in smaller increments, provided that the required infrastructure and services are available at time of development and adequate access to and from the project site is provided.

Project Phasing

The project's land development, which would be the most intensive construction phase and would be completed in a single mobilization, would start with the mass grading of the project site, which is estimated to take 5 months. From start to completion, the entire land development phase, including on-site and off-site improvements and underground utilities, internal roadways, and the main recreational amenity/park, would take approximately 16 months. The housing would be constructed in three overlapping phases, with construction in the center of the project site first (Phase 1), then construction in the southern portion of the site (Phase 2), and finally construction in the northern portion of the site (Phase 3). Phase 1 is anticipated to be approximately 29 months, Phase 2 would take approximately 46 months, and Phase 3 would be completed over 52 months. The JOST extension and the main Gateway Village Park amenities would be completed concurrently with Phase 1. The affordable housing parcels would be ready for construction at the completion of the land development phase. The affordable housing is anticipated to be completed during Phases 2 and 3 of development, with each parcel taking approximately 24 months to complete.

Staging Areas

Because the proposed project would be built in phases, which would leave undeveloped areas on site available for use, staging areas would remain within the project site.

3.5.3 Project Operations

Once fully operational, the project would generate 10,825 daily trips.

3.6 Intended Uses of This Draft EIR

An EIR is a public document used by a public agency to analyze the potential environmental effects of a project and to disclose possible ways to reduce or avoid potentially significant environmental impacts, including alternatives to the proposed project. As an informational document, an EIR does not make recommendations for or against approving a project. The main purpose of an EIR is to inform public agency decision makers and the public about potential environmental impacts of the project (14 CCR 15121). This Draft EIR will be used by the City, as the lead agency under CEQA, in making decisions with regard to the proposed project described above and the related approvals required for the project.

Permits and Approvals

The City would obtain all permits and approvals, as required by law. A list of permits or other forms of approval required for the proposed project is provided in Table 3-2.

Table 3-2. Permits or Other Actions Required

Agency	Jurisdiction	Permit Regulatory Requirement/Approval
State		
California Department of Fish and Wildlife	California Fish and Game Code Section 1602	Section 1602 Lake and Streambed Alteration Agreement for Hicks Canyon Wash
Santa Ana Regional Water Quality Control Board	Section 401 of Clean Water Act/Porter-Cologne Water Quality Control Act	▪ Section 401 Permit for Hicks Canyon Wash ▪ Stormwater pollution prevention plan ▪ Construction General Permit
Local		
City of Irvine	Lead agency	General Plan amendments: ▪ Changing the City's Land Use Map from Recreation to Medium-High Density Residential on the project site, with High Density Residential to be applied on the affordable housing portion of the site only ▪ Text, table, and figure updates in the Land Use Element to establish Planning Area 2 (Gateway Village) ▪ Figure revisions in the Circulation Element ▪ Figure, table, and text updates in the Conservation and Open Space Element ▪ Figure updates in the Safety Element
City of Irvine	Lead agency	Irvine Zoning Ordinance changes: ▪ Changing the zoning classification of the project site from 1.5 Recreation to 2.4J Medium-High Density Residential ▪ Adding Chapter 9-2, Planning Area 2 ▪ Amending Section 3-3-1, Section 3-37-15, and Chapter 9-6 for consistency purposes.
City of Irvine	Lead agency	Approval of Master Plans
City of Irvine	Lead agency	Approval of Tentative Tract/Parcel Maps
City of Irvine	Lead agency	Approval of a Water Quality Management Plan

Table 3-2. Permits or Other Actions Required

Agency	Jurisdiction	Permit Regulatory Requirement/Approval
City of Irvine	Lead agency	Approval of the Master Landscape and Trails Plan
City of Irvine	Lead agency	Approval of Park Plan
City of Irvine	Lead agency	Approval of Park Design Plans
City of Irvine	Lead agency	City Council approval of the project and certification of the EIR
City of Irvine	Lead agency	Approval of annexation for County of Orange land parcels within project boundaries
Local Agency Formation Commission of Orange County	Cortese Knox Hertzberg Local Government Reorganization Act of 2000	Annexation of county parcels within project boundaries

Note: EIR = environmental impact report.

3.7 References

CAL FIRE (California Department of Forestry and Fire Protection). 2025. "Local Responsibility Area Fire Hazard Severity Zone Maps." Accessed July 31, 2025. https://calfire.app.box.com/s/wahuw9ny7cgn89xpxh7092ur50r1pwvj.

City of Irvine. 2024. "Hiking and Biking." City of Irvine Open Space & Trails [webpage]. Accessed November 5, 2024. https://www.cityofirvine.org/open-space-trails/hiking-biking.

DOC (California Department of Conservation). 2024. California Important Farmland Mapping. Accessed July 16, 2024. www.maps.conservation.ca.gov/dlrp/ciftimeseries.

Moran (Moran Utility Service Inc.). 2023. *Dry Utility Due Diligence Report Gateway Preserve – Irvine, CA*. Prepared for Cherry Tree Capital Partners.

OCTA (Orange County Transportation Authority). 2025. "2025 Master Plan of Arterial Highways: Orange County, California." https://www.octa.net/programs-projects/projects/streets-projects/master-road-plan/.

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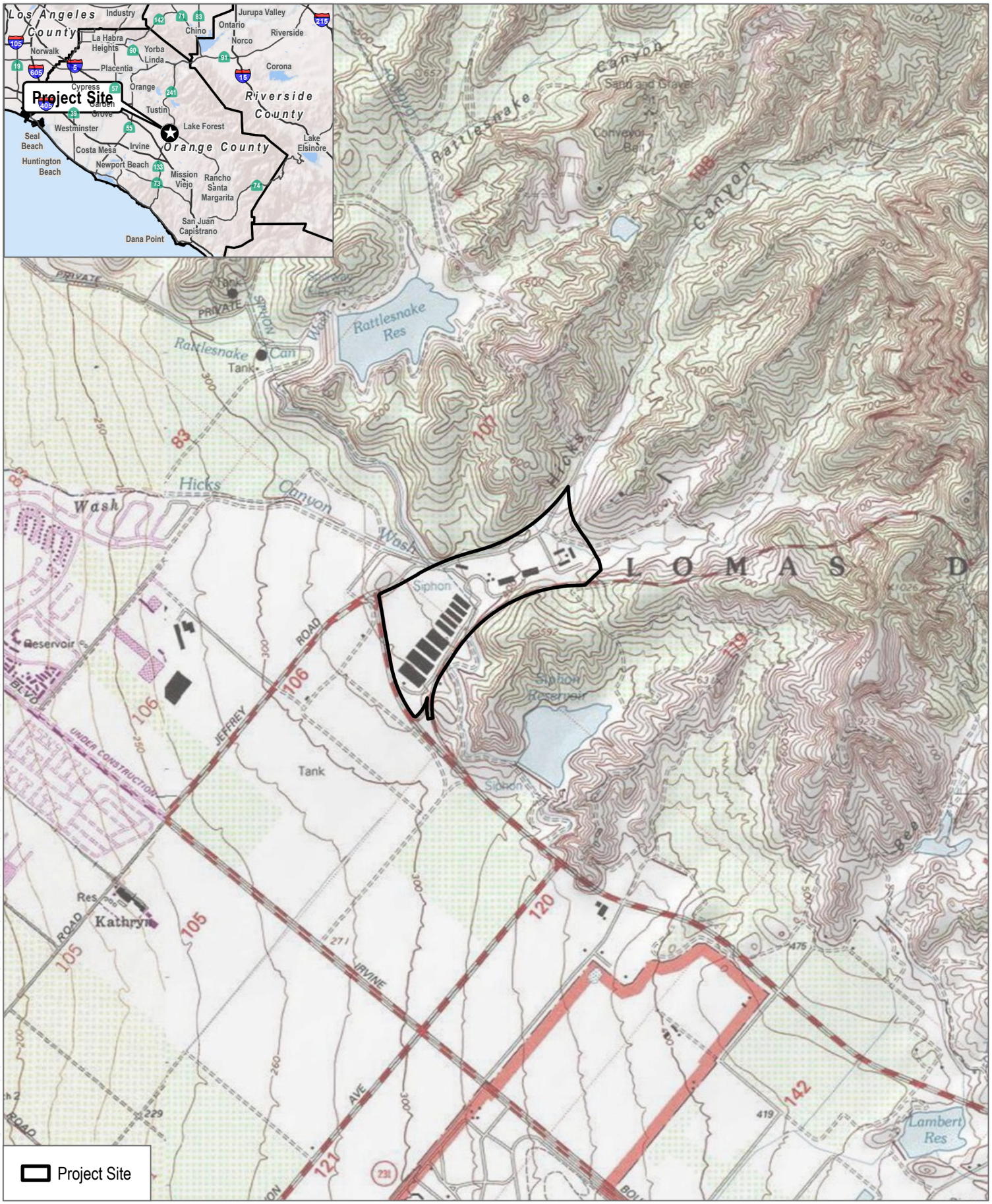


FIGURE 3-1

Project Location

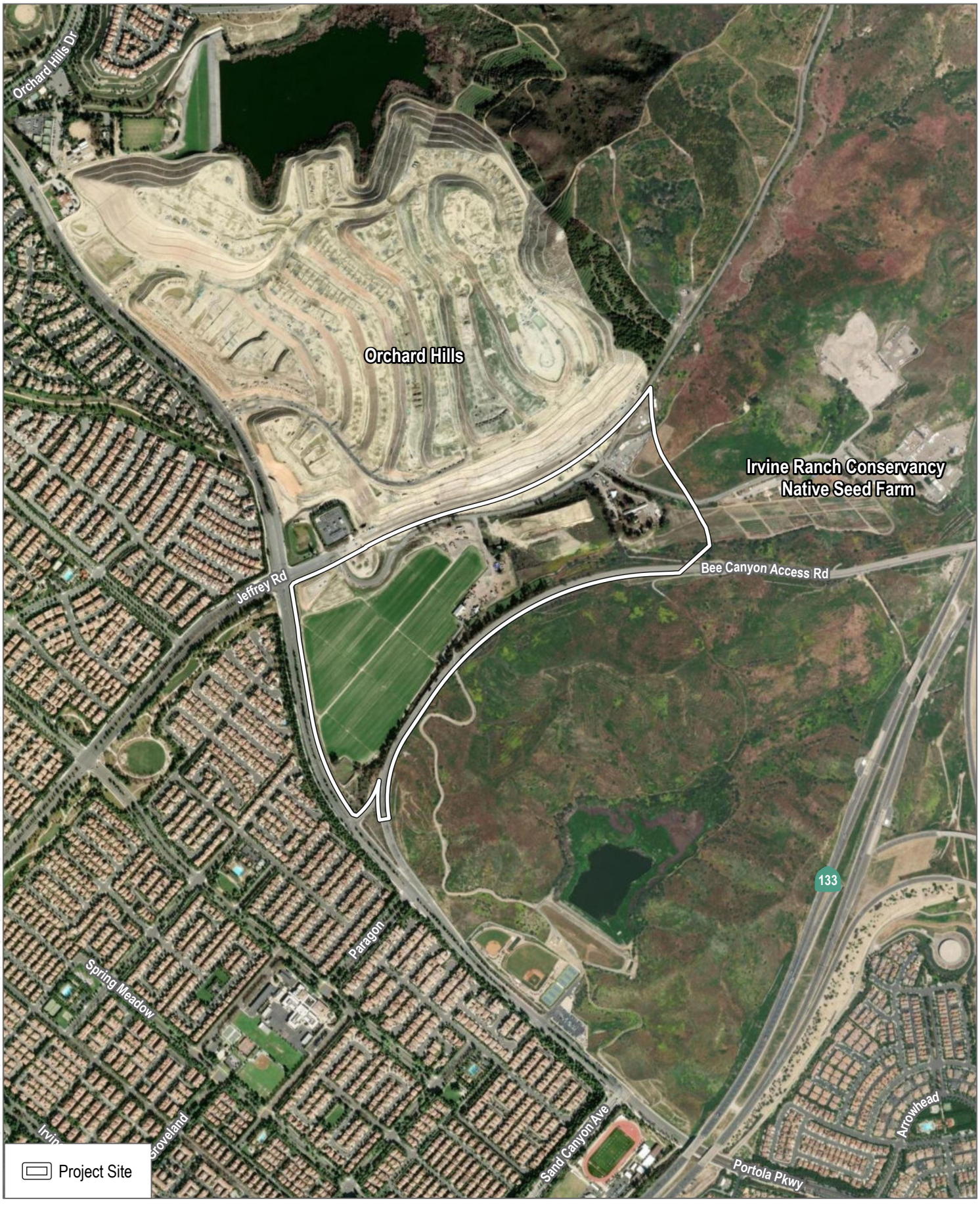
Irvine Gateway Village Project EIR

DUDEK

0 1,000 2,000 Feet

0 280 560 Meters

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SOURCE: Esri 2023; Open Street Maps 2023

DUDEK

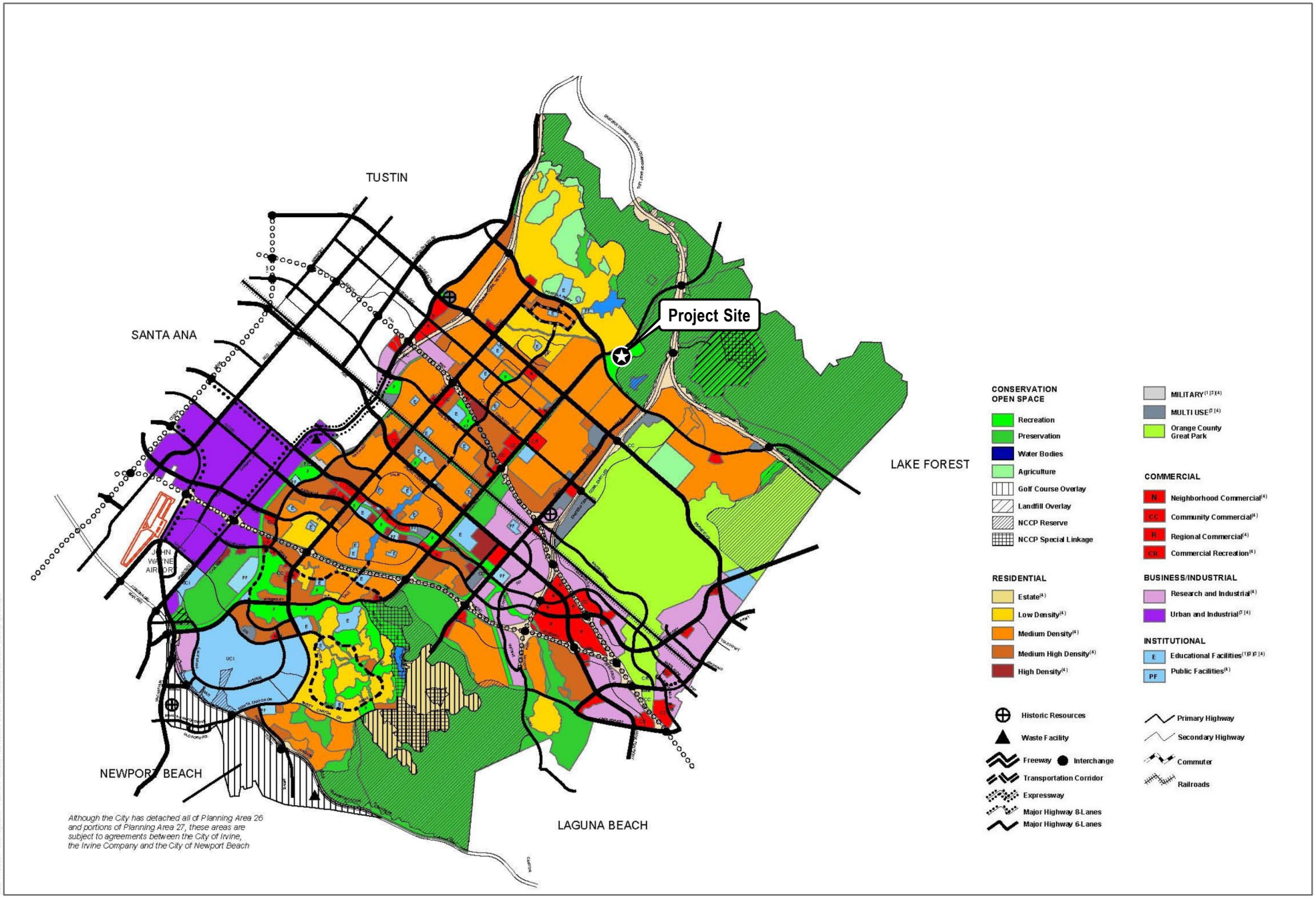
0 500 1,000 Feet

FIGURE 3-2

Local Vicinity

Irvine Gateway Village Project EIR

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SOURCE: City of Irvine 2015

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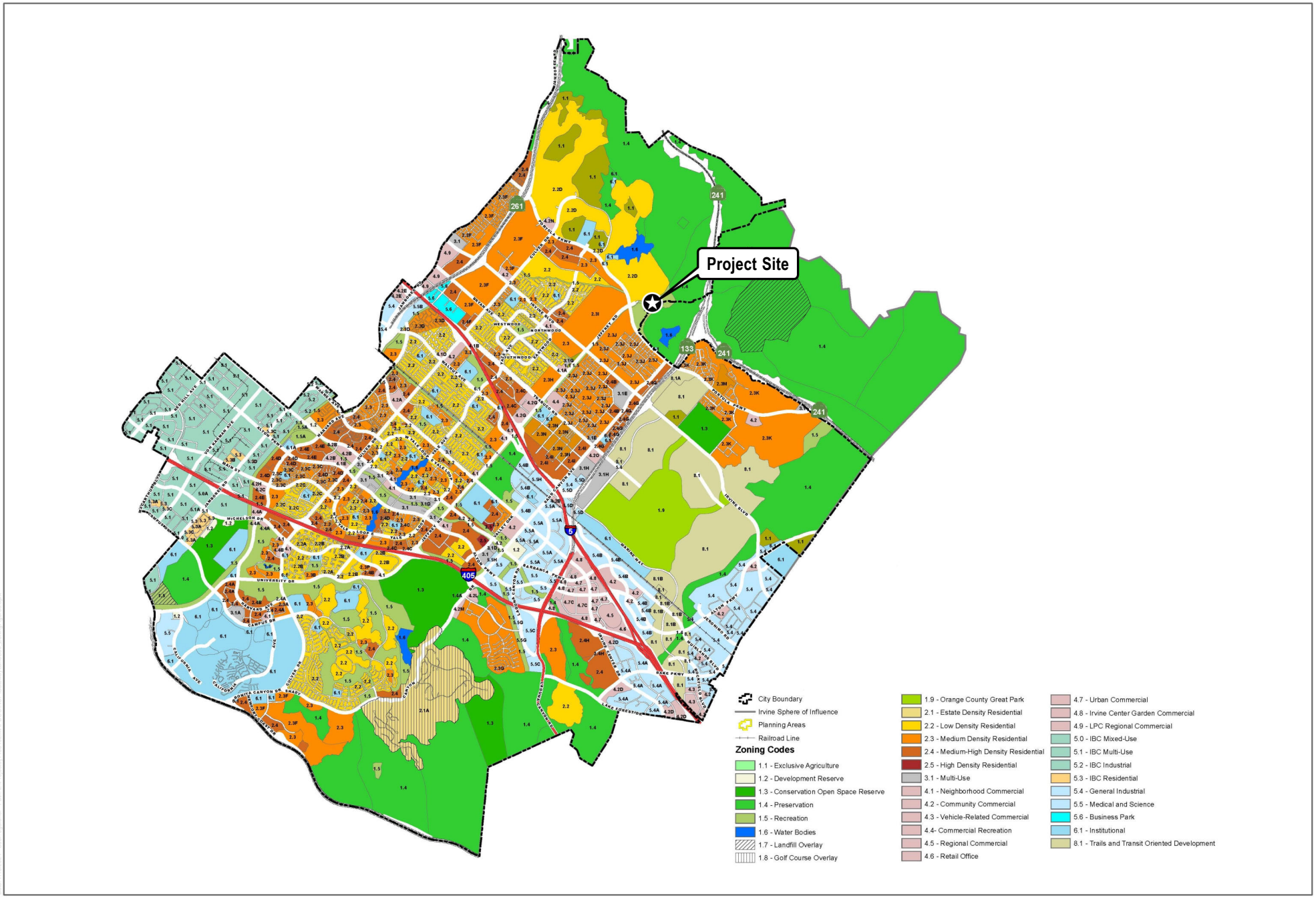
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FIGURE 3-3

Existing Land Use

Irvine Gateway Village Project EIR

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SOURCE: City of Irvine 2014

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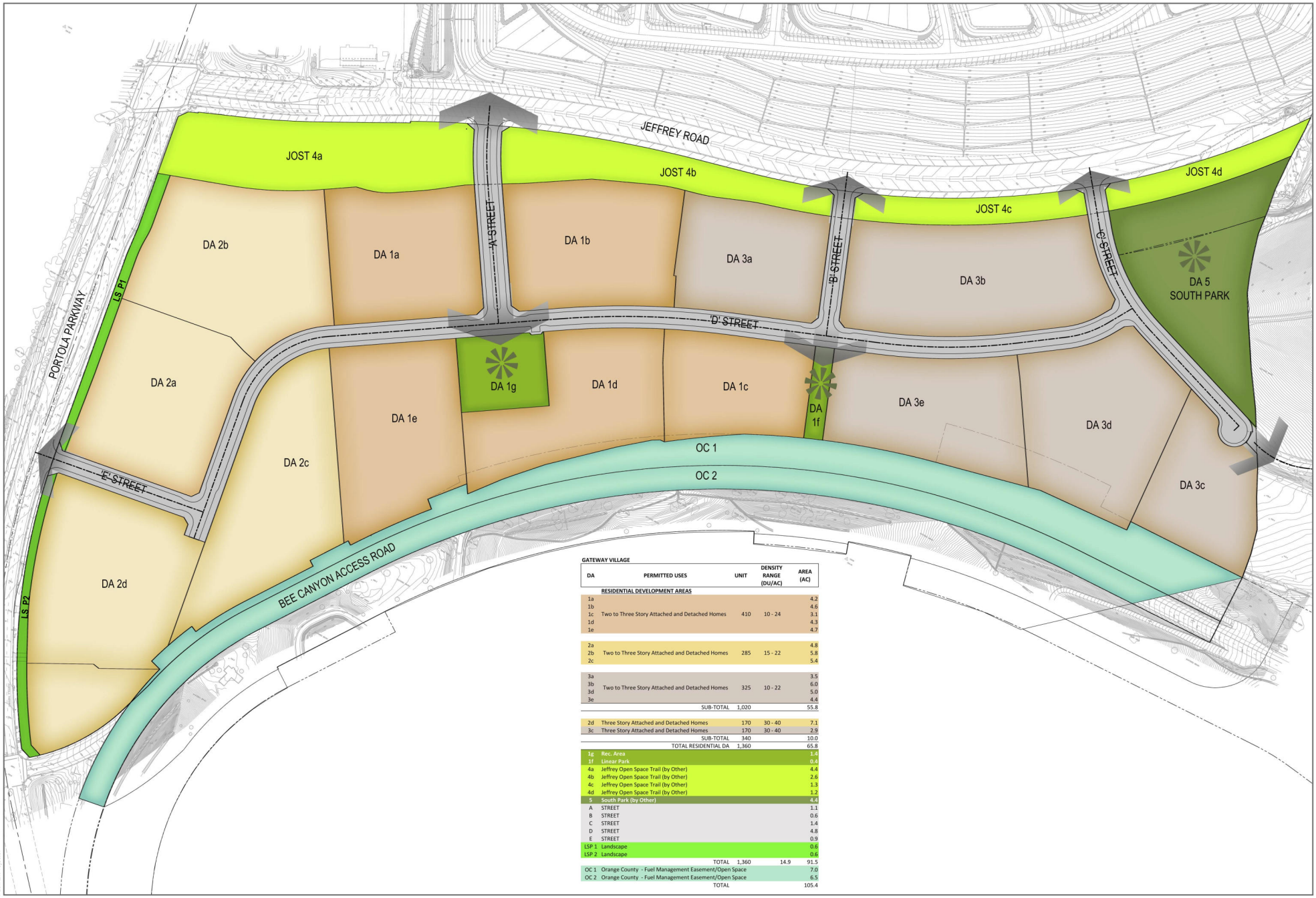
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FIGURE 3-4

Existing Zoning

Irvine Gateway Village Project EIR

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GATEWAY VILLAGE

DA	PERMITTED USES	UNIT	DENSITY RANGE (DU/AC)	AREA (AC)
	RESIDENTIAL DEVELOPMENT AREAS			
1a				4.2
1b				4.6
1c	Two to Three Story Attached and Detached Homes	410	10 - 24	3.1
1d				4.3
1e				4.7
2a				4.8
2b	Two to Three Story Attached and Detached Homes	285	15 - 22	5.8
2c				5.4
3a				3.5
3b	Two to Three Story Attached and Detached Homes	325	10 - 22	6.0
3d				5.0
3e				4.4
	SUB-TOTAL	1,020		55.8
2d	Three Story Attached and Detached Homes	170	30 - 40	7.1
3c	Three Story Attached and Detached Homes	170	30 - 40	2.9
	SUB-TOTAL	340		10.0
	TOTAL RESIDENTIAL DA	1,360		65.8
1g	Rec. Area			1.4
1f	Linear Park			0.4
4a	Jeffrey Open Space Trail (by Other)			4.4
4b	Jeffrey Open Space Trail (by Other)			2.6
4c	Jeffrey Open Space Trail (by Other)			1.3
4d	Jeffrey Open Space Trail (by Other)			1.2
5	South Park (by Other)			4.4
A	STREET			1.1
B	STREET			0.6
C	STREET			1.4
D	STREET			4.8
E	STREET			0.9
LSP 1	Landscape			0.6
LSP 2	Landscape			0.6
	TOTAL	1,360	14.9	91.5
OC 1	Orange County - Fuel Management Easement/Open Space			7.0
OC 2	Orange County - Fuel Management Easement/Open Space			6.5
	TOTAL			105.4

SOURCE: ktgy 2025

DUDEK

FIGURE 3-5

Conceptual Site Plan

Irvine Gateway Village Project EIR

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4 Environmental Analysis

Introduction to Environmental Analysis

The following sections contain an analysis, by issue area, of the environmental effects of the proposed Irvine Gateway Village Project (project). The environmental issue areas analyzed in this chapter are as follows:

- Aesthetics (Section 4.1)
- Agriculture and Forestry (Section 4.2)
- Air Quality (Section 4.3)
- Biological Resources (Section 4.4)
- Cultural Resources (Section 4.5)
- Energy (Section 4.6)
- Geology and Soils (Section 4.7)
- Greenhouse Gas Emissions (Section 4.8)
- Hazards and Hazardous Materials (Section 4.9)
- Hydrology and Water Quality (Section 4.10)
- Land Use and Planning (Section 4.11)
- Noise (Section 4.12)
- Population and Housing (Section 4.13)
- Public Services (Section 4.14)
- Recreation (Section 4.15)
- Transportation (Section 4.16)
- Tribal Cultural Resources (Section 4.17)
- Utilities and Service Systems (Section 4.18)
- Wildfire (Section 4.19)

The discussions of each environmental issue area include the following subsections:

- Existing Conditions
- Relevant Plans, Policies, and Ordinances
- Thresholds of Significance
- Project Design Features (if applicable)
- Impacts Analysis
- Mitigation Measures
- Level of Significance After Mitigation
- Cumulative Impacts
- References

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4.1 Aesthetics

This section describes the existing visual conditions of the project site and vicinity, identifies associated regulatory requirements, evaluates potential impacts, and identifies mitigation measures related to implementation of the proposed project, if applicable.

4.1.1 Existing Conditions

4.1.1.1 Overview

The approximately 105-acre project site is located in the City of Irvine's (City's) Northern Flatlands Landform Zone, an area identified in the City's General Plan Conservation and Open Space Element as occurring north of Interstate 5 and generally south of State Route (SR) 241. Situated between mountainous terrain to the north and more dense urbanized uses to the south, the Northern Flatlands Landform Zone is typified by flat to gradual slopes; numerous washes/streams, including Bee Canyon Wash and Hicks Canyon Wash; and agricultural and urban/residential development. The project site is at the northeast corner of Portola Parkway and Jeffrey Road and is within the City's existing Orchard Hills Planning Area. The site is bounded by Portola Parkway to the south, Jeffrey Road/Hicks Haul Road to the west, and Bee Canyon Access Road to the east. Hicks Canyon Wash is to the north. The regional location is shown on Figure 3- 1, Project Location, and the local area is shown on Figure 3-2, Local Vicinity.

The project site and surroundings encompass agricultural lands and an area of relatively recent development within the City, which includes the residential communities of Portola Springs and Orchard Hills. SR-261 and SR-241 provide highway access to the area. The developed areas in the northern portion of the City are adjacent to a large swath of open space called the Northern Open Space Preserve, which includes Limestone Canyon and Blackstar Canyon and extends north to the Cleveland National Forest. The residentially developed areas feature a mix of contemporary and traditional architectural styles, with neighborhoods including Eastwood and Orchard Hills showcasing distinctive design elements such as brick façades, stucco exteriors painted in cool/light-colored tones, arched entryways, and landscaping. Numerous parks, greenbelts, and scenic trails in the area, including the Jeffrey Open Space Trail (JOST), offer picturesque views of nearby rolling hills and open spaces.

The following discussion of the project site and surrounding area is supported by photographs taken during a site visit conducted on February 24, 2025. The locations of selected photographs are shown on Figure 4.1-1, Photograph Locations, and photographs depicting views of the project site and surrounding area are presented on Figure 4.1-2, Existing Conditions: Project Site, and Figure 4.1-3, Existing Conditions: Jeffrey Open Space Trail (JOST).

Project Site

The project site consists primarily of active agricultural fields, with equipment storage and laydown areas in the northern portion of the site. The current General Plan designation for the project site is Recreation, as shown on Figure 3-3, Existing Land Use, and the current zoning is 1.5–Recreation, as shown on Figure 3-4, Existing Zoning. The land is slightly elevated, with narrow, linear ditches occurring along the southern, eastern, and western site edges. Elevated terrain and agricultural lands are depicted on Figure 4.1-2 (Photographs A through D). Slatted or chain-link fencing is erected along Bee Canyon Access Road and blocks views to the agricultural portion of the site from this road. The site is typified by agriculturally cultivated fields featuring low row or similar crops. Mature trees are interspersed throughout the project site, mostly concentrating along the edges near the site boundary along Bee Canyon Access Road (see Figure 4.1-2, Photograph D). The equipment storage area in the northern portion of

the project site includes light tan, regularly shaped containers; some larger buildings; and a rectangular area of disturbance that includes an elevated earthen pad and an adjacent denuded area bordered on the east, west, and south by indeterminate vegetation. During the site investigation conducted in February 2025, miscellaneous vehicles were parked in various places in the northern portion of the project site.

Surrounding Land Uses

Hicks Canyon Wash forms the northern boundary of the project site. In the project area, Hicks Canyon Wash features a narrow, sandy, earthen bottom with moderate slopes supporting grasses and large, unmaintained shrubs. Just north of Hicks Canyon Wash is a private road that stretches east to the Irvine Ranch Conservancy Native Seed Farm and various other special use sites leased to third parties, including a landscape designer, a pump supplier, and an excavating contractor, all of which are generally surrounded by undeveloped hillsides or graded, manufactured slopes (these occur to the south of the referenced third parties and to the north of Bee Canyon Access Road). Following Hicks Haul Road to the north, through a gated entrance with a posted "Private Road – No Public Access" sign (the sign is on Hicks Canyon Road in the northeastern corner of the project site), are avocado groves, undeveloped open space, and the All American Asphalt (AAA) plant. The undeveloped open space features expansive greenbelts, rolling hills, and a variety of native vegetation.

Located to the south of the project site, south of Portola Road, and generally paralleling Jeffrey Road, the JOST runs through this area and offers scenic views of the surrounding landscapes, including groves of trees, wildflowers, and well-maintained grassy areas. The JOST runs between suburban residential developments to the north and south of Jeffrey Road. Representative photographs of the JOST near the project site are presented on Figure 4.1-3.

The final phase of Orchard Hills, a single-family residential development situated atop a steep, elevated manufactured slope, is under construction directly to the west of the project site. Rattlesnake Reservoir lies to the north of the residential development under construction, and farther north lies additional undeveloped open space near Rattlesnake Canyon and nearby residential, commercial, and educational development/uses within Orchard Hills.

Lastly, to the east of the project site and east of Bee Canyon Access Road is a large, somewhat triangular-shaped area of mostly hilly, undeveloped terrain that flanks a wash system that terminates at the Syphon Reservoir. The southwestern end of the reservoir is contained by a broad earthen slope that is adjacent to a private recreational complex featuring baseball and softball fields, tennis courts, a surface parking lot, and a path that ultimately connects users to the nearby main campus of Crean Lutheran High School.

4.1.1.2 Scenic Vistas

According to the City's General Plan EIR, a viewshed is an area that visible from a given vantage point and viewing direction, and a scenic vista is a view of undisturbed natural lands exhibiting a unique or unusual feature that comprises an important or dominant portion of the viewshed (City of Irvine 2024a). Scenic vistas may also be represented by a particular distant view that provides visual relief from less attractive views of nearby features.

The City does not designate any official scenic vistas; however, the City's General Plan lists features that are considered to contribute to the City's visual significance. Prominent natural features, such as the Santiago and San Joaquin Hills, along with scenic watercourses like San Diego Creek, enhance the City's aesthetic appeal. Prominent landforms in the City include the Santiago Hills, northern flatlands, central flatlands, and San Joaquin Hills. San Diego Creek, Agua Chinon Wash, Bee Canyon Wash, Borrego Canyon Wash, Hicks Canyon Wash, Peters Canyon Wash, Sand Canyon Wash, and San Joaquin Freshwater Marsh run through the City. The City's open space spine

network, featuring two north–south spines (including Jeffrey Spine) and six east–west spines (Hicks Canyon, Venta Spur Trail, Edison easement, San Diego Creek, and University Drive/Mason Regional Park), provides views throughout the community (City of Irvine 2024b).

4.1.1.3 Scenic Roads

A scenic road is a highway, road, drive, or street that provides opportunities for the enjoyment of natural and human-made scenic resources. According to the California Department of Transportation (Caltrans) Scenic Highway Program, there are no state-designated or eligible scenic routes located in the City of Irvine. While Caltrans has not designated any scenic routes in the city of Irvine and nearby areas, the City of Irvine General Plan notes that SR-241 and SR-261 provide panoramic views of hillsides and the Pacific Ocean (City of Irvine 2024b).

4.1.1.4 Light and Glare

Nighttime lighting is necessary to provide and maintain a safe and secure environment. Light that falls beyond the intended area of illumination is referred to as "light trespass." Types of light trespass include spillover light and glare. Spillover light, which is light that illuminates surfaces beyond the intended area, is typically caused by artificial lighting sources, such as from building security lighting, signs, parking lot lights, roadway lights, and stadium lights on playing fields. Spillover light can adversely affect light-sensitive uses (e.g., adjacent residences) by creating unwanted illumination. Because light dissipates as it moves farther from its source, the intensity of the lighting source is often increased to compensate for dissipating light, which increases the amount of light that illuminates adjacent uses. The type of light fixture determines the extent to which light will spill over onto adjacent properties and/or be visible from far away. Modern, energy-efficient fixtures that face downward, such as cutoff-type fixtures and shielded light fixtures, are less obtrusive than older light fixtures.

Direct glare is caused by excessive light entering the eye from a bright light source. The potential for direct glare exists any time one can "see" a light source. Glare can result from sunlight or from artificial light reflecting off building exteriors, such as glass windows, metal roofs, or other highly reflective surface materials. Glare can also result from a lighting system that aims light outwards and increases the potential for glare. Squinting or turning away from a light source is an indication of glare. Cutoff-type light fixtures minimize glare because they emit relatively low-intensity light at these angles. Glare resulting from sunlight reflecting off building exteriors can be reduced with design features that use low-reflective glass and exterior materials and colors that absorb, rather than reflect, light.

Sources of nighttime illumination and potential glare on and adjacent to the project site are generally limited to the interior and exterior lights of buildings, lighting visible through windows, parking lot and path lighting, and lighting along streets. These sources of illumination are typical of those in a developed area. In addition, the headlights of cars and trucks traveling to, from, and within the area represent another potential source of glare (albeit transient). Natural and artificial light reflects off various surfaces and can create localized occurrences of daytime and nighttime glare.

4.1.2 Relevant Plans, Policies, and Ordinances

Federal

There are no federal regulations regarding aesthetics applicable to the proposed project.

State

State Scenic Highway Program

Caltrans manages the State Scenic Highway Program detailed in Streets and Highways Code Section 260. A highway may be designated as scenic depending on how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes on the traveler's enjoyment of the view. To become an officially designated scenic highway, a local jurisdiction must adopt a scenic corridor protection program for the eligible state scenic highway, apply to Caltrans for scenic highway approval, and receive notification from Caltrans that the highway has been designated as a scenic highway. The scenic corridor protection program is made up of adopted ordinances to preserve the scenic quality of the corridor or to document such regulations that already exist in various portions of local codes. State and county roads can be designated as scenic highways.

There are no highways or roads within the proposed project site or surrounding area eligible for inclusion in the State Scenic Highway Program (Caltrans 2025).

Nighttime Sky – Title 24 Outdoor Lighting Standards

The California legislature passed a bill in 2001 requiring the California Energy Commission to adopt energy efficiency standards for outdoor lighting for both the public sector and the private sector. The most recent update to the Building Energy Efficiency Standards (Energy Code) includes outdoor lighting standards for new development to help to reduce the impacts of light pollution, light trespass, and glare. The standards regulate lighting characteristics such as maximum power and brightness, shielding, and sensor controls to turn lighting on and off (CEC 2024).

Local

Irvine General Plan

This section outlines the key policies and guidelines from the 2045 Irvine General Plan (City of Irvine 2024b, 2024c) that govern aesthetic considerations in the proposed project area.

Land Use Element

Policy (b): Use building masses and landscaping to create a sense of unity throughout the City.

Policy (g): Distinguish individual planning areas in character and physical appearance by considering the following characteristics during design and development: public art, physical and visual separation, architectural style; and planning area edge.

Policy (j): Encourage variation in building heights and housing types (liners, podium, and towers) to avoid massive "project" appearance within high density residential projects.

Policy (k): Design buildings with articulated massing and roof forms to avoid institutional character and feel.

Policy (l): Incorporate architectural detailing that leads to a sense of quality, diversity, and authenticity in design.

Policy (m): Design roof forms with variations that are attractive when seen from both the ground and taller buildings.

Conservation and Open Space Element

Policy COS-1: Protect and enhance the visual quality of the city's natural and built environments.

Policy COS-2: Preserve significant viewsheds and scenic vistas, including those of the Santiago and San Joaquin Hills.

Irvine Municipal Code

This section outlines the key policies and guidelines from the Irvine Municipal Code that govern aesthetic considerations in the proposed project area.

Section 5-9-517 (Special Nonresidential Building Provisions) of Title 5 Planning, Division 9 Building Regulations, Chapter 5- Uniform Security Code discusses standards and requirements for lighting and glare in the City, including heights of lighting fixtures; design, installation, and maintenance of lighting fixtures; lighting for parking areas; and sign illumination. The Uniform Security Code is designed, in part, to limit light and glare to the extent feasible while providing sufficient light in a safe manner.

Zoning Ordinance

This section outlines the key policies and guidelines from the Irvine Municipal Code that govern aesthetic considerations in the proposed project area.

- Chapter 3-16 (Lighting) of the City's Zoning Ordinance requires that outdoor lighting be designed and installed so that all direct rays are confined to the site and adjacent properties are protected from glare and comply with the requirements of the City's Uniform Security Code (Municipal Code, Title 5, Division 9, Chapter 5).
- Standard Condition 3.6 (Site Lighting Requirements) states that prior to the issuance of building permits, Irvine Uniform Security Code requirements for lighting must be met by providing appropriate electrical, landscape, and full-scale for a complete review by the police department.
- Chapter 3-15 (Landscaping Standards) outlines the minimum site landscaping and maintenance requirements. This chapter also outlines the screening and landscaping requirements for parking areas and parking structures.
- Chapter 3-37 (Zoning District Land Use Regulations and Development Standards) outlines the regulations and development standards that are applicable to land uses proposed throughout the various Planning Areas of the City, including setbacks, building heights, landscaping, and maximum building intensity.
- Chapter 5-4 (Hillside Overlay District) provides regulations for the development of those areas in the City and its sphere of influence that, due to their topography, require special consideration to ensure that they are developed in a way that will substantially maintain their natural character and environmental and aesthetic values in accordance with the policies set forth in Section 5-4-2 of the Zoning Ordinance.
- Division 7 (Signs) outlines the standards and regulations that apply to the design and installation of signage, including quantity, location, dimensions, and lighting.

Design Guidelines

Development in specific areas of the City is also regulated by adopted design guidelines, which regulate the architectural theme, character, and overall design of new development. These design guidelines are unique to the Planning Area to which they apply and are implemented on an individual project basis. It should also be noted that the City has recently developed Objective Design Standards that would further regulate the development of residential projects throughout the City, including the proposed project. As of August 2025, design guidelines for the proposed project have yet to be formally adopted by the City.

Design guidelines for the adjacent Planning Area 1 (Orchard Hills) are established in Chapter 9.1 of the City's Zoning Ordinance. In terms of theme and architecture, the Planning Area 1 design guidelines/development standards note the following:

Village Theme: The architectural design shall address detail articulated on all sides of the structures visible from streets, paseos, and other public areas. Particular attention shall be given to windows, balconies, doors, and other design elements. The elements and qualities which shall be encouraged are human scale and privacy, play of light using shade and shadows to provide relief, and variations in roof lines. Large blank walls with minimal detail shall be discouraged.

Residential/Community Commercial Architecture: A variety of architectural styles and forms will be used to express differences among projects and neighborhoods within the planning area. Variations of the following techniques may be used by the developer:

A. Overall Form: Employ symmetry at front facades or around entries to create balance in the overall form. Discourage entry view corridors terminating at blank walls and/or blank building elevations. Screen elevations of multifamily structures with exterior walkways serving as common access for dwellings on second and third floors from public rights-of-way either through building orientation, architecture, or landscaping.

B. Roof Form: Vary roof massing with a strong cornice line. Barrel, flat, shake, and slate concrete tile will be used predominantly with a variety of earthtone colors.

C. Details: Use simple cornices, moldings, projections and recesses, and integral-colored accent materials such as ceramic tile, brick (stone or painted stucco).

D. Site Design: Provide terraces, plazas, arcades, colonnades, and pergolas to define pedestrian areas.

E. Building Heights Along Arterial Roadways: Limit residential structures adjacent to arterial roadways to two stories.

4.1.3 Thresholds of Significance

The significance criteria used to evaluate the project impacts to aesthetics are based on Appendix G of the CEQA Guidelines. According to Appendix G, a significant impact related to aesthetics would occur if the project would:

1. Have a substantial adverse effect on a scenic vista.
2. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.
3. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings. (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, conflict with applicable zoning and other regulations governing scenic quality.
4. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

4.1.4 Impacts Analysis

1. Would the project have a substantial adverse effect on a scenic vista?

Less-Than-Significant Impact. According to the City's General Plan EIR, a scenic vista is a view of undisturbed natural lands exhibiting a unique or unusual feature that comprises an important or dominant portion of the viewshed. Scenic vistas may also be represented by a particular distant view that provides visual relief from less attractive views of nearby features. The City's General Plan does not designate any scenic vistas; however, it recognizes that open spaces, vegetation/landscaping, topographic and geologic features, natural water features, structures with architectural or historic significance, and scenic views from roadways contribute to the aesthetics of the City. Distinctive elements mentioned in the General Plan include natural features, water courses and trails, and scenic highways.

As proposed, development of the project site with two- to three-story attached and detached homes, recreation amenities, utilities, and landscaping (including site perimeter landscaping along the site frontage of Portola Parkway) would alter the quality of existing views across the project site, which mostly supports low-profile/low-growing agricultural crops under current conditions. Site development also includes the extension of the JOST (and a pedestrian bridge to span Portola Parkway) along the project site's frontage of Jeffrey Road. As shown on Figure 4.1-2 (see Photograph C), existing views from Portola Parkway along the project site's southern frontage includes site features (i.e., low-growing vegetation/crops, mature trees along the project site's eastern perimeter parallel to Bee Canyon Access Road) and extend to the north to include local hills and mountainous terrain in Limestone Canyon Nature Preserve. The dark silhouette of a partial ridgeline of terrain within the Santa Ana Mountains is also detectable in the view captured from Portola Parkway in Photograph C.

From Portola Parkway, and specifically from the location of Photograph C, the currently open and unimpeded view across the project site would be substantially altered. As shown on Figure 3-5, the project would introduce new landscaping and two- to three-story homes that would be within a foreground viewing distance of passing motorists. With regard to landscaping, the project would include planting an informal blend of evergreen and deciduous street and screen trees (see Figure 4.1-4, Landscape Concept Plan) along the project site's southern boundary paralleling Portola Parkway. Upon reaching maturity, these trees

could present a similar form and scale as existing street trees planted along the southbound travel lanes of Portola Parkway. In addition, as depicted on Figure 4.1-5, Landscape Concept: Portola Parkway, as experienced from Portola Parkway, future homes on the project site would be constructed atop a slightly elevated building pad, new manufactured slopes would be landscaped, and a continuous community wall could be constructed atop the new slopes. Beyond these features, new two- to three-story homes would be constructed and would further alter existing views across the project site such that local hills and mountains would be blocked. Similar blockage of local natural terrain is likely to occur elsewhere on Portola Parkway, including on the southbound approach to the Portola Parkway/Jeffrey Road intersection (at this location, new landscaping within the future JOST area and a future pedestrian bridge would be visible and could interrupt available views to existing off-site terrain).

Development of the project would alter the existing character and quality of views across the project site, which mostly supports low-growing agricultural crops/grasses under existing conditions, as shown in Photograph C (see Figure 4.1-2). Although the proposed landscaping, elevated building pads, and two- to three-story homes on the project site would block or interrupt views from Portola Road (and Jeffrey Road) to local hills and mountainous terrain that, according to the City, contribute to the aesthetics of Irvine, neither Portola Parkway nor Jeffrey Road are scenic roadways or City-designated scenic vistas. In this sense, the views from Portola Parkway and Jeffrey Road are not protected via scenic vista designation and therefore, the alteration of existing hill and mountain views from nearby public roads is not considered to be a substantial adverse effect on a scenic vista. As such, impacts would be less than significant.

2. ***Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?***

No Impact. The only designated state scenic highway in Orange County is a 4-mile-long stretch of SR-91 extending from the intersection of SR-55 with SR-91 to the eastern limits of the City of Anaheim (Caltrans 2025). The project site is approximately 11 miles southeast of this designated state scenic highway. The nearest eligible state scenic highway, SR-74, is 15 miles to the south of the project site. The site may be visible from SR-241, which is mentioned in the City's General Plan as a scenic roadway; however, it is not designated by Caltrans as an eligible or designated state scenic highway. Therefore, because development of the project site would not be visible from a state scenic highway, no impacts to scenic resources within a state scenic highway would occur.

3. ***In non-urbanized areas, would the project substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?***

Less-Than-Significant Impact. Pursuant to California Public Resources Code Section 21071, an urbanized area is an incorporated city that has a population of at least 100,000 persons or, if the city has a population of less than 100,000 persons, is contiguous with not more than two incorporated cities that, when combined, have a population of at least 100,000 persons.

The project site is in the City of Irvine, which has a population of 314,621 persons, as of July 1, 2023 (U.S. Census Bureau 2023). Therefore, for purposes of this analysis and pursuant to California Public Resources Code Section 21071, Irvine is an urbanized area and as such, impacts to visual character are assessed through consideration of potential conflicts with applicable zoning and other regulations governing scenic quality.

The project site consists primarily of active agricultural fields, with equipment storage and laydown areas in the northern portion of the site and mature trees generally along the site's southern boundary. The surrounding area features Hicks Canyon Wash, undeveloped open space, and existing or under construction residential development/neighborhoods to the north and west. Residential development in the surrounding area is typically two stories in height and is designed in a variety of architectural styles.

The proposed project requires a General Plan amendment to change the City's Land Use Map from Recreation to Medium-High Density Residential on the project site, with High Density Residential to be applied on the affordable housing portion of the site only. Additionally, text, table, and figure updates in the Land Use Element would be made to establish Planning Area 2 (Gateway Village), which would also establish distinct design guidelines for the proposed project. Additional General Plan updates include revisions to the figures in the Circulation Element; updates to figures, tables, and text in the Conservation and Open Space Element; and updates to figures in the Safety Element. A zone change to the Irvine Zoning Ordinance is also required to change the zoning classification of the project site from 1.5 Recreation to 2.4J Medium-High Density Residential; add Chapter 9-2, Planning Area 2; and amend Section 3-3-1, Section 3-37-15, and Chapter 9-6 for consistency purposes. Additionally, the project would require Tentative Tract/Parcel Maps to subdivide the project site; Master Plans; a Park Plan; a Master Landscape and Trails Plan; Park Designs; and the annexation of County of Orange land parcels within the boundaries of the project site.

As proposed, the project would conflict with applicable zoning such that several actions are being requested to accommodate the proposed development on the project site.

Table 4.1-1 presents an assessment of the project's potential conflicts with identified local regulations and policies pertaining to scenic quality. As shown in the table, the project would be consistent with the identified scenic regulations. Therefore, impacts associated with conflict with other regulations (e.g., General Plan Objectives and Policies, Planning Area Development Standards) governing scenic quality would be less than significant.

Table 4.1-1. Scenic Quality Regulations Consistency Analysis

Policy	Consistency Analysis
Irvine General Plan Land Use Element	
Objective LU-1, Policy (b): Use building masses and landscaping to create a sense of unity throughout the City.	**Consistent.** The project proposes to construct 1,360 two- and three-story attached and detached homes over 65.5 acres. Density for different residential development areas would range from 10 to 22 dwelling units per acre (du/ac) at the lowest density to 30 to 40 du/ac at the highest density. Regarding landscaping, the project would include the installation of street and screen trees along the project site's southern boundary with Portola Parkway. As proposed, new landscaping would be visually cohesive with existing landscaping along the Portola Parkway corridor and a sense of landscape unity is envisioned.
Objective LU-1, Policy (g): Distinguish individual planning areas in character and physical appearance by considering the following characteristics during	**Consistent.** Regarding architectural style, the project proposes homes to be constructed in a cohesive Relaxed Mediterranean style that would function as a bridge function as a bridge between the Refined Mediterranean of the Orchard Hills area and the native landscape of the adjacent Northern Open Space Preserve. Incorporation of the Relaxed Mediterranean style would

Table 4.1-1. Scenic Quality Regulations Consistency Analysis

Policy	Consistency Analysis
design and development: public art, physical and visual separation, architectural style; and planning area edge.	promote general consistency in style with existing developments in the surrounding Orchard Hills area and would function as a less rigid transition (i.e., less rigid compared to the prevalent Refined Mediterranean style of the Orchard Hills area) to local undeveloped open space. The Planning Area edge would typically feature unprogrammed park spaces or landscaped corridors that would both define the project edge and soften the transition to the residentially developed areas of the project site from perimeter roads and adjacent lands.
Objective LU-1, Policy (j): Encourage variation in building heights and housing types (liners, podium, and towers) to avoid massive "project" appearance within high density residential projects.	**Consistent.** The project proposes to construct two- and three-story attached and detached homes over 65.5 acres. In addition to building height variation, a variety of housing types would be offered. The distribution of varying housing massing and offering across a 65.5 acre area, along with the proposed extension of the JOST and inclusion of perimeter landscape corridor and interior landscape parks (and streetscapes), would help avoid public perception of the project as massive.
Objective LU-1, Policy (k): Design buildings with articulated massing and roof forms to avoid institutional character and feel.	**Consistent.** Please refer to response to Objective LU-1, Policy (b) and Policy (j) regarding development massing and scale. As described above, a variety of housing types with varied roof forms and lines would be offered and would contribute visual interest to project design (and future neighborhood character). Further, the incorporation of upper-floor patios, archways, and step-backs/articulations would provide for a sense/feel of building variation.
Objective LU-1, Policy (l): Incorporate architectural detailing that leads to a sense of quality, diversity, and authenticity in design.	**Consistent.** Please refer to consistency analysis for Objective LU-1, Policy (b).
Objective LU-1, Policy (m): Design roof forms with variations that are attractive when seen from both the ground and taller buildings.	**Consistent.** Please refer to consistency analysis for Objective LU-1, Policy (k). As detailed therein, a variety of housing types with varied roof forms and lines would be offered and would contribute visual interest to project design (and future neighborhood character).
Irvine General Plan Conservation and Open Space Element	
Policy COS-1: Protect and enhance the visual quality of the city's natural and built environments.	**Consistent.** While development of the project site would result in the removal of existing active agricultural lands, the project is proposed adjacent to the primarily residentially developed Orchard Hills Planning Area. Once developed, the scale of proposed homes and general use of the site to support residential development would be consistent with development of nearby lands to the west and south for residential uses. Furthermore, the project proposes to incorporate landscaped corridors or park spaces along most project edges to soften the transition between off- and on-site uses. Please also refer to consistency analysis for Objective LU-1, Policy (g), which describes the architectural style envisioned for the project site. As summarized therein, the proposed Relaxed Mediterranean style is intended to promote general consistency in style with existing developments in the surrounding Orchard Hills area and would function as a less rigid transition (i.e., less rigid compared to the prevalent Refined Mediterranean style of the Orchard Hills areas) to local undeveloped open space.

Table 4.1-1. Scenic Quality Regulations Consistency Analysis

Policy	Consistency Analysis
Policy COS-2: Preserve significant viewsheds and scenic vistas, including those of the Santiago and San Joaquin Hills.	**Consistent.** As detailed in the scenic vista discussion presented at the beginning of Section 4.1.4, Impacts Analysis, the City's General Plan does not designate any scenic vistas, and views across the site from Portola Parkway (including views to the Santiago Hills) have not been designated by the City as a significant viewshed. Despite the lack of deliberate mapping or identification of significant viewsheds and scenic vistas, development of the project site as proposed would result in blockage of existing available views across the site to the Santiago Hills from Portola Parkway. The blockage of eastward views to the Santiago Hills along the project frontage on Portola Parkway would be experienced by motorists, pedestrians, and cyclists over a 0.30-mile-long segment of the road and would generally occur in the peripheral viewing angle of these road users. Although views to the east along the project site frontage on Portola Parkway would be blocked by new landscaping and two- to three-story residential development on the project site, distant hills would remain visible in the north-oriented views available to northbound road users. Because blockage of the Santiago Hills in views from Portola Parkway would be a temporary experience and would occur within the peripheral view of mobile road users, and because distant hill terrain would remain visible to select (i.e., northbound) road users along the project site frontage on Portola Parkway, development of the site as proposed would not conflict with Policy COS-2.
Planning Area 1 (Orchard Hills) Development Standards	
Village Theme: The architectural design shall address detail articulated on all sides of the structures visible from streets, paseos, and other public areas. Particular attention shall be given to windows, balconies, doors, and other design elements. The elements and qualities which shall be encouraged are human scale and privacy, play of light using shade and shadows to provide relief, and variations in roof lines. Large blank walls with minimal detail shall be discouraged.	**Consistent.** Please refer to response to Objective LU-1, Policy (b) and Policy (j), regarding development massing and scale. As described above, a variety of housing types with varied roof forms and lines would be offered and would contribute visual interest to project design (and future neighborhood character). Further, the incorporation of upper-floor patios, archways, and step-backs/articulations would provide for a sense/feel of building variation. The preliminary project design envisions variation in building scale, architectural design, and articulations. The intention is to achieve a pedestrian/human scale for the proposed development, providing landscaped parkways and wide sidewalks that would promote/encourage walkability. Lastly, incorporation of large blank walls in residential developments is not proposed; rather, archways and other openings, windows of varying size and with varying treatments, patios, pop-outs and other articulations, and varied rooflines, are intended/included in future home development.
Residential/community commercial architecture. A variety of architectural styles and forms will be used to express differences among projects and neighborhoods within the planning area. Variations of the following techniques may be used by the developer: a. Overall form: Employ symmetry at front facades or	**Consistent.** Please refer to the consistency analysis above for Planning Area 1 (Orchard Hills) Development Standards related to Village Theme in regard to overall form, roof form, and details. Although not specifically expressed in the Draft EIR Project Description (Chapter 3), the overall intention of the project design is to develop residential structures in a Relaxed Mediterranean style that incorporates simple projections and recessed, cool-toned exterior colors (i.e., painted stucco exteriors), and ceramic (or similar) tile roofing materials. The southern boundary of the project site parallels Portola Parkway, which, according to the City's General Plan Circulation Element, is classified as a Primary Highway. Per the City, Primary Highways are divided arterial

Table 4.1-1. Scenic Quality Regulations Consistency Analysis

Policy	Consistency Analysis
around entries to create balance in the overall form. Discourage entry view corridors terminating at blank walls and/or blank building elevations. Screen elevations of multifamily structures with exterior walkways serving as common access for dwellings on second and third floors from public rights-of-way either through building orientation, architecture, or landscaping. b. Roof form: Vary roof massing with a strong cornice line. Barrel, flat, shake, and slate concrete tile will be used predominantly with a variety of earthtone colors. c. Details: Use simple cornices, moldings, projections and recesses, and integral-colored accent materials such as ceramic tile, brick (stone or painted stucco). d. Site design: Provide terraces, plazas, arcades, colonnades, and pergolas to define pedestrian areas. e. Building heights along arterial roadways: Limit residential structures adjacent to arterial roadways to two stories.	highways with four through lanes. As proposed, the project would construct two- to three-story residential structures (attached and detached homes) in the southern portion of the project site near Portola Parkway.

4. Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Short-Term Construction Impacts

Less-Than-Significant Impact. Short-term light and glare impacts associated with construction of the project likely would be limited to nighttime lighting for security purposes or evening construction work that may occur within the City's Noise Ordinance limits (i.e., up to 7:00 p.m., Monday through Friday, and up to 6:00 p.m. on Saturdays). Security lighting installed on site would be limited in number and lighting sources would be shielded and directed downward to avoid unnecessary illumination of adjacent land uses and the night sky. Use of shielding and downward directed lighting would also minimize potential for security light to glare that could be received at off-site viewing locations. Further, occurrences of evening construction work requiring

lighting (such as during winter months) are anticipated to be infrequent and/or of a short-term duration that would not adversely affect nighttime views in the area. Impacts would be less than significant.

Long-Term Operational Impacts

Less-Than-Significant Impact. The project would introduce new sources of nighttime lighting from decorative exterior lighting, internal street lighting, park lighting, and illuminated signage. In general, nighttime lighting would be installed for safety, security, and aesthetic purposes. Lighting from the project site would be visible from the residential properties and public roads near the project site. However, lighting would be typical of residential, neighborhood recreation, and neighborhood street uses and would not include any intense or atypical lighting uses. In addition, all lighting would comply with Chapter 3-16 (Lighting) of the City's Zoning Ordinance (City of Irvine 2024d) that requires all outdoor lighting to be designed and installed so that all direct rays are confined to the site and adjacent properties are protected from glare. Considering the existing sources of lighting in surrounding areas, including headlights from Portola Parkway, streetlights, and exterior lighting from the neighboring properties, the amount and intensity of nighttime lighting proposed on the project site would not be substantially greater or different from existing residential lighting in the surrounding area. With regard to glare, project structures/homes would be constructed with typical or commonplace building materials (e.g., wood, stucco, clay [or similar] shingle roofs) that would have minimal or no reflective properties. Materials such as glass and metals would be used but would be consistent with building materials used in residential developments in the surrounding area and would not adversely affect daytime views in the area. Therefore, impacts to daytime or nighttime views in the area due to new sources of substantial light or glare would be less than significant.

Impact Summary

Project-related impacts regarding aesthetics would be less than significant or would not occur.

4.1.5 Mitigation Measures

No significant aesthetics impacts were identified in the analysis in this section; therefore, no mitigation measures are required.

4.1.6 Level of Significance After Mitigation

No mitigation is required; aesthetics impacts would remain less than significant.

4.1.7 Cumulative Impacts

This section provides an analysis of cumulative impacts from construction and operation of the proposed project and other past, present, and reasonably foreseeable future projects, as required by Section 15130 of the CEQA Guidelines. Where a lead agency concludes that the cumulative effects of a project, taken together with the impacts of other closely related past, present, and reasonably foreseeable future projects, are significant, the lead agency then must determine whether the project's incremental contribution to such significant cumulative impact is "cumulatively considerable" (and thus significant in and of itself).

Future development in the study area may cumulatively affect visual resources by altering the current visual quality and aesthetics. These changes could stem from gradual increases in density and urbanization, potentially transforming the area's visual character over time. However, such development would align with the visual quality and character of the surrounding areas through mandatory design reviews and adherence to the California Green Building Code, as well as the City's Zoning Ordinance, General Plan, and Standard Conditions of Approval. Additionally, future projects must comply with Municipal Code standards regarding light and glare, which aim to reduce light pollution and preserve dark skies. Consequently, the project is not expected to significantly contribute to cumulative aesthetic impacts.

As a result, the proposed project, in combination with other reasonably foreseeable projects, would not have a substantial adverse effect on a scenic vista; damage scenic resources such as trees, rock outcroppings, and historic buildings within a state scenic highway; degrade the visual character or quality of public views in non-urbanized areas or conflict with zoning and regulations in urbanized areas; or create substantial light or glare adversely affecting daytime or nighttime views. Therefore, the aesthetic impacts of the proposed project combined with those of cumulative projects would not substantially contribute to a cumulative impact on aesthetics.

Similarly, the proposed project would not conflict with applicable plans. As such, the project, in combination with other reasonably foreseeable projects, would not conflict with a state or local plan.

Cumulative aesthetics impacts from implementation of the proposed project would be less than significant.

4.1.8 References

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SOURCE: Bing Maps (Accessed: 2025); Open Street Maps 2024

DUDEK

0 335 670 Feet

FIGURE 4.1-1

Photograph Locations

Irvine Gateway Village Project EIR

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Photo A



Photo B



Photo C



Photo D

Path: Z:\Projects\14455401\MAP\DOCDOCUMENT

FIGURE 4.1-2

Existing Conditions: Project Site

Irvine Gateway Village Project EIR

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Photo E



Photo F

Path: Z:\Projects\14554\01\MAP\DOC\DOC\DOCUMENT

FIGURE 4.1-3

Existing Conditions: Jeffrey Open Space Trail (JOST)

Irvine Gateway Village Project EIR

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SOURCE: SWA 2025

DUDEK

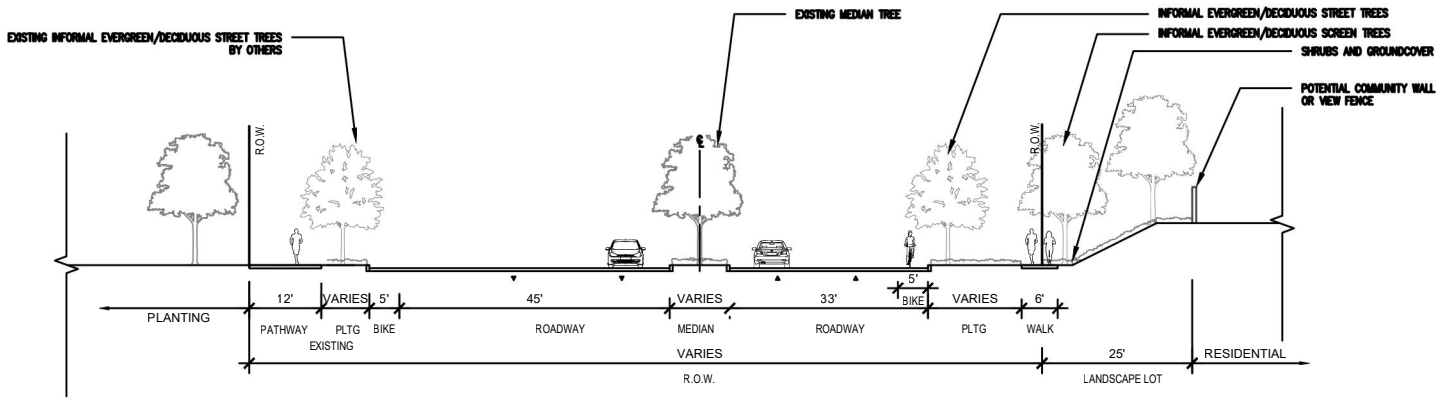
FIGURE 4.1-4

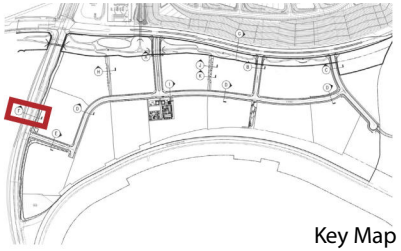
Landscape Concept Plan

Irvine Gateway Village Project EIR

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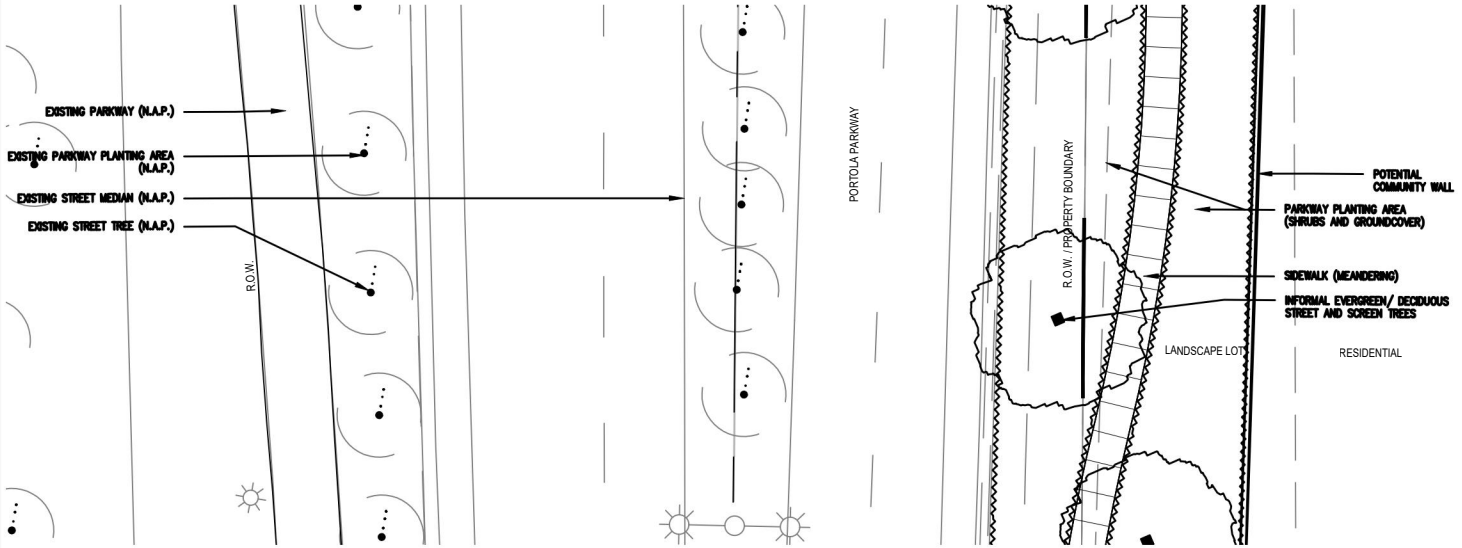
Section F





Key Map

Plan F



Landscape Concept

The Portola Parkway landscape enhances its adjacent land uses with a mixture of informal evergreen and deciduous trees. This interface provides an informal evergreen canopy that blends into the adjacent streetscape.

SOURCE: SWA 2025

FIGURE 4.1-5

Landscape Concept: Portola Parkway

Irvine Gateway Village Project EIR

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4.2 Agriculture and Forestry Resources

This section describes the existing agriculture and forestry conditions of the project site and vicinity, identifies associated regulatory requirements, evaluates potential impacts, and identifies mitigation measures related to implementation of the proposed project. This section incorporates information from the Conservation and Open Space Element of the Irvine 2045 General Plan (City of Irvine 2024) and the California Department of Conservation (DOC) Farmland Mapping and Monitoring Program (FMMP) (DOC 2020). No comments regarding agricultural resources were received during the NOP scoping period.

4.2.1 Existing Conditions

Regional Context

The City of Irvine (City) has a long history of agricultural use dating back to the acquisition of ranchlands in 1866 and intensification of agricultural production during World War I (City of Irvine 2025). These ranchlands were used for grazing of sheep and cattle. Furthermore, a variety of crops were grown on these ranchlands, such as wheat, barley, beans, grapes, walnuts, and oranges (Irvine Ranch Conservancy 2021). However, agricultural resources have experienced a decline since the 1950s due to escalating land costs, heightened housing demand, and competition from larger agricultural operations. The 1960s marked the commencement of residential expansion in the City through the development of several residential villages; the City was officially incorporated on December 28, 1971. As of 2023, the City contains approximately 3,996 acres of land designated for various agricultural uses (City of Irvine 2024). Agricultural and forestry resource characteristics specific to the project site are described in the following subsections.

Mapped Important Farmland

The FMMP identifies agricultural farmland categories for lands in the United States. These lands are categorized and identified using modern soil surveys developed by the U.S. Department of Agriculture through technical soil ratings and current land use (DOC 2025). These categories are used for reporting changes in land use as required for the FMMP's biennial farmland conversion report.

DOC defines FMMP agricultural farmland categories as follows (DOC 2025):

Prime Farmland

Farmland with the best combination of physical and chemical features able to sustain long term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.

Farmland of Statewide Importance

Farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.

Farmland of Local Importance

Land of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee. Farmland of local importance also contains land cultivated as dry cropland for grains and hay.

Unique Farmland

Farmland of lesser quality soils used for the production of the state's leading agricultural crops. This land is usually irrigated but may include non-irrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the four years prior to the mapping date.

Grazing

Land on which the existing vegetation is suited to the grazing of livestock. This category was developed in cooperation with the California Cattlemen's Association, University of California Cooperative Extension, and other groups interested in the extent of grazing activities.

Urban and Built-Up Land

Land occupied by structures with a building density of at least 1 unit to 1.5 acres, or approximately 6 structures to a 10-acre parcel. This land is used for residential, industrial, commercial, construction, institutional, public administration, railroad and other transportation yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, water control structures, and other developed purposes.

Other Land

Land not included in any other mapping category. Common examples include low density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry or aquaculture facilities; strip mines, borrow pits; and water bodies smaller than forty acres. Vacant and nonagricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land.

DOC identifies the majority of the project site as Prime Farmland through their FMMP (DOC 2020). The remainder of the project site is composed of Grazing Land, Other Land, Unique Farmland, and Urban and Built-Up Land. See Figure 4.2-1, Farmland Mapping and Monitoring Program (FMMP), and Table 4.2-1, which indicate the important farmland composition of the project site.

Table 4.2-1. Project Site Important Farmland

Important Farmland Category	Acreage	Percentage of Project Site
Prime Farmland	64.48	58.66%
Other Land	22.16	20.16%
Grazing Land	20.26	18.42%
Unique Farmland	2.98	2.71%

Table 4.2-1. Project Site Important Farmland

Important Farmland Category	Acreage	Percentage of Project Site
Urban and Built-Up Land	0.05	<0.05%
Total[a]	**109.93[b]**	**100%**

Source: DOC 2020.
Notes:
[a] Totals may not sum precisely due to rounding.
[b] This acreage does not equal the approximate 120 acres reported in Chapter 3, Project Description, because it includes only areas covering the project parcels and not adjacent roadways.

Soils

The underlying materials at the project site consist of varying depths of undocumented fill overlying alluvial deposits. A preliminary geotechnical report (Appendix E-1 to this Draft EIR), further discussed in Section 4.7, Geology and Soils, identified intermittent deposits of undocumented artificial fills present on site that are related to past agriculture activities. Material was observed to be similar to alluvium, generally consisting of brown, clayey to silty sand and sandy silt. Alluvium is a deposit that is composed of sediments transported by water. The project site is generally underlain by Quaternary alluvial deposits. The alluvial deposits are described as Holocene to Late Pleistocene Epoch deposits predominantly consisting of brown, reddish-brown, and light yellowish-brown sandy silt to silty sand, clayey sand, and silty to sandy clay, slightly moist to moist and loose to medium dense.

Crop Production

According to the Northern Sphere Area General Plan Amendment and Zone Change EIR (Northern Sphere Program EIR), the Northern Sphere Area has historically been cultivated for irrigated crop rows, primarily strawberries, tomatoes, celery, and beans (City of Irvine 2002a). This area has also been cultivated for orchard crops such as avocados and nursery stock.

California Land Conservation Act of 1965 (Williamson Act) Lands

The Williamson Act provides tax incentives to retain prime agricultural land and open space in agricultural use, which slows its conversion to urban development. The overall purpose of the Williamson Act is to protect agricultural lands and open space. According to the Conservation and Open Space Element of the Irvine 2045 General Plan, since 1989 no agricultural land in the City has remained under the Williamson Act contract provisions outlined in Section 51230 of the California Government Code (City of Irvine 2024).

Forests and Timberlands

Forest land is defined as "land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits" (California Public Resources Code [PRC] Section 12220[g]). Timberland is defined as "land … which is available for, and capable of, growing a crop of trees of any commercial species used to produce lumber and other forest products, including Christmas trees" (PRC Section 4526). Certain parts of the City encompass forest land resources, including the Santiago Hill sand areas in the northern flatlands, central flatlands, and San Joaquin Hills; these areas fall under designations of Eucalyptus Windrow, Sand Canyon Oak Trees, and Natural Community Conservation Plan (NCCP) Habitat Reserve mapped in the Conservation and Open Space Element of the Irvine 2045 General Plan (City of Irvine 2024). The project site is not mapped within these areas and does not contain 10% tree cover.

4.2.2 Relevant Plans, Policies, and Ordinances

Federal

Farmland Protection Policy Act (7 USC Section 4201)

The purpose of the Farmland Protection Policy Act (FPPA) is to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses. It additionally directs federal programs to be compatible with state and local policies for the protection of farmland. Under the FPPA, the term "farmland" includes Prime Farmland, Unique Farmland, and Farmland of Statewide or Local Importance. Farmland that is subject to FPPA requirements does not have to be currently used as cropland. It can be forest land, pastureland, or other land, but not urban and built-up land or water. FPPA ensures that, to the extent possible, federal programs are administered to be compatible with state, local government, and private programs and policies to protect farmland. In 1981, the U.S. Congress passed the Agriculture and Food Act (Public Law 97-98), which contained the FPPA (Subtitle I of Title XV, Sections 1539–1549). Federal agencies are required to develop and review their policies and procedures related to implementing the FPPA every 2 years. The FPPA does not authorize the federal government to regulate the use of private or nonfederal land or in any way affect the property rights of owners. Projects are subject to FPPA requirements if they may irreversibly convert farmland (directly or indirectly) to nonagricultural use and are completed by a federal agency or rely on assistance from a federal agency (USDA 2025).

State

Farmland Mapping and Monitoring Program

As mentioned in Section 4.2.1, Existing Conditions, the goal of the FMMP is to provide consistent and impartial data to decision makers for use in assessing current status, reviewing trends, and planning for the future of California's agricultural land resources. The FMMP produces Important Farmland Maps, which are a hybrid of resource quality (soils) and land use information. Agricultural land is rated according to soil quality and irrigation status; the best quality land is called "Prime Farmland." The maps are updated every 2 years using a computer mapping system, aerial imagery, public review, and field reconnaissance. Data are also released in statistical formats—principally, the biennial California Farmland Conversion Report.

Williamson Act

The Williamson Act applies to specific parcels in the State of California. The Williamson Act enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space uses in return for reduced property tax assessments. Private land within locally designated agricultural preserve areas is eligible for enrollment under a Williamson Act contract. The Williamson Act program is administered by DOC, in conjunction with local governments that administer the individual contract arrangements with landowners. Under the Williamson Act, a landowner commits the parcel to a 10-year period during which time no conversion from agricultural or open space use is permitted. In return, the land is taxed at a rate based on the actual use (i.e., agricultural production), as opposed to its unrestricted market value. Each year, the contract automatically renews unless a notice of nonrenewal or cancellation is filed.

California Public Resources Code Section 21060.1

PRC Section 21060.1 uses the FMMP to define agricultural land for the purposes of assessing environmental impacts. The FMMP was established in 1982 to assess the location, quality, and quantity of agricultural lands and analyze the conversion of such lands. The FMMP provides analysis pertaining to agricultural land use changes throughout California.

Local

General Plan Land Use and Zoning

The project site consists primarily of active agricultural fields, with equipment storage and laydown areas in the northern portion of the site. The current General Plan land use designation for the project site is Recreation, and the current zoning is 1.5 – Recreation. The project site's General Plan land use designation and zoning was changed from agriculture to recreation in 2002 as part of the Northern Sphere Area General Plan Amendment and Zone Change, which is described in greater detail in the following subsection.

Northern Sphere Area General Plan Amendment (48403-GA) and Zone Change (48405-ZC)

The City amended its General Plan and Zoning Code in 2002 to permit development of a mix of residential, industrial, commercial, recreational, and institutional uses and open space dedications in a portion of its then sphere of influence in preparation for annexation; this portion was referred to as the City's "Northern Sphere Area." This area consists of Planning Areas (PAs) 3, 6, and 9 and a portion of PAs 5 and 8. The project site is currently located within PA 6, Portola Springs, of the Northern Sphere Area. The development authorized by this General Plan Amendment and Zone Change reclassified PA 6 lands, including the project site, from agricultural to recreational.

The Northern Sphere Program EIR (State Clearinghouse No. 2001051010) is a Program EIR that evaluated the environmental effects of development of the PAs in accordance with the proposed changes in land use designations and zoning in the Northern Sphere Area. The Northern Sphere Program EIR addresses subsequent discretionary approvals within the Northern Sphere Area. The Northern Sphere Program EIR assessed the development of a maximum of 12,350 dwelling units, 575,000 square feet of Multi-use facilities, 175,000 square feet of Community Commercial facilities, 51 acres of Commercial Recreational uses, 6,556,000 square feet of Medical and Science facilities, 13 acres of Institutional facilities, 330 acres of Recreation, and a minimum of four elementary/middle schools. Notably, the Northern Sphere Program EIR also included approximately 3,867 acres of open space in PA 3 and PA 6. Consistent with these changes, Objective L-10 and associated policies of the General Plan were amended to reflect the deletion of areas designated for permanent agriculture while retaining provisions relating to the maintenance of agriculture as an interim use (City of Irvine 2002a).

The Northern Sphere Program EIR identified unavoidable adverse impacts related to agricultural resources due to the conversion of approximately 3,100 acres of Important Farmland. Specifically, the Northern Sphere Program EIR found that implementation of the General Plan Amendment and Zone Change would result in significant and unavoidable impacts related to the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance pursuant to the FMMP; conflict with existing zoning for agricultural use; and changes to the existing environment that would result in the conversion of farmland to non-agricultural use. The Northern Sphere Program EIR determined these impacts to be significant and unmitigable because no feasible mitigation measures were available at the time to reduce impacts to a less-than-significant level. A Statement of Overriding Considerations was prepared and adopted by the City in May 2002 that concluded that the benefits of the General Plan Amendment and Zone Change outweighed its significant and unavoidable environmental impacts (City of Irvine 2002b).

City of Irvine Agricultural Legacy Program and the 2002 General Plan Objective L-10

As a result of a Northern Sphere Program EIR mitigation measure, the City established an Agricultural Legacy Program. The City's Agricultural Legacy Program acknowledges that large-scale agricultural production is no longer viable in the City of Irvine given the City's other policies regarding its vision for development. The Agricultural Legacy Program is designed to recognize and address agricultural impacts on a City-wide basis as part of the City's implementation of 2002 General Plan Objective L-10, as amended, in conjunction with the approval of the Northern Sphere Area Project. The City's 2002 General Plan includes as a stated objective for the protection and preservation of agriculture in undeveloped areas until the areas are ready for development, or if the areas are not available for development (Objective L-10), recognizing that permanent retention of existing agricultural land throughout the City would conflict with the General Plan's goals of providing sufficient housing to meet the City's identified housing needs, retaining areas in the City for biological habitat and open spaces, and achieving fiscal balance as the community builds out. The following amended objective (City of Irvine 2005) applies to the proposed project:

Objective L-10: Agriculture: Encourage the maintenance of agriculture in undeveloped areas of the City until the time of development, and in areas not available for development.

Policy (a): Provide for farming opportunities in the community, where feasible and appropriate, through an Agricultural Legacy Program facilitating limited scale agricultural operations and programs on public lands. The program may include components such as edible landscape, metro-farming, heritage farming, model farming, education and community service farming and other farm market programs. Locations for implementation of the Agricultural Legacy Program to be considered should, at a minimum include:

- Designated open space spine network
- Designated open space areas not subject to the Natural Community Conservation Plan
- Other appropriate publicly owned lands

Policy (b): Consider creating a "working model" farm to act as a center for education and enjoyment of all age groups pursuant to the Agricultural Legacy Program, in conjunction with the City's planning efforts concerning the reuse of MCAS El Toro with the South Coast Research Extension owned by UC Regents.

Policy (c): Permit agricultural use of land that is unsuitable for building because it is within flood plains, or is subject to hazards to public health, safety, and welfare or similar constraints precluding development. Conversion from agricultural use may be allowed where the identified hazard conditions have been eliminated.

Policy (d): Permit agricultural uses, on an interim basis, on land designated for development, and consider agricultural uses as part to the City planning efforts for the re-use of MCAS El Toro.

Policy (e): Encourage and support federal and state legislation proposed for the purpose of preservation of agricultural lands that are compatible with the City's goals and objectives.

Policy (f): Allow for conversion of interim and permanent agricultural uses to development to provide land for the construction of housing unit consistent with the Land Use and Housing Elements, and the development of commercial and industrial buildings consistent with the provision of job opportunities as described in the Land Use Element, where such conversion does not conflict with other L-10 policies.

Policy (g): Pursue the open space polices contained in the Conservation and Open Space Element and address any open space or aesthetic impacts form the conversion of interim and permanent agricultural uses to development as part of the City's existing policies for preservation of open space and existing polices for mitigation of views and aesthetic impacts under the polices in the Conservation and Open Space Element.

In accordance with the establishment of the Agricultural Legacy Program, the landowner in the Northern Sphere Area (The Irvine Company) was required to contribute, and has since paid, $100,000 to the City for further expanding metro-farming and heritage community service/education farming opportunities. Metro-farming generally includes small-scale agricultural operations and activities that can be accommodated in an urban environment. Such activities include, but are not limited to, small-scale specialty farming, model farming, heritage farming, and community service/educational farming.

The purpose of the Agricultural Legacy Program is to facilitate limited-scale agricultural operations and programs on public lands in the City. As part of the Agricultural Legacy Program, specific sites in the City would be identified and made available for metro-farming within 5 years.

Several conceptual sites were considered relative to being potentially viable for agricultural operations, including Site 6, a 64-acre parcel located in the City's northern sphere of influence generally southeast of the transition between the Eastern Transportation Corridor and the Foothill Transportation Corridor (City of Irvine 2005). The project site includes this parcel (Site 6).

Irvine 2045 General Plan

The Conservation and Open Space Element of the Irvine 2045 General Plan provides the following goal, objective, and policies relevant to the proposed project and agriculture and forestry resources (City of Irvine 2024):

Goal 7. Encourage the maintenance of agriculture in undeveloped areas of the City until the time of development, and in areas not available for development.

Objective COS-7: To promote the preservation and sustenance of agricultural activities in undeveloped areas of the City until their eventual development, and in areas where development is not feasible or permitted, ensuring the continued vitality of agricultural landscapes and practices within the community.

Policy (e): Encourage and support federal and state legislation proposed for the purpose of preservation of agricultural lands which are compatible with the City's goals and objectives.

Policy (f): Allow for conversion of interim and permanent agricultural uses to development to provide land for the construction of housing units consistent with the Land Use and Housing Elements, and the development of commercial and industrial buildings with the provision of job opportunities as described in the Land Use Element, where such conversion does not conflict with other LU-10 policies.

4.2.3 Thresholds of Significance

The significance criteria used to evaluate the project impacts to agriculture and forestry resources are based on Appendix G of the CEQA Guidelines. According to Appendix G, a significant impact related to agriculture and forestry resources would occur if the project would:

1. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use.
2. Conflict with existing zoning for agricultural use, or a Williamson Act contract.
3. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g)).
4. Result in the loss of forest land or conversion of forest land to non-forest use.
5. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use.

4.2.4 Impacts Analysis

1. Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

Significant and Unavoidable Impact. The project site includes 64.48 acres of Prime Farmland and 2.98 acres of Unique Farmland, as described in Section 4.2.1. Thus, the total Important Farmland on the project site is 67.46 acres, as shown on Figure 4.2-1. The balance of the site consists of Grazing Land, Other Land, and a small portion of Urban and Built-Up (developed) Land. Under the proposed project, the proposed site, including 67.46 acres of Important Farmland, would be converted to an urban, non-agricultural, residential use that would include parks, paseos, and an extension of the Jeffrey Open Space Trail. The proposed conversion of mapped Important Farmland to a non-agricultural use would be a significant impact.

Conversion of Important Farmland within the project site has been considered and found significant in a previous EIR. As described in Section 4.2.1, the project site is within PA 6, Portola Springs, which in 2002 underwent a General Plan land use and zoning change from agriculture to recreational as part of the Northern Sphere Area General Plan Amendment and Zone Change. The Northern Sphere Program EIR analyzed the impacts of converting agricultural lands and found that implementation of the Northern Sphere Area General Plan Amendment and Zone Change would result in significant and unavoidable impacts related to the conversion of Important Farmland (City of Irvine 2002a). Following the approval of the 2002 land use and zoning change, agricultural activities have continued at the project site. Note that interim agricultural activities are consistent with Objective L-10, Policy (i) of the General Plan Conservation and Open Space Element (City of Irvine 2002a). This policy anticipates the eventual development of agricultural lands in the project area and allows for interim agricultural uses prior to permanent conversion of agricultural lands to urban uses.

As previously discussed, the Northern Sphere Program EIR resulted in the establishment of the Agricultural Legacy Program. The program is designed to recognize and address agricultural impacts on a City-wide basis in conjunction with the approval of the Northern Sphere Area Project. The purpose of the program is to facilitate limited scale agricultural operations and programs on public lands with the City. As part of the Agricultural Legacy Program, several sites in the City were identified for possible metro-farming. Site 6, a 64-acre parcel southeast of the transition between the Eastern Transportation Corridor and the Foothill Transportation Corridor, comprises the residential development area of the project site (City of Irvine 2005). Therefore, implementation of the proposed project would preclude the utilization of Site 6 for future metro-farming and pose a potential conflict with the Agricultural Legacy Program, which is intended to reduce, but not fully mitigate, agricultural impacts analyzed in the 2002 Northern Sphere Program EIR.

The conversion of 67.46 acres from agricultural to non-agricultural uses resulting from the proposed project would represent a significant impact.

Mitigation measures, such as the implementation of the City's Agricultural Legacy Program, contemplated in the Northern Sphere Program EIR aimed at reducing or avoiding impacts related to the proposed project's loss of mapped Important Farmlands would not reduce agricultural impacts to a less-than-significant level, because agricultural conversion has been occurring in the project vicinity since 2002. As discussed in the Northern Sphere Program EIR, mitigation measures involving the retention of agricultural land as well as the purchase or transfer of development rights to preserve agricultural land would be infeasible for the proposed project due to economic factors, such as escalating land costs, affecting general agricultural viability in the City and region. Furthermore, as described above, implementation of the proposed project would pose a conflict with the Agricultural Legacy Program, which is intended to reduce and partially mitigate agricultural impacts specific to the project site, as analyzed in the 2002 Northern Sphere EIR. Therefore, there are no feasible mitigation measures that would reduce or avoid the loss of 67.46 acres of mapped Important Farmland caused by the development of the proposed project; the impact would be significant and unavoidable, as previously analyzed in the Northern Sphere Program EIR.

2. Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

No Impact. The project site is zoned 1.5 – Recreation within the City's PA 6, Portola Springs, and is not subject to a Williamson Act contract. The project site is surrounded by lands that are not zoned for agriculture; specifically, 1.4 – Preservation to the north and east, 2.3 – Medium Density Residential to the south, and 2.2D – Low Density Residential to the west. The proposed project would not change the boundaries of the City's agricultural zoning districts or the total land acreages of those districts. The proposed project would not lead to cancellation of or conflict with Williamson Act contracts, because none exist within the City, according to the Conservation and Open Space Element of the Irvine 2045 General Plan (City of Irvine 2024). For these reasons, the proposed project would not conflict with zoning for agricultural use or Williamson Act contracts, and no impact would occur.

3. Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

No Impact. As described in Section 4.2.1, according to PRC Section 12220(g), forest land consists of 10% native tree cover that allows for management of forest resources. The project site is not covered by 10% native trees. The project site contains trees mostly concentrated along its eastern and western boundaries,

along Bee Canyon Access Road and Jeffrey Road, respectively. These trees, which primarily consist of non-native eucalyptus and myoporum trees, do not constitute forest land pursuant to PRC Section 12220. There is no land designated as forest land within or adjacent to the project site. Further, there are no zoning classifications for forest land, timberland, or timberland protection zones, as defined by PRC Section 4526 or California Government Code Section 51104(g), within the City (City of Irvine 2024). For these reasons, the project site does not contain forest land, timberland, or land zoned for timberland production. Therefore, the proposed project would not conflict with existing zoning or cause rezoning of these types of land. No impact would occur.

4. Would the project result in the loss of forest land or conversion of forest land to non-forest use?

No Impact. The project site consists of approximately 120 acres of relatively flat land that does not contain forest resources. As discussed in Section 4.2.4(3), there is no land designated as forest land within or adjacent to the project site. The Conservation and Open Space Element of the Irvine 2045 General Plan identifies certain parts of the City with the potential to support forest land resources, such as the Santiago Hill sand areas in the northern flatlands, central flatlands, and San Joaquin Hills; these areas fall under designations of Eucalyptus Windrow, Sand Canyon Oak Trees, and Natural Community Conservation Plan (NCCP) Habitat Reserve (City of Irvine 2024). However, the project site is not located within these mapped areas. For these reasons, the project site does not contain forest land. Therefore, the proposed project would not result in the loss of forest land or conversion of forest land to a non-forest use. No impact would occur.

5. Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

Less-Than-Significant Impact. Agricultural operations may become constrained due to concerns with the effects of dust, odor, noise, and pesticide use from residential uses. In addition, urban effects such as vandalism, garbage, and predation by domestic pets (cats and dogs) can impact agricultural uses. These are often identified as "edge effects," as the urban edge interacts with agricultural uses. Development of the proposed project and associated conversion of farmland to residential use at the project site would have the potential to impact nearby agricultural operations. The project site is surrounded by residential development to the west and south; undeveloped open space to the east; and the Irvine Ranch Conservancy Native Seed Farm (Seed Farm) and various other special use sites leased to third parties, including a landscape designer, a pump supplier, and an excavating contractor, to the north. The interaction between the proposed project and the Seed Farm, which contains Important Farmland mapped by the FMMP, could result in edge effects, as discussed below.

The Seed Farm does not involve a traditional agricultural use. Seed Farm operations include growing and tending to seed-producing plants. The intent of the Seed Farm is to conserve a natural seed bank for the area, with the goal of restoring sensitive habitats. The Seed Farm supplies seeds to a variety of local agencies, such as OC Waste & Recycling, the Orange County Transportation Authority, OC Parks, and the City of Irvine, for the implementation of their projects; it also supports internship and volunteer programs, as well as community service projects (Irvine Ranch Conservancy 2025). The Seed Farm is mission-driven and equipped with agency partnerships, and large-scale use of harvesting equipment and pesticides does not occur at the Seed Farm; thus, the Seed Farm is not a traditional agriculture use. Operations at the Seed Farm are multi-faceted and the Seed Farm is expected to withstand the potential edge effects described

above more robustly than traditional agriculture. For the reasons described above, the Seed Farm, as compared to traditional agriculture, is also not as susceptible to incompatibility issues with neighboring land uses. Furthermore, a goal of the proposed project is to provide access to the adjacent open space lands for residents of the City, creating a "gateway." The project includes the construction of the approximately 4.9-acre South Park at the northern portion of the project site, which would provide recreational areas as well as access to adjacent open space lands via a new trailhead. The location of this new park would create a planned buffer between the project's proposed residential development to the south and the Seed Farm to the northeast, thereby further protecting the Seed Farm's seed bank from potential edge effects.

Although the project proposes some residential development along its northern boundary, adjacent to the proposed South Park and the Seed Farm, this does not represent significant encroachment. The residential development proposed in the northern portion of the project site is constrained by the proposed South Park to the north and Bee Canyon Road and proposed fuel management easement to the east. Therefore, the proposed residential development would share an approximately 300-foot-long border with the Seed Farm. Because of the Seed Farm's non-traditional agricultural uses and the proposed buffer created by South Park, the proposed project's edge effects would not jeopardize the Seed Farm's ongoing operations. Therefore, the proposed project would not involve other changes to the existing environment that would result in the conversion of farmland, and impacts would be less than significant.

Impact Summary

The conversion of mapped Important Farmland to a non-agricultural use caused by the development of the proposed project, resulting in the loss of 67.46 acres of mapped Important Farmland, would be a significant and unavoidable impact. All other agriculture and forestry impacts related to the proposed project would be less than significant or would not occur.

4.2.5 Mitigation Measures

The Northern Sphere Program EIR reviewed potential mitigation measures for the purposes of mitigating or avoiding the impact of converting Important Farmland. These measures included possible retention of agricultural land on site as well as the purchase or transfer of development rights, via agricultural impact fees, to preserve agricultural land elsewhere in the City or region. However, these mitigation measures would not reduce agricultural impacts to a less-than-significant level due to the generally questionable viability of agricultural production in the project area. The Northern Sphere Program EIR states that long-term viability of large-scale operations continuing on agricultural lands in the area is questionable due to factors affecting the economies of long-term, large-scale agricultural operations in Orange County. In the context of this discussion, although the conversion of Important Farmland at the project site would be significant, the landowner's and City's ability to sustain economically viable agricultural uses in the project area through mitigation is still doubtful.

Pursuant to this discussion, and as discussed in Section 4.2.4, Impacts Analysis, no feasible mitigation measures have been identified to avoid or substantially reduce the significant impact relating to conversion of Important Farmland to a non-agricultural use.

No significant impacts were identified in the analysis of the other potential agricultural effects; therefore, no mitigation measures are required.

4.2.6 Level of Significance After Mitigation

Impacts relating to the conversion of Important Farmland would remain significant and unavoidable. All other impacts would remain less than significant or would not occur.

4.2.7 Cumulative Impacts

Other past, present, and reasonably foreseeable projects would result in the conversion of Important Farmland to non-agricultural uses. As discussed in Section 4.2.2, Relevant Plans, Policies, and Ordinances, under "Local," the Northern Sphere Program EIR identifies the conversion of approximately 3,100 acres of Important Farmland in the City as a significant and unavoidable impact. Implementation of the proposed project would convert approximately 67.46 acres of Important Farmland at full buildout. As recognized in the Northern Sphere Program EIR, the encroachment of urban areas on agricultural lands has been a continuing trend in the Orange County region due to rising costs of irrigation water, increased land value, and labor costs (City of Irvine 2002a). Since the issuance of the 2002 Northern Sphere Program EIR, lands to the west and south of the project site have been developed from agricultural uses to residential uses. Therefore, the project site is now surrounded by lands converted from agriculture to urban uses, as contemplated in the Northern Sphere Program EIR. The transition of agricultural lands at the project site and in the area surrounding the project site aligns with the conclusions reported related to agricultural viability as well as the development scenario anticipated by the Northern Sphere Program EIR.

The loss of approximately 67.46 acres of Important Farmland represents a significant cumulative impact to which the proposed project would contribute. Therefore, the project's conversion of Important Farmland can be considered both direct and cumulative. As described in Section 4.2.4(1), there are no feasible mitigation measures to address either direct conversion or cumulative loss of Important Farmland associated with the project. Therefore, the cumulative impact of farmland conversion would be significant and unavoidable.

The project site does not contain land currently under a Williamson Act contract; therefore, it would not contribute to a cumulative impact to contracted lands. Further, the project site does not contain forest land (as defined in PRC Section 12220[g]), timberland (as defined by PRC Section 4526), or timberland zoned Timberland Production (as defined by California Government Code Section 51104[g]). Therefore, the proposed project would not contribute to a cumulative impact to forest land or timberland. As discussed in Section 4.2.4(5), the project would not result in other changes to the existing environment, such as edge effects, that due to their location or nature could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use. This potential impact is specific to the project site and immediately adjacent parcels; therefore, the impact would not be cumulatively considerable.

4.2.8 References

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SOURCE: Bing Maps (Accessed: 2025); CA Department of Conservation FMMP (2020)

DUDEK

0 500 1,000 Feet

FIGURE 4.2-1

Farmland Mapping and Monitoring Program (FMMP)

Irvine Gateway Village Project EIR

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4.3 Air Quality

This section describes the existing air quality conditions of the project site and vicinity, identifies associated regulatory requirements, provides significance thresholds and project design features (PDFs), evaluates potential impacts, and identifies mitigation measures related to implementation of the proposed project. In addition to the documents listed in Section 4.3.9, References, information contained in this section is based on the following:

- **Appendix B-1:** CalEEMod Output Files, prepared by Dudek, dated March 2025
- **Appendix B-2:** Construction Health Risk Assessment, prepared by Dudek, dated 2025
- **Appendix B-3:** Carbon Monoxide Hotspots Intersection Volume Calculations (CO Hotspots Calculations), prepared by Dudek, dated March 2025

4.3.1 Existing Conditions

The project site is located in the City of Irvine (City) within the South Coast Air Basin (SCAB). The SCAB is a 6,745-square-mile area bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The SCAB's air pollution problems are a consequence of the combination of emissions from the nation's second-largest urban area, meteorological conditions that hinder dispersion of those emissions, and mountainous terrain surrounding the SCAB that traps pollutants as they are pushed inland with the sea breeze (SCAQMD 2022). Meteorological and topographical factors that affect air quality in the SCAB are described below.

Climate and Meteorology

The SCAB generally lies in the semi-permanent, high-pressure zone of the eastern Pacific. As a result, the climate is mild and tempered by cool sea breezes. The usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds. The extent and severity of the air pollution problem in the SCAB is a function of the area's natural physical characteristics (e.g., weather and topography) as well as of human influences (e.g., development patterns and lifestyle). Factors such as wind, sunlight, temperature, humidity, rainfall, and topography all affect the accumulation and/or dispersion of pollutants throughout the SCAB.

Moderate temperatures, comfortable humidity, and limited precipitation characterize the climate in the SCAB. The average annual temperature varies little throughout the basin, averaging 75°F. However, with a less pronounced oceanic influence, the eastern inland portions of the basin show greater variability in annual minimum and maximum temperatures. All portions of the SCAB have recorded temperatures over 100°F in recent years. Although the SCAB has a semiarid climate, the air near the surface is moist because of the presence of a shallow marine layer. Except for infrequent periods when dry air is brought into the basin by offshore winds, the ocean effect is dominant. Periods with heavy fog are frequent, and low stratus clouds, occasionally referred to as "high fog," are a characteristic climate feature. Annual average relative humidity is 70% at the coast and 57% in the eastern part of the basin. Precipitation in the SCAB is typically 9 to 14 inches annually and is rarely in the form of snow or hail, due to typically warm weather. The frequency and amount of rainfall is greater in the coastal areas of the basin.

Sunlight

The presence and intensity of sunlight are necessary prerequisites for the formation of photochemical smog. Under the influence of the ultraviolet radiation of sunlight, certain "primary" pollutants (mainly reactive hydrocarbons and oxides of nitrogen [NO_x])[1] react to form "secondary" pollutants (primarily oxidants). Since this process is time dependent, secondary pollutants can be formed many miles downwind of the emission sources. Southern California also has

[1] NO_x is a general term pertaining to compounds of nitric oxide (NO), nitrogen dioxide (NO_2), and other oxides of nitrogen.

abundant sunshine, which drives the photochemical reactions that form pollutants such as ozone (O_3) and a substantial portion of fine particulate matter ($PM_{2.5}$; particles less than or equal to 2.5 microns in diameter). In the SCAB, high concentrations of O_3 are normally recorded during the late spring, summer, and early autumn months, when more intense sunlight drives enhanced photochemical reactions. Because of the prevailing daytime winds and time-delayed nature of photochemical smog, oxidant concentrations are highest in the inland areas of Southern California.

Temperature Inversions

Under ideal meteorological conditions and irrespective of topography, pollutants emitted into the air mix and disperse into the upper atmosphere. However, the Southern California region frequently experiences temperature inversions in which pollutants are trapped and accumulate close to the ground. The inversion, a layer of warm, dry air overlaying cool, moist marine air, is a normal condition in coastal Southern California. The cool, damp, and hazy sea air capped by coastal clouds is heavier than the warm, clear air, which acts as a lid through which the cooler marine layer cannot rise. The height of the inversion is important in determining pollutant concentration. When the inversion is approximately 2,500 feet above mean sea level, the sea breezes carry the pollutants inland to escape over the mountain slopes or through the passes. At a height of 1,200 feet above mean sea level, the terrain prevents the pollutants from entering the upper atmosphere, resulting in the pollutants settling in the foothill communities. Below 1,200 feet above mean sea level, the inversion puts a tight lid on pollutants, concentrating them in a shallow layer over the entire coastal basin. Usually, inversions are lower before sunrise than during the daylight hours.

Mixing heights for inversions are lower in the summer and inversions are more persistent, being partly responsible for the high levels of O_3 observed during summer months in the SCAB. Smog in Southern California is generally the result of these temperature inversions combining with coastal day winds and local mountains to contain the pollutants for long periods, allowing them to form secondary pollutants by reacting in the presence of sunlight. The basin has a limited ability to disperse these pollutants due to typically low wind speeds and the surrounding mountain ranges.

As with other cities within the SCAB, the City of Irvine is susceptible to air inversions, which trap a layer of stagnant air near the ground where pollutants are further concentrated. These inversions produce haziness, which is caused by moisture, suspended dust, and a variety of chemical aerosols emitted by trucks, automobiles, furnaces, and other sources. Elevated concentrations of coarse particulate matter ($PM_{10;}$ particles less than or equal to 10 microns in diameter) and of $PM_{2.5}$ can occur in the SCAB throughout the year, but they occur most frequently in fall and winter. The deficit of normal storm systems from late fall through the winter and early spring allow for more stagnant conditions in the SCAB as the lack of storm-related dispersion and rain-out of particulate matter (PM) and its precursors. Although there are some changes in emissions by day of the week and by season, the observed variations in pollutant concentrations are primarily the result of seasonal differences in weather conditions.

Criteria Air Pollutants

Criteria air pollutants are defined as pollutants for which the federal and state governments have established ambient air quality standards, or criteria, for outdoor concentrations to protect public health. The national and California standards have been set, with an adequate margin of safety, at levels above which concentrations could be harmful to human health and welfare. These standards are designed to protect the most sensitive persons from illness or discomfort. Pollutants of concern include O_3, nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), PM_{10}, $PM_{2.5}$, and lead. In California, sulfates, vinyl chloride, hydrogen sulfide, and visibility-reducing particles are also regulated as criteria air pollutants. These pollutants, as well as toxic air contaminants (TACs), are discussed below.[2]

[2] The descriptions of each of the criteria air pollutants and associated health effects are based on the U.S. Environmental Protection Agency's Criteria Air Pollutants (EPA 2018) and the California Air Resources Board's Glossary of Air Pollutant Terms (CARB 2025a).

Ozone. O_3 is a strong-smelling, pale blue, reactive, toxic chemical gas consisting of three oxygen atoms. It is a secondary pollutant formed in the atmosphere by a photochemical process involving the sun's energy and O_3 precursors, such as hydrocarbons and NO_x. These precursors are mainly NO_x and volatile organic compounds (VOCs). The maximum effects of precursor emissions on O_3 concentrations usually occur several hours after they are emitted and many miles from the source. Meteorology and terrain play major roles in O_3 formation, and ideal conditions occur during summer and early autumn on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies. O_3 exists in the upper atmosphere ozone layer (stratospheric O_3) as well as at the earth's surface in the troposphere (ground-level O_3).[3] The O_3 that the U.S. Environmental Protection Agency (EPA) and California Air Resources Board (CARB) regulate as a criteria air pollutant is produced close to the ground level, where people live, exercise, and breathe. Ground-level ozone is a harmful air pollutant that causes numerous adverse health effects and is thus considered "bad" ozone. Stratospheric ozone, or "good" ozone, occurs naturally in the upper atmosphere, where it reduces the amount of ultraviolet light (i.e., solar radiation) entering the earth's atmosphere. Without the protection of the beneficial stratospheric ozone layer, plant and animal life would be seriously harmed.

O_3 in the troposphere causes numerous adverse health effects; short-term exposures (lasting for a few hours) to O_3 at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes (EPA 2013). These health problems are particularly acute in sensitive receptors such as those who are sick, older adults, and young children.

Inhalation of O_3 causes inflammation and irritation of the tissues lining human airways, causing and worsening a variety of symptoms. Exposure to O_3 can reduce the volume of air that the lungs breathe in and cause shortness of breath. O_3 in sufficient doses increases the permeability of lung cells, rendering them more susceptible to toxins and microorganisms. The occurrence and severity of health effects from O_3 exposure vary widely among individuals, even when the dose and the duration of exposure are the same. Research shows adults and children who spend more time outdoors participating in vigorous physical activities are at greater risk from the harmful health effects of O_3 exposure. While there are relatively few studies on the effects of O_3 on children, the available studies show that children are no more or less likely to suffer harmful effects than adults. However, there are a number of reasons why children may be more susceptible to O_3 and other pollutants. Children and teens spend nearly twice as much time outdoors and engaged in vigorous activities as adults. Children breathe more rapidly than adults and inhale more pollution per pound of their body weight than adults. Also, children are less likely than adults to notice their own symptoms and avoid harmful exposures. Further research may be able to better distinguish between health effects in children and adults. Children, adolescents, and adults who exercise or work outdoors, where O_3 concentrations are the highest, are at the greatest risk of harm from this pollutant (CARB 2025b).

Nitrogen Dioxide and Oxides of Nitrogen. NO_2 is a brownish, highly reactive gas that is present in all urban atmospheres. The major mechanism for the formation of NO_2 in the atmosphere is the oxidation of the primary air pollutant nitric oxide, which is a colorless, odorless gas. NO_x plays a major role, together with VOCs, in the atmospheric reactions that produce O_3. NO_x is formed from fuel combustion under high temperature or pressure. In addition, NO_x is an important precursor to acid rain and may affect both terrestrial and aquatic ecosystems. The two major emissions sources are transportation and stationary fuel combustion sources such as electric utility and industrial boilers.

[3] The troposphere is the layer of the earth's atmosphere nearest to the surface of the earth. The troposphere extends outward about 5 miles at the poles and about 10 miles at the equator.

A large body of health science literature indicates that exposure to NO_2 can induce adverse health effects. The strongest health evidence and the health basis for the ambient air quality standards for NO_2, results from controlled human exposure studies that show that NO_2 exposure can intensify responses to allergens in allergic asthmatics. In addition, a number of epidemiological studies have demonstrated associations between NO_2 exposure and premature death, cardiopulmonary effects, decreased lung function growth in children, respiratory symptoms, emergency room visits for asthma, and intensified allergic responses. Infants and children are particularly at risk because they have disproportionately higher exposure to NO_2 than adults due to their greater breathing rate for their body weight and their typically greater outdoor exposure duration. Several studies have shown that long-term NO_2 exposure during childhood, the period of rapid lung growth, can lead to smaller lungs at maturity in children with higher exposure levels compared to children with lower exposure levels. In addition, children with asthma have a greater degree of airway responsiveness than adult asthmatics. In adults, the greatest risk is to people who have chronic respiratory diseases, such as asthma and chronic obstructive pulmonary disease (CARB 2025c).

Carbon Monoxide. CO is a colorless, odorless gas formed by the incomplete combustion of hydrocarbon, or fossil fuels. CO is emitted almost exclusively from motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains. In urban areas, such as the project location, automobile exhaust accounts for the majority of CO emissions. CO is a nonreactive air pollutant that dissipates relatively quickly; therefore, ambient CO concentrations generally follow the spatial and temporal distributions of vehicular traffic. CO concentrations are influenced by local meteorological conditions—primarily wind speed, topography, and atmospheric stability. CO from motor vehicle exhaust can become locally concentrated when surface-based temperature inversions are combined with calm atmospheric conditions, which is a typical situation at dusk in urban areas from November to February. The highest levels of CO typically occur during the colder months of the year, when inversion conditions are more frequent.

CO is harmful because it binds to hemoglobin in the blood, reducing the ability of blood to carry oxygen. This interferes with oxygen delivery to the body's organs. The most common effects of CO exposure are fatigue, headaches, confusion and reduced mental alertness, light-headedness, and dizziness due to inadequate oxygen delivery to the brain. For people with cardiovascular disease, short-term CO exposure can further reduce their body's already compromised ability to respond to the increased oxygen demands of exercise, exertion, or stress. Inadequate oxygen delivery to the heart muscle leads to chest pain and decreased exercise tolerance. Unborn babies whose mothers experience high levels of CO exposure during pregnancy are at risk of adverse developmental effects. Unborn babies, infants, older adults, and people with anemia or a history of heart or respiratory disease are most likely to experience health effects with exposure to elevated levels of CO (CARB 2025d).

Sulfur Dioxide. SO_2 is a colorless, pungent gas formed primarily from incomplete combustion of sulfur-containing fossil fuels. The main sources of SO_2 are coal and oil used in power plants and industries; as such, the highest levels of SO_2 are generally found near large industrial complexes. In recent years, SO_2 concentrations have been reduced by the increasingly stringent controls placed on stationary source emissions of SO_2 and limits on the sulfur content of fuels.

Controlled human exposure and epidemiological studies show that children and adults with asthma are more likely to experience adverse responses with SO_2 exposure than the non-asthmatic population. Effects at levels near the 1-hour standard are those of asthma exacerbation, including bronchoconstriction accompanied by symptoms of respiratory irritation such as wheezing, shortness of breath, and chest tightness, especially during exercise or physical activity. Also, exposure at elevated levels of SO_2 (above 1 part per million [ppm]) results in increased incidence of pulmonary symptoms and disease, decreased pulmonary function, and increased risk of mortality. Older adults and people with cardiovascular disease or chronic lung disease (such as bronchitis or emphysema) are most likely to experience these adverse effects (CARB 2025e).

SO_2 is of concern both because it is a direct respiratory irritant and because it contributes to the formation of sulfate and sulfuric acid in PM (ELC 2024). People with asthma are of particular concern, both because they have increased baseline airflow resistance and because their SO_2-induced increase in airflow resistance is greater than in healthy people. This increase in resistance also correlates with the severity of their asthma. SO_2 is thought to induce airway constriction via neural reflexes involving irritant receptors in the airways (NRC 2005).

Particulate Matter. PM pollution consists of very small liquid and solid particles floating in the air, which can include smoke, soot, dust, salts, acids, and metals. PM can form when gases emitted from industries and motor vehicles undergo chemical reactions in the atmosphere. $PM_{2.5}$ and PM_{10} represent fractions of particulate matter. Coarse particulate matter (PM_{10}) is about 1/7 the thickness of a human hair. Major sources of PM_{10} include crushing or grinding operations; dust stirred up by vehicles traveling on roads; wood-burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions. Fine particulate matter ($PM_{2.5}$) is roughly 1/28 the diameter of a human hair. $PM_{2.5}$ results from fuel combustion (e.g., from motor vehicles and power generation and industrial facilities), residential fireplaces, and woodstoves. In addition, $PM_{2.5}$ can be formed in the atmosphere from gases such as sulfur oxides (SO_x), NO_x, and VOCs.

$PM_{2.5}$ and PM_{10} pose a greater health risk than larger-size particles. When inhaled, these tiny particles can penetrate the human respiratory system's natural defenses and damage the respiratory tract. $PM_{2.5}$ and PM_{10} can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. Very small particles of substances such as lead, sulfates, and nitrates can cause lung damage directly or be absorbed into the blood stream, causing damage elsewhere in the body. Additionally, these substances can transport absorbed gases such as chlorides or ammonium into the lungs, also causing injury. Whereas PM_{10} tends to collect in the upper portion of the respiratory system, $PM_{2.5}$ is so tiny that it can penetrate deeper into the lungs and damage lung tissue. Suspended particulates also produce haze and reduce regional visibility and damage and discolor surfaces on which they settle.

A number of adverse health effects have been associated with exposure to both $PM_{2.5}$ and PM_{10}. For $PM_{2.5}$, short-term exposures (up to 24-hour duration) have been associated with premature mortality, increased hospital admissions for heart or lung causes, acute and chronic bronchitis, asthma attacks, emergency room visits, respiratory symptoms, and restricted activity days. These adverse health effects have been reported primarily in infants, children, and older adults with preexisting heart or lung diseases. In addition, of all the common air pollutants, $PM_{2.5}$ is associated with the greatest proportion of adverse health effects related to air pollution, both in the United States and worldwide based on the World Health Organization's Global Burden of Disease Project. Short-term exposures to PM_{10} have been associated primarily with worsening of respiratory diseases, including asthma and chronic obstructive pulmonary disease, leading to hospitalization and emergency department visits (CARB 2025f).

Long-term exposure (months to years) to $PM_{2.5}$ has been linked to premature death, particularly in people who have chronic heart or lung diseases, and reduced lung function growth in children. The effects of long-term exposure to PM_{10} are less clear, although several studies suggest a link between long-term PM_{10} exposure and respiratory mortality. The International Agency for Research on Cancer published a review in 2015 that concluded that PM in outdoor air pollution causes lung cancer (CARB 2025f).

Lead. Lead in the atmosphere occurs as PM. Sources of lead include leaded gasoline; the manufacturing of batteries, paints, ink, ceramics, and ammunition; and secondary lead smelters. Prior to 1978, mobile emissions were the primary source of atmospheric lead. Between 1978 and 1987, the phaseout of leaded gasoline reduced

the overall inventory of airborne lead by nearly 95%. With the phaseout of leaded gasoline, secondary lead smelters, battery recycling, and manufacturing facilities are becoming lead-emissions sources of greater concern.

Prolonged exposure to atmospheric lead poses a serious threat to human health. Health effects associated with exposure to lead include gastrointestinal disturbances, anemia, kidney disease, and in severe cases, neuromuscular and neurological dysfunction. Of particular concern are low-level lead exposures during infancy and childhood. Such exposures are associated with decrements in neurobehavioral performance, including intelligence quotient performance, psychomotor performance, reaction time, and growth. Children are highly susceptible to the effects of lead (CARB 2025g).

Sulfates. Sulfates are the fully oxidized form of sulfur, which typically occur in combination with metals or hydrogen ions. Sulfates are produced from reactions of SO_2 in the atmosphere and can result in respiratory impairment and reduced visibility (CARB 2025h).

Vinyl Chloride. Vinyl chloride is a colorless gas with a mild, sweet odor, which has been detected near landfills, sewage plants, and hazardous waste sites due to the microbial breakdown of chlorinated solvents. Short-term exposure to high levels of vinyl chloride in the air can cause nervous system effects, such as dizziness, drowsiness, and headaches. Long-term exposure through inhalation can cause liver damage, including liver cancer (CARB 2025i).

Hydrogen Sulfide. Hydrogen sulfide is a colorless and flammable gas that has a characteristic odor of rotten eggs. Sources of hydrogen sulfide include geothermal power plants, petroleum refineries, sewers, and sewage treatment plants. Exposure to hydrogen sulfide can result in nuisance odors, as well as headaches and breathing difficulties at higher concentrations (CARB 2025j).

Visibility-Reducing Particles. Visibility-reducing particles are any particles in the air that obstruct the range of visibility. Effects of reduced visibility can include obscuring the viewshed of natural scenery, reducing airport safety, and discouraging tourism. Sources of visibility-reducing particles are the same as for $PM_{2.5}$ described above (CARB 2025k).

Volatile Organic Compounds. Hydrocarbons are organic gases that are formed from hydrogen and carbon and sometimes other elements. Hydrocarbons that contribute to formation of O_3 are referred to and regulated as VOCs (also referred to as reactive organic gases). Combustion engine exhaust, oil refineries, and fossil-fueled power plants are the sources of hydrocarbons. Other sources of hydrocarbons include evaporation from petroleum fuels, solvents, dry cleaning solutions, and paint (CARB 2025l).

The primary health effects of VOCs result from the formation of O_3 and its related health effects. High levels of VOCs in the atmosphere can interfere with oxygen intake by reducing the amount of available oxygen through displacement. Carcinogenic forms of hydrocarbons, such as benzene, are considered TACs. There are no separate health standards for VOCs as a group.

Non-Criteria Air Pollutants

Toxic Air Contaminants. A substance is considered toxic if it has the potential to cause adverse health effects in humans, including increasing the risk of cancer upon exposure, or acute and/or chronic non-cancer health effects. A toxic substance released into the air is considered a TAC. TACs are identified by federal and state agencies based on a review of available scientific evidence. In the state of California, TACs are identified through a two-step process

that was established in 1983 under the Toxic Air Contaminant Identification and Control Act. This two-step process of risk identification and risk management and reduction was designed to protect residents from the health effects of toxic substances in the air. In addition, the California Air Toxics "Hot Spots" Information and Assessment Act, Assembly Bill 2588 (CARB 2025m), was enacted by the legislature in 1987 to address public concern over the release of TACs into the atmosphere. The law requires facilities emitting toxic substances to provide local air pollution control districts with information that will allow an assessment of the air toxics problem, identification of air toxics emissions sources, location of resulting hotspots, notification of the public exposed to significant risk, and development of effective strategies to reduce potential risks to the public over 5 years.

Examples include certain aromatic and chlorinated hydrocarbons, certain metals, and asbestos. TACs are generated by a number of sources, including stationary sources, such as dry cleaners, gas stations, combustion sources, and laboratories; mobile sources, such as automobiles; and area sources, such as landfills. Adverse health effects associated with exposure to TACs may include carcinogenic (i.e., cancer-causing) and noncarcinogenic effects. Noncarcinogenic effects typically affect one or more target organ systems and may be experienced on either short-term (acute) or long-term (chronic) exposure to a given TAC (CARB 2025n).

Diesel Particulate Matter. Diesel particulate matter (DPM) is part of a complex mixture that makes up diesel exhaust. Diesel exhaust is composed of two phases, gas and particle, both of which contribute to health risks. More than 90% of DPM is less than 1 micrometer in diameter (about 1/70 the diameter of a human hair) and thus is a subset of $PM_{2.5}$ (CARB 2025o). DPM is typically composed of carbon particles ("soot," also called black carbon, or BC) and numerous organic compounds, including over 40 known cancer-causing organic substances. Examples of these chemicals include polycyclic aromatic hydrocarbons, benzene, formaldehyde, acetaldehyde, acrolein, and 1,3-butadiene. CARB classified "particulate emissions from diesel-fueled engines" (i.e., DPM) (17 CCR 93000) as a TAC in August 1998. DPM is emitted from a broad range of diesel engines: on-road diesel engines of trucks, buses, and cars and off-road diesel engines including locomotives, marine vessels, and heavy-duty construction equipment, among others. Approximately 70% of all airborne cancer risk in California is associated with DPM (CARB 2000). To reduce the cancer risk associated with DPM, CARB adopted a diesel risk reduction plan in 2000 (CARB 2000). Because it is part of $PM_{2.5}$, DPM also contributes to the same non-cancer health effects as $PM_{2.5}$ exposure. These effects include premature death; hospitalizations and emergency department visits for exacerbated chronic heart and lung disease, including asthma; increased respiratory symptoms; and decreased lung function in children. Several studies suggest that exposure to DPM may also facilitate development of new allergies. Those most vulnerable to non-cancer health effects are children whose lungs are still developing and older adults who often have chronic health problems.

Odorous Compounds. Odors are generally regarded as an annoyance rather than a health hazard. Manifestations of a person's reaction to odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache). The ability to detect odors varies considerably among the population and overall is quite subjective. People may have different reactions to the same odor. An odor that is offensive to one person may be perfectly acceptable to another (e.g., coffee roaster). An unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. In a phenomenon known as odor fatigue, a person can become desensitized to almost any odor, and recognition may only occur with an alteration in the intensity. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of receptors (Piccardo et al. 2022).

Valley Fever. Coccidioidomycosis, more commonly known as "valley fever," is an infection caused by inhalation of the spores of the *Coccidioides immitis* fungus, which grows in the soils of the southwestern United States. The fungus is very prevalent in the soils of California's San Joaquin Valley, particularly in Kern County. The ecologic factors that appear to be most conducive to survival and replication of the spores are high summer temperatures, mild winters, sparse rainfall, and alkaline, sandy soils.

Orange County is not considered a highly endemic county ("highly endemic" meaning more than 20 cases annually of valley fever per 100,000 people) based on the incidence rates reported through 2022. The latest report from the California Department of Public Health indicates that Orange County had 297 cases in 2022, or 9.4 cases per 100,000 people (CDPH 2023).

Sensitive Receptors

Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. People most likely to be affected by air pollution include children, older adults, athletes, and people with cardiovascular and chronic respiratory diseases. Facilities and structures where these air pollution–sensitive people live or spend considerable amounts of time are known as sensitive receptors. Land uses where air pollution–sensitive individuals are most likely to spend time include schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities (sensitive sites or sensitive land uses) (CARB 2005). The South Coast Air Quality Management District (SCAQMD) identifies sensitive receptors as residences, schools, playgrounds, childcare centers, long-term healthcare facilities, rehabilitation centers, convalescent centers, and retirement homes (SCAQMD 1993).

The closest off-site sensitive receptors to the proposed project are single-family residences, located approximately 200 feet west of the project site.

MATES V

The Multiple Air Toxics Exposure Study V (MATES V) is a monitoring and evaluation study conducted in the SCAB. The study is a follow up to previous air toxics studies in the SCAB and is part of the SCAQMD Governing Board Environmental Justice Initiative.

MATES V consists of several elements. These include a monitoring program, an updated emissions inventory of TACs, and a modeling effort to characterize risk across the SCAB. The study estimates air toxics cancer risks using a risk assessment approach. Additionally, MATES V includes an exploratory analysis of chronic non-cancer health impacts (e.g., cardiovascular, respiratory, and neurological health outcomes). The MATES analysis does not estimate impacts on risk of death or other health effects from criteria air pollutant exposures; such analyses are instead conducted as part of the air quality management plans (AQMPs).

Toxic air pollution in the SCAB has decreased by more than 54% between 2012 and 2018 but continues to contribute to health risks, including cancers and other chronic diseases. For residents in the SCAB in 2018, exposure to TACs increased the chances of developing cancer by 455 chances in 1 million (SCAQMD 2025).

At the project site, the MATES V monitoring data shows a cancer risk of 366 chances in 1 million. In the project's zip code, the MATES V monitoring shows a cancer risk of 388 chances in 1 million. Air toxics cancer risk in this zip code is higher than 28% of the SCAB population (SCAQMD 2025).

CalEnviroScreen

CalEnviroScreen is a mapping tool that helps identify California communities that are most affected by many sources of pollution, where people are often especially vulnerable to pollution's effects. CalEnviroScreen ranks census tracts in California based on potential exposures to pollutants, adverse environmental conditions, socioeconomic factors, and the prevalence of certain health conditions. Data used in the CalEnviroScreen model come from national and state sources.

The project site is not in a disadvantaged community pursuant to Senate Bill 535 (OEHHA 2022), in a low-income community pursuant to Assembly Bill 1550 (CARB 2023a), or in a Community Air Protection Program pursuant to Assembly Bill 617 (CARB 2023b).

The project site achieves scores of 20–25 on CalEnviroScreen (OEHHA 2023). The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Healthy Places Index

The Healthy Places Index (HPI) is a project of the Public Health Alliance of Southern California. The HPI is a powerful and easy-to-use data and policy platform created to advance health equity through open and accessible data. Neighborhood-by-neighborhood, the HPI maps data on social conditions that drive health—like education, job opportunities, clean air and water, and other indicators that are positively associated with life expectancy at birth. Community leaders, policymakers, academics, and other interested parties use the HPI to compare the health and well-being of communities, identify health inequities, and quantify the factors that shape health.

The project site has an HPI score of 87.8 (California Healthy Places Index 2025). The maximum HPI score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

4.3.2 Relevant Plans, Policies, and Ordinances

Federal

Criteria Air Pollutants

The federal Clean Air Act, passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort (42 USC 7401 et seq.). EPA is responsible for implementing most aspects of the Clean Air Act, including the setting of National Ambient Air Quality Standards (NAAQS; federal standards) for major air pollutants, hazardous air pollutant (HAP) standards, approval of state attainment plans, motor vehicle emission standards, stationary source emissions standards and permits, acid rain control measures, stratospheric O_3 protection, and enforcement provisions. Federal standards are established for criteria pollutants under the Clean Air Act, which are O_3, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead.

The federal standards describe acceptable air quality conditions designed to protect the health and welfare of the citizens of the nation. The federal standards (other than for O_3, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. Federal standards for O_3, NO_2, SO_2, PM_{10}, and $PM_{2.5}$ are based on statistical calculations over 1- to 3-year periods, depending on the pollutant. The Clean Air Act requires EPA to reassess the federal standards at least every 5 years to determine whether adopted standards are adequate to protect public health based on current scientific evidence. The federal Clean Air Act delegates the regulation of air pollution control and the enforcement of the federal standards to the states. States with areas that exceed the federal standards must prepare a state implementation plan that demonstrates how those areas will attain the standards within mandated time frames.

Hazardous Air Pollutants

The 1977 federal Clean Air Act Amendments required EPA to identify national emission standards for HAPs to protect public health and welfare. HAPs include certain volatile organic chemicals, pesticides, herbicides, and radionuclides that present a tangible hazard, based on scientific studies of exposure to humans and other mammals. Under the 1990 federal Clean Air Act Amendments, which expanded the control program for HAPs, 189 substances and chemical families were identified as HAPs (EPA 2025a).

State

California Clean Air Act

In California, the task of air quality management and regulation has been legislatively granted to CARB, with subsidiary responsibilities assigned to air quality management districts and air pollution control districts at the regional and county levels. CARB, which became part of the California Environmental Protection Agency in 1991, is responsible for ensuring implementation of the California Clean Air Act of 1988, responding to the federal Clean Air Act, and regulating emissions from motor vehicles and consumer products.

CARB has established California Ambient Air Quality Standards (CAAQS), which are generally more restrictive than the NAAQS. As stated previously, an ambient air quality standard defines the maximum amount of a pollutant averaged over a specified period that can be present in outdoor air without harm to the public's health. For each pollutant, concentrations must be below these relevant CAAQS before a basin can attain the corresponding CAAQS. Air quality is considered "in attainment" if pollutant levels are continuously below the CAAQS and violate the standards no more than once each year. The CAAQS for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, PM_{10}, and $PM_{2.5}$ and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded.

California air districts have based their thresholds of significance for California Environmental Quality Act (CEQA) purposes on the levels that scientific and factual data demonstrate that the air basin can accommodate without affecting the attainment date for the NAAQS or CAAQS. Since an ambient air quality standard is based on maximum pollutant levels in outdoor air that would not harm the public's health and air district thresholds pertain to attainment of the ambient air quality standard, the thresholds established by air districts are also protective of human health (CARB 2025p).

The NAAQS and CAAQS are presented in Table 4.3-1, Ambient Air Quality Standards.

Table 4.3-1. Ambient Air Quality Standards

Pollutant	Average Time	CAAQS[a]	NAAQS[b]	
		Concentration[c]	Primary[c,d]	Secondary[c,e]
O_3	1 hour	0.09 ppm (180 µg/m³)	N/A	Same as primary standard
	8 hours	0.070 ppm (137 µg/m³)	0.070 ppm (137 µg/m³)[f]	
NO_2[g]	1 hour	0.18 ppm (339 µg/m³)	0.100 ppm (188 µg/m³)	Same as primary standard
	Annual arithmetic mean	0.030 ppm (57 µg/m³)	0.053 ppm (100 µg/m³)	

Table 4.3-1. Ambient Air Quality Standards

Pollutant	Average Time	CAAQS[a]	NAAQS[b]	
		Concentration[c]	Primary[c,d]	Secondary[c,e]
CO	1 hour	20 ppm (23 mg/m³)	35 ppm (40 mg/m³)	None
	8 hours	9.0 ppm (10 mg/m³)	9 ppm (10 mg/m³)	
SO_2[h]	1 hour	0.25 ppm (655 µg/m³)	0.075 ppm (196 µg/m³)	N/A
	3 hours	N/A	N/A	0.5 ppm (1,300 µg/m³)
	24 hours	0.04 ppm (105 µg/m³)	0.14 ppm (for certain areas)[g]	N/A
	Annual	N/A	0.030 ppm (for certain areas)[g]	N/A
PM_{10}[i]	24 hours	50 µg/m³	150 µg/m³	Same as primary standard
	Annual arithmetic mean	20 µg/m³	N/A	
$PM_{2.5}$[i]	24 hours	No separate state standard	35 µg/m³	Same as primary standard
	Annual arithmetic mean	12 µg/m³	9.0 µg/m³	15.0 µg/m³
Lead[j,k]	30-day average	1.5 µg/m³	N/A	N/A
	Calendar quarter	N/A	1.5 µg/m³ (for certain areas)[j]	Same as primary standard
	Rolling 3-month average	N/A	0.15 µg/m³	
H_2S	1 hour	0.03 ppm (42 µg/m³)	N/A	N/A
Vinyl chloride[i]	24 hours	0.01 ppm (26 µg/m³)	N/A	N/A
SO_4	24 hours	25 µg/m³	N/A	N/A
Visibility-reducing particles	8 hours (10:00 a.m. to 6:00 p.m. PST)	Insufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70%	N/A	N/A

Source: CARB 2024.

Notes: CAAQS = California Ambient Air Quality Standards; NAAQS = National Ambient Air Quality Standards; O_3 = ozone; ppm = parts per million by volume; µg/m³ = micrograms per cubic meter; N/A = not applicable; NO_2 = nitrogen dioxide; CO = carbon monoxide; mg/m³ = milligrams per cubic meter; SO_2 = sulfur dioxide; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; H_2S = hydrogen sulfide; SO_4 = sulfates; PST = Pacific standard time.

a CAAQS for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, and suspended particulate matter—PM_{10}, $PM_{2.5}$, and visibility-reducing particles—are values that are not to be exceeded. All others are not to be equaled or exceeded. The CAAQS are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

b NAAQS (other than O_3, NO_2, SO_2, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The O_3 standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ is equal to or less than 1. For $PM_{2.5}$, the 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

c Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[d] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.
[e] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
[f] On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.
[g] To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 parts per billion (ppb). Note that the national 1-hour standard is in units of ppb, whereas California standards are in units of ppm. To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.
[h] In 2010, a new 1-hour SO_2 standard was established, and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated nonattainment of the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.
[i] On February 7, 2024, the national annual $PM_{2.5}$ primary standard was lowered from 12.0 mg/m³ to 9.0 mg/m³. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 µg/m³, as was the annual secondary standard of 15 µg/m³. The existing 24-hour PM_{10} standards (primary and secondary) of 150 µg/m³ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.
[j] CARB has identified lead and vinyl chloride as toxic air contaminants with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
[k] The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 µg/m³ as a quarterly average) remains in effect until 1 year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

Toxic Air Contaminants

The state Air Toxics Program was established in 1983 under Assembly Bill 1807 (Tanner). The California TAC list identifies more than 200 pollutants, of which carcinogenic and noncarcinogenic toxicity criteria have been established for a subset of these pollutants pursuant to the California Health and Safety Code (CARB 2025n). In accordance with Assembly Bill 2728, the state list includes the federal HAPs. The Air Toxics "Hot Spots" Information and Assessment Act of 1987 (Assembly Bill 2588) seeks to identify and evaluate risk from air toxics sources; however, Assembly Bill 2588 does not regulate air toxics emissions. TAC emissions from individual facilities are quantified and prioritized. "High-priority" facilities are required to perform a health risk assessment (HRA) and, if specific thresholds are exceeded, are required to communicate the results to the public in the form of notices and public meetings.

In 2000, CARB approved a comprehensive diesel risk reduction plan to reduce diesel emissions from both new and existing diesel-fueled vehicles and engines (CARB 2000). The regulation is anticipated to result in an 80% decrease in statewide diesel health risk in 2020 compared with the diesel risk in 2000. Additional regulations apply to new trucks and diesel fuel, including the On-Road Heavy Duty Diesel Vehicle (In-Use) Regulation, the On-Road Heavy Duty (New) Vehicle Program, the In-Use Off-Road Diesel Vehicle Regulation, and the New Off-Road Compression-Ignition (Diesel) Engines and Equipment Program. These regulations and programs have timetables by which manufacturers must comply and existing operators must upgrade their diesel-powered equipment. Several Airborne Toxic Control Measures reduce diesel emissions, including In-Use Off-Road Diesel-Fueled Fleets (13 CCR 2449 et seq.) and In-Use On-Road Diesel-Fueled Vehicles (13 CCR 2025).

California Code of Regulations

The California Code of Regulations (CCR) is the official compilation and publication of regulations adopted, amended, or repealed by state agencies pursuant to the Administrative Procedure Act. The CCR includes regulations that pertain to air quality emissions. Specifically, Section 2485 in Title 13 of the CCR (13 CCR 2485) states that the idling of all diesel-fueled commercial vehicles (weighing over 10,000 pounds) during construction

shall be limited to 5 minutes at any location. In addition, 17 CCR 93115 states that operations of any stationary, diesel-fueled, compression-ignition engines shall meet specified fuel and fuel additive requirements and emissions standards.

California Health and Safety Code Section 41700

Section 41700 of the Health and Safety Code states that "a person shall not discharge from any source whatsoever quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or that endanger the comfort, repose, health, or safety of any of those persons or the public, or that cause, or have a natural tendency to cause, injury or damage to business or property." This section also applies to sources of objectionable odors.

Regional and Local

South Coast Air Quality Management District

SCAQMD is the regional agency responsible for the regulation and enforcement of federal, state, and local air pollution control regulations in the SCAB, where the proposed project site is located. SCAQMD operates monitoring stations in the SCAB, develops rules and regulations for stationary sources and equipment, prepares emissions inventory and air quality management planning documents, and conducts source testing and inspections. SCAQMD's AQMPs include control measures and strategies to be implemented to attain state and federal ambient air quality standards in the SCAB. SCAQMD then implements these control measures as regulations to control or reduce criteria pollutant emissions from stationary sources or equipment.

Air Quality Management Plan

The most-recently adopted AQMP is the 2022 AQMP (SCAQMD 2022), which was adopted by the SCAQMD governing board on December 2, 2022. The 2022 AQMP is a regional blueprint for achieving air quality standards and healthful air. The 2022 AQMP was developed to address the requirements for meeting EPA's NAAQS for ground-level O_3. The SCAB is classified as an "extreme" nonattainment area, and the Coachella Valley is classified as a "severe-15" nonattainment area for the 2015 O_3 NAAQS. The strategies of the 2022 AQMP include wide adoption of zero-emissions technologies, low NO_x technologies where zero-emission technologies are not feasible, federal action, zero-emission technologies for residential and industrial sources, incentive funding in environmental justice areas, and prioritizing benefits for the most disadvantaged communities (SCAQMD 2022).

Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning

SCAQMD adopted its Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning in May 2005. The SCAQMD Guidance Document provides recommendations for the siting of new sensitive land uses near potential sources of air toxic emissions (e.g., freeways, distribution centers, rail yards, ports, refineries, gas dispensing facilities). In its Guidance Document, SCAQMD provides recommendations for when an HRA should be prepared, such as for truck stops and warehouse distribution facilities, where more than 100 trucks per day or more than 40 trucks with truck refrigeration units are generated (SCAQMD 2005).

Applicable Rules

Emissions that would result from stationary and area sources during operation under the proposed project may be subject to SCAQMD rules and regulations. The SCAQMD rules applicable to the project may include the following:

Regulation IV – Prohibitions

- **Rule 401 – Visible Emissions:** This rule establishes the limit for visible emissions from stationary sources for a period or periods aggregating more than 3 minutes in any hour. This rule prohibits visible emissions dark or darker than Ringelmann No. 1 for periods greater than 3 minutes in any hour or of such opacity that could obscure an observer's view to a degree equal or greater than does smoke.
- **Rule 402 – Nuisance:** This rule states that a person shall not discharge from any source whatsoever such quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or that endanger the comfort, repose, health or safety of any such persons or the public, or that cause, or have a natural tendency to cause, injury or damage to business or property.
- **Rule 403 – Fugitive Dust:** This rule requires projects to prevent, reduce, or mitigate fugitive dust emissions from a site. Rule 403 restricts visible fugitive dust to the project property line, restricts the net PM_{10} emissions to less than 50 micrograms per cubic meter, and restricts the tracking out of bulk materials onto public roads. Additionally, projects must utilize one or more of the best available control measures (identified in the tables within the rule), which may include adding freeboard to haul vehicles, covering loose material on haul vehicles, watering, using chemical stabilizers, and/or ceasing all activities.
- **Rule 431.2 – Sulfur Content of Liquid Fuels:** The purpose of this rule is to limit the sulfur content in diesel and other liquid fuels for the purpose of reducing the formation of SO_x and particulates during combustion and of enabling the use of add-on control devices for diesel-fueled internal combustion engines. The rule applies to all refiners, importers, and other fuel suppliers such as distributors, marketers, and retailers, as well as to users of diesel, low-sulfur diesel, and other liquid fuels for stationary source applications in the SCAQMD. The rule also affects diesel fuel supplied for mobile sources.

Regulation XI – Source Specific Standards

- **Rule 1110.2 – Emissions from Gaseous- and Liquid-Fueled Engines**: This rule applies to stationary and portable engines rated at greater than 50 horsepower. The purpose of Rule 1110.2 is to reduce NO_x, VOCs, and CO emissions from engines. Emergency engines, including those powering standby generators, are generally exempt from the emissions and monitoring requirements of this rule because they have permit conditions that limit operation to 200 hours or less per year as determined by an elapsed operating time meter.
- **Rule 1113 – Architectural Coatings:** This rule requires manufacturers, distributors, and end users of architectural and industrial maintenance coatings to reduce VOC emissions from the use of these coatings, primarily by placing limits on the VOC content of various coating categories.

Regulation XIV – Toxics and Other Non-Criteria Pollutants:

- **Rule 1403 – Asbestos Emissions from Demolition/Renovation Activities:** This rule states that an owner or operator of any demolition or renovation activity is required to have an asbestos study performed prior to demolition and to provide notification to SCAQMD prior to commencing demolition activities.

South Coast Air Basin Attainment Designation

Pursuant to the 1990 federal Clean Air Act Amendments, EPA classifies air basins (or portions thereof) as "attainment" or "nonattainment" for each criteria air pollutant, based on whether the NAAQS have been achieved. Generally, if the recorded concentrations of a pollutant are lower than the standard, the area is classified as "attainment" for that pollutant. If an area exceeds the standard, the area is classified as "nonattainment" for that pollutant. If there is not enough data available to determine whether the standard is exceeded in an area, the area is designated as "unclassified" or "unclassifiable." The designation of "unclassifiable/attainment" means that the area meets the standard or is expected to be meet the standard despite a lack of monitoring data. Areas that achieve the standards after a nonattainment designation are re-designated as maintenance areas and must have approved maintenance plans to ensure continued attainment of the standards. The California Clean Air Act, like its federal counterpart, called for the designation of areas as "attainment" or "nonattainment" but based on the CAAQS rather than the NAAQS. Table 4.3-2 depicts the current attainment status of the project site with respect to the NAAQS and CAAQS.

Table 4.3-2. South Coast Air Basin Attainment Classification

Pollutant	Designation/Classification	
	NAAQS	CAAQS
Ozone (O_3), 1-hour	No national standard	**Nonattainment**
Ozone (O_3), 8-hour	**Extreme nonattainment**	**Nonattainment**
Nitrogen dioxide (NO_2)	Unclassifiable/attainment	Attainment
Carbon monoxide (CO)	Attainment/maintenance	Attainment
Sulfur dioxide (SO_2)	Unclassifiable/attainment	Attainment
Coarse particulate matter (PM_{10})	Attainment/maintenance	**Nonattainment**
Fine particulate matter ($PM_{2.5}$)	**Serious nonattainment**	**Nonattainment**
Lead	**Nonattainment**	Attainment
Hydrogen sulfide	No national standard	Unclassified
Sulfates	No national standard	Attainment
Visibility-reducing particles	No national standard	Unclassified
Vinyl chloride	No national standard	No designation

Sources: EPA 2025 (national); CARB 2023c (California).
Notes: NAAQS = National Ambient Air Quality Standards; CAAQS = California Ambient Air Quality Standards; **bold text** = not in attainment; attainment = meets the standards; attainment/maintenance = achieves the standards after a nonattainment designation; nonattainment = does not meet the standards; unclassified or unclassifiable = insufficient data to classify; unclassifiable/attainment = meets the standard or is expected to be meet the standard despite a lack of monitoring data.

In summary, the SCAB is designated as a nonattainment area for federal and state O_3 standards and federal and state $PM_{2.5}$ standards. The SCAB is designated as a nonattainment area for state PM_{10} standards; however, it is designated as an attainment area for federal PM_{10} standards. The SCAB is designated as an attainment area for federal and state CO standards, federal and state NO_2 standards, and federal and state SO_2 standards. While the SCAB has been designated as nonattainment for the federal rolling 3-month average lead standard, it is designated attainment for the state lead standard (CARB 2023; EPA 2025).

Despite the current nonattainment status, air quality within the SCAB has generally improved since the inception of air pollutant monitoring in 1976. This improvement is mainly a result of lower-polluting on-road motor vehicles, more stringent regulation of industrial sources, and the implementation of emission reduction strategies by

SCAQMD. This trend toward cleaner air has occurred despite continued population growth. Despite this growth, air quality has improved significantly over the years, primarily because of the impacts of the region's air quality control program.

Local Ambient Air Quality

The project area's local ambient air quality is monitored by SCAQMD and CARB. CARB, air districts, and other agencies monitor ambient air quality at approximately 250 air quality monitoring stations across the state. Air quality monitoring stations usually measure pollutant concentrations 10 feet above ground level; therefore, air quality is often referred to in terms of ground-level concentrations.

The Mission Viejo Monitoring Station located at 26081 Via Pera, Mission Viejo, California; the Anaheim Monitoring Station located at 1630 West Pampas Lane, Anaheim, California; the Anaheim Monitoring Station located at 812 West Vermont Street, Anaheim, California; and the Signal Hill Monitoring Station located at 1710 East 20th Street, Signal Hill, California, are the air quality monitoring stations most representative of the existing air quality around the project site that together provide a complete set of ambient air data. The data collected at these stations are considered representative of the air quality experienced in the project vicinity due to proximity and availability of data. Air quality data from 2021 through 2023 are provided in Table 4.3-3. The number of days exceeding the ambient air quality standards are also shown in Table 4.3-3.

Southern California Association of Governments

The Southern California Association of Governments (SCAG) is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties and serves as a forum for regional issues relating to transportation, the economy, community development, and the environment. SCAG serves as the federally designated metropolitan planning organization for the Southern California region and is the largest metropolitan planning organization in the United States.

In September 2020, SCAG adopted Connect SoCal, the 2020–2045 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), which is a long-range visioning plan that balances future mobility and housing needs with economic, environmental, and public health goals. Connect SoCal charts a path toward a more mobile, sustainable, and prosperous region by making connections between transportation networks, planning strategies, and the people whose collaboration can improve the quality of life for Southern Californians. Connect SoCal embodies a collective vision for the region's future and is developed with input from local governments, county transportation commissions, tribal governments, non-profit organizations, businesses, and local interested parties within the counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. As stated above, SCAQMD adopted the 2022 AQMP, which incorporates these updated regional growth projections (SCAG 2020; SCAQMD 2022).

In April 2024, SCAG adopted the 2024–2050 RTP/SCS, also referred to as "Connect SoCal 2024." Connect SoCal 2024 builds upon prior planning cycles to update the vision of the region's future (SCAG 2024). The RTP/SCS is a regional growth management strategy, which targets per capita greenhouse gas (GHG) reduction from passenger vehicles and light-duty trucks in the Southern California region pursuant to Senate Bill 375. In addition to demonstrating the region's ability to attain the GHG emission reduction targets set forth by CARB, the 2024–2050 RTP/SCS outlines a series of actions and strategies for integrating the transportation network with an overall land use pattern that responds to projected growth, housing needs, changing demographics, and transportation demands (SCAG 2024). Thus, successful implementation of the 2024–2050 RTP/SCS would result in more complete communities, with various transportation and housing choices, while reducing automobile use.

Table 4.3-3. Local Ambient Air Quality Data

Monitoring Station	Unit	Averaging Time	Agency/ Method	Ambient Air Quality Standard	Measured Concentration by Year			Exceedances by Year		
					2021	2022	2023	2021	2022	2023
Ozone (O_3)										
Mission Viejo Monitoring Station (2021–2022); Anaheim – Pampas Lane Monitoring Station (2023)	ppm	Maximum 1-hour concentration	California	0.12	0.105	0.110	0.089	2	1	0
	ppm	Maximum 8-hour concentration	California	0.070	0.082	0.089	0.077	8	6	2
			National	0.070	0.081	0.088	0.076	8	5	2
Nitrogen Dioxide (NO_2)										
Anaheim – Vermont Street Monitoring Station	ppm	Maximum 1-hour concentration	California	0.18	0.072	0.062	0.058	0	0	0
			National	0.100	0.072	0.062	0.058	0	0	0
	ppm	Annual concentration	California	0.030	0.019	0.018	0.19	0	0	0
			National	0.053	0.019	0.019	0.20	0	0	0
Carbon Monoxide (CO)										
Mission Viejo Monitoring Station (2021–2022); Anaheim – Vermont Street Monitoring Station (2023)	ppm	Maximum 1-hour concentration	California	20	N/A	N/A	N/A	0	0	0
			National	35	1.0	1.2	2.3	0	0	0
	ppm	Maximum 8-hour concentration	California	9.0	N/A	N/A	N/A	0	0	0
			National	9	0.8	1.0	1.9	0	0	0
Sulfur Dioxide (SO_2)										
Signal Hill Monitoring Station	ppm	Maximum 1-hour concentration	National	0.075	0.059	0.061	0.023	N/A	N/A	N/A
	ppm	Maximum 24-hour concentration	National	0.14	0.013	0.015	0.052	0	0	0

Table 4.3-3. Local Ambient Air Quality Data

Monitoring Station	Unit	Averaging Time	Agency/ Method	Ambient Air Quality Standard	Measured Concentration by Year			Exceedances by Year		
					2021	2022	2023	2021	2022	2023
	ppm	Annual concentration	National	0.030	0.005	0.005	0.003	0	0	0
Coarse Particulate Matter (PM_{10})[a]										
Mission Viejo Monitoring Station (2021–2022); Anaheim – Pampas Lane Monitoring Station (2023)	µg/m³	Maximum 24-hour concentration	California	50	34.6	30.4	99.4	0	0	1
			National	150	35.2	31.0	97	0	0	0
	µg/m³	Annual concentration	California	20	15.8	ND	ND	ND	ND	ND
Fine Particulate Matter ($PM_{2.5}$)[a]										
Mission Viejo Monitoring Station (2021–2022); Anaheim – Pampas Lane Monitoring Station (2023)	µg/m³	Maximum 24-hour concentration	National	35	32.6	22.6	45.6	0	0	1
	µg/m³	Annual concentration	California	12	8.3	ND	ND	N/A	N/A	N/A
			National	9.0	9.3	ND	9.5	N/A	N/A	N/A

Sources: CARB 2025q; EPA 2025.
Notes: ppm = parts per million by volume; N/A = not available; µg/m³ = micrograms per cubic meter; ND = insufficient data available to determine the value.
Data taken from CARB iADAM (http://www.arb.ca.gov/adam) and EPA AirData (http://www.epa.gov/airdata/) represent the highest concentrations experienced over a given year. Exceedances of national and California standards are only shown for O_3 and particulate matter. Daily exceedances for particulate matter are estimated days because PM_{10} and $PM_{2.5}$ are not monitored daily. All other criteria pollutants did not exceed national or California standards during the years shown. There is no national standard for 1-hour ozone, annual PM_{10}, or 24-hour SO_2, nor is there a state 24-hour standard for $PM_{2.5}$.

[a] Measurements of PM_{10} and $PM_{2.5}$ are usually collected every 6 days and every 1 to 3 days, respectively. The number of days exceeding the standards is a mathematical estimate of the number of days concentrations would have been greater than the level of the standard had each day been monitored.

City of Irvine General Plan

The Irvine 2045 General Plan (City of Irvine 2024a) includes various policies related to improving air quality (both directly and indirectly). Applicable goals and policies include the following:

Environmental Protection and Climate Action Element

Goal 4: Improve air quality and protect public health in Irvine by reducing air pollution and minimizing harmful emissions from various sources.

Policy A: Promote the adoption of low-emissions and alternative fuel vehicles through incentives, rebates, and infrastructure development.

Policy C: Encourage the use of clean and renewable energy sources, such as solar, wind, and geothermal, to reduce emissions from energy generation and promote a transition away from fossil fuels.

Goal 10: Continue to promote sustainable land use practices in Irvine.

Policy C: Integrate green infrastructure elements, such as parks, greenways, and open spaces, into land use planning and development projects to manage stormwater runoff, improve air and water quality, and enhance ecological connectivity and biodiversity.

Land Use Element

Goal 1: Preserve and strengthen Irvine's identity as a diverse and innovative community.

Policy B: Use building masses and landscaping to create a sense of unity throughout the City.

Policy C: Ensure energy efficiency and low maintenance needs through land use planning, building design, and landscaping design.

Policy H: Incorporate the following components in each residential planning area: a mixture of housing types and densities, a variety of public and private facilities, activity nodes; and open space areas.

City of Irvine Strategic Implementation Plan

As a part of the 2045 General Plan, the City's Strategic Implementation Plan lists goals and actionable measures to improve sustainability within the City, including measures associated with improving local air quality. Applicable policies include the following (City of Irvine 2024b):

Goal 4: Improve air quality and protect public health in Irvine by reducing air pollution and minimizing harmful emissions from various sources.

Objective EPCA-4: Achieve and maintain compliance with air quality standards set by regulatory agencies, such as the Environmental Protection Agency (EPA) and the California Air Resources Board (CARB), to ensure a healthy and sustainable environment for residents.

Policy 1: Implement measures to reduce emissions from vehicles, including promoting the use of electric vehicles (EVs), enhancing public transportation infrastructure, encouraging active transportation modes such as walking, and enforcing air quality regulations and permit requirements for businesses to ensure compliance with emission limits and standards.

Policy 2: Raise awareness about the importance of air quality and its impact on public health through educational campaigns, workshops, and community events.

An analysis of the project's potential to conflict with applicable goals and policies of the City's General Plan is included in Section 4.11, Land Use and Planning, of this EIR.

4.3.3 Thresholds of Significance

The significance criteria used to evaluate the project impacts to air quality are based on Appendix G of the CEQA Guidelines. According to Appendix G, a significant impact related to air quality would occur if the project would:

1. Conflict with or obstruct implementation of the applicable air quality plan.
2. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.
3. Expose sensitive receptors to substantial pollutant concentrations.
4. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

The Methodology subsection below details the specific thresholds and methodology used for each CEQA threshold.

Methodology

Threshold 1: Conflict with or Obstruction of Implementation of Applicable Air Quality Plan

Per the City's guidance and pursuant to SCAQMD's 1993 CEQA Handbook, a project would be inconsistent with the AQMP if it would:

- Contribute to an increase in frequency or severity of air quality violations; or
- Delay attainment of the California or National AAQS [CAAQS or NAAQS].

As detailed by the City in their CEQA Manual, for land use development projects, a consistency analysis with the AQMP starts with an evaluation of the land use designations on site. The regional emissions inventory for the SCAB is compiled by SCAQMD and SCAG. Regional population, housing, and employment projections developed by SCAG are based, in part, on the City's General Plan land use designations. The emissions inventory in the AQMP is based on these projections. These demographic trends are incorporated into the RTP/SCS, compiled by SCAG, to determine priority transportation projects and determine vehicle miles traveled within the SCAG region. Project-related changes in the existing population, housing, or employment growth projections may affect SCAG's demographic projections and consequently the assumptions in SCAQMD's AQMP. Per the City's adopted CEQA Manual, the project's potential to obstruct implementation of the AQMP should follow the tiered screening approach detailed below (City of Irvine 2020):

- **Tier 1:** Is the project consistent with the General Plan land use designation? If yes, the project is consistent with the AQMP; if no, proceed to Tier 2.

- **Tier 2:** Is the project a regionally significant project under SCAG's intergovernmental review criteria that could exceed regional employment, population, and housing projections within the region? If no, the project is consistent with the AQMP. This is because only projects that result in macro-level shifts in employment, population, or housing have the potential to alter the demographic projections of SCAG. If yes, proceed to Tier 3.
- **Tier 3:** Does the project generate emissions that exceed the SCAQMD regional or localized significance thresholds? If yes, the project would be inconsistent with the AQMP; if no, the project is consistent with the AQMP.

Threshold 2: Increase of Criteria Pollutant for Which Project Region is Non-attainment

By its nature, air pollution is largely a cumulative impact. However, project-level thresholds of significance for criteria pollutants are used in the determination of whether a project's individual emissions would have a cumulatively considerable contribution on air quality. If the project's emissions would exceed the applied significance thresholds, it would have a cumulatively considerable contribution. Conversely, if the emissions from development of the project would not exceed the project-specific thresholds, it is generally not considered to result in a cumulatively significant impact (SCAQMD 2003a). Accordingly, to evaluate the potential for the project to result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable NAAQS or CAAQS, this analysis applies SCAQMD's criteria pollutants thresholds.

SCAQMD has established Air Quality Significance Thresholds, as revised in March 2023, that set forth quantitative emission significance thresholds below which a project would not have a significant impact on ambient air quality under existing and cumulative conditions (SCAQMD 2023a). The quantitative air quality analysis provided herein applies the SCAQMD thresholds identified in Table 4.3-4 to determine the potential for the project to result in a significant impact under CEQA. The analysis herein therefore adheres to SCAQMD's guidelines, as recommended by the City.

Table 4.3-4. SCAQMD Air Quality Significance Thresholds

Criteria Pollutants Mass Daily Thresholds		
Pollutant	**Construction (Pounds per Day)**	**Operation (Pounds per Day)**
VOCs	75	55
NO_x	100	55
CO	550	550
SO_x	150	150
PM_{10}	150	150
$PM_{2.5}$	55	55
Lead[a]	3	3
TACs and Odor Thresholds		
TACs[b]	Maximum incremental cancer risk ≥ 10 in 1 million Chronic and acute hazard index ≥ 1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	

Source: SCAQMD 2023a.
Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; TAC = toxic air contaminant; SCAQMD = South Coast Air Quality Management District.
[a] The phaseout of leaded gasoline started in 1976. Since gasoline no longer contains lead, the project is not anticipated to result in impacts related to lead; therefore, it is not discussed in this analysis.
[b] TACs include carcinogens and noncarcinogens.

Construction Emissions

The California Emissions Estimator Model (CalEEMod) 2022 Version 2022.1.1.29 was used to estimate emissions from construction and operation of the project (CAPCOA 2022). CalEEMod is a statewide computer model developed in cooperation with air districts throughout the state to quantify criteria air pollutant and GHG emissions associated with construction activities and operation of a variety of land use projects, such as residential, commercial, and industrial facilities. CalEEMod input parameters, including the land use type used to represent the project and its size, construction schedule, and anticipated use of construction equipment, were based on information provided by the applicant/City or default model values if project specifics were unavailable.

The proposed project, which includes the development of approximately 1,360 two- and three-story attached and detached homes, extension of the Jeffrey Open Space Trail, and creation of parks, would be constructed in multiple phases over a total of 74 months from 2026 to 2032. Given the size of the proposed project, grading and implementing development activities across the project site would likely occur concurrently with multiple development areas under construction at the same time and built in response to market demands and according to logical and orderly completion of the project's streets, public utilities, and infrastructure.

Project Phasing

The project's land development, which would be completed in a single mobilization, would start with the mass grading of the project site, which is estimated to take 5 months. From start to completion, the entire land development phase, including on-site and off-site improvements, internal roadways, and the main recreational amenity/park, would take approximately 16 months. The housing would be constructed in three overlapping phases, with construction in the center of the site first (Phase 1), then construction in the southern portion of the site (Phase 2), and finally construction in the northern portion of the site (Phase 3). Phase 1 is anticipated to be approximately 29 months, Phase 2 would take approximately 46 months, and Phase 3 would be completed over 52 months. The affordable housing parcels would be ready for construction at the completion of the land development phase. The affordable housing is anticipated to be completed during Phases 2 and 3 of development, with each parcel taking approximately 24 months to complete.

Construction Details

Construction scenario details, including phase start and end date, vehicle trips (worker, haul truck, vendor truck, and on-site trucks) and equipment (type, quantity, and usage hours per day) are presented in a separate table. Tables 4.3-5 through 4.3-7 present the construction scenario details used for estimating project-generated emissions in CalEEMod. Note that the construction scenarios for Phases 1–3 are identical in the number of daily trips and equipment used per day; therefore, Table 4.3-7 reflects the scenario for all three construction phases. See Appendix B-1 for detailed construction information.

Mass grading during the land development phase would include 310,000 cubic yards of cut and 320,000 cubic yards of fill. The 10,000 net cubic yards of import material would require a total of 625 haul truck trips for export. Vendor trucks listed in earthmoving phases (i.e., Site Preparation, Grading, Utilities) represent water trucks.

Table 4.3-5. CalEEMod Construction Land Use Development Summary

CalEEMod Land Use Type	CalEEMod Land Use Subtype	Land Use Amount (Size)	Land Use Size Metric	Building Square Footage	Land Use Acreage
Residential	Single Family Housing	408	DU	1,499,880	39.22
Residential	Condos/Townhouses	612	DU	648,720	16.96
Residential	Low-Rise Apartments	340	DU	360,400	9.42
Recreational	Health Club[a]	6.68	KSF	6,680	0.15
Recreational	Swimming Pool	3.216	KSF	3,216	0.07
Parking	Other Asphalt Surfaces	16.2	Acre	N/A	16.2
Recreational	City Park	8.7	Acre	N/A	8.7

Notes: CalEEMod = California Emissions Estimator Model; DU = dwelling unit; KSF = thousand square feet; N/A not applicable.
[a] "Health Club" was the CalEEMod land use subtype used to reflect the clubhouse/amenity building.

Table 4.3-6. Land Development Phase Construction Scenario Information

Construction Phase	Start Date	End Date	Equipment					
			Average Daily Worker Trips	Average Daily Vendor Truck Trips	Average Daily Haul Truck Trips	Equipment Type	Quantity	Usage Hours
Demolition	4/6/2026	4/24/2026	20	0	10	Concrete/industrial saws	2	8
						Rubber-tired loaders	2	8
						Excavators	1	8
Mass Grading	4/20/2026	9/4/2026	30	4	14	Crawler tractors	3	8
						Tractors/loaders/backhoes	2	8
						Excavators	1	8
						Scrapers	6	8
On-Site Utilities	9/7/2026	4/2/2027	24	0	0	Excavators	2	8
						Skid steer loaders	1	8
						Tractors/loaders/backhoes	3	8
Paving	1/4/2027	2/12/2027	24	0	0	Pavers	1	8
						Rollers	1	8
						Paving equipment	2	8
						Graders	2	8
Building Construction – Amenity/Clubhouse Building	1/20/2027	9/30/2027	80	2	0	Forklifts	3	8
						Air compressors	3	8
Architectural Coating – Amenity/Clubhouse Building	6/14/2027	6/25/2027	12	2	0	Air compressors	2	8
Off-site Improvements	4/6/2026	1/8/2027	14	0	2	Excavators	1	8
						Rubber-tired loaders	2	8
Landscaping	4/5/2027	8/6/2027	20	0	2	Tractors/loaders/backhoes	2	8

Table 4.3-7. Phase 1/2/3 Construction Scenario Information

Construction Phase	Total Phase Length	Equipment					
		Average Daily Worker Trips	Average Daily Vendor Truck Trips	Average Daily Haul Truck Trips	Equipment Type	Quantity	Usage Hours
Rough Grading	Phase 1 – 4 months Phase 2 – 8 months Phase 3 – 10 months	28	4	0	Tractors/loaders/ backhoes	2	8
					Scrapers	4	8
					Plate compactors	1	8
					Graders	1	8
In-Tract Improvements (On-Site Utilities)	Phase 1 – 8 months Phase 2 – 16 months Phase 3 – 20 months	16	4	0	Excavators	2	8
					Skid steer loaders	1	8
					Tractors/loaders/ backhoes	3	8
In-Tract Paving	Phase 1 – 2 months Phase 2 – 4 months Phase 3 – 5 months	36	2	0	Pavers	1	8
					Rollers	2	8
					Scrapers	2	8
					Graders	2	8
					Rubber-tired loaders	2	8
Site Preparation and Finish Grading for Housing Construction	Phase 1 – 2 months Phase 2 – 4 months Phase 3 – 5 months	16	4	2	Tractors/loaders/ backhoes	7	8
Landscaping	Phase 1 – 6 months Phase 2 – 12 months Phase 3 – 15 months	20	0	0	Tractors/loaders/ backhoes	2	8
Building Construction (includes Architectural Coating)	Phase 1 – 23 months Phase 2 – 46 months Phase 3 – 51 months	160	2	0	Forklifts	6	8
					Air compressors	6	8

The project would be required to comply with SCAQMD Rule 403 to control dust emissions during any dust-generating activities. SCAQMD Rule 403 requires implementation of various best available fugitive dust control measures for different sources for all construction activity sources within its jurisdictional boundaries. Dust control measures include, but are not limited to, maintaining stability of soil through pre-watering of site prior to clearing, grubbing, cut and fill, and earthmoving activities; stabilizing soil during and immediately after clearing, grubbing, cut and fill, and other earthmoving activities; stabilizing backfill during handling and at completion of activity; and pre-watering material prior to truck loading and ensuring that freeboard exceeds 6 inches. While SCAQMD Rule 403 requires fugitive dust control beyond watering control measures, compliance with Rule 403 is represented in CalEEMod by assuming twice daily watering of active sites (61% reduction in PM_{10} and $PM_{2.5}$ [CAPCOA 2022]).

The project would also be required to comply with SCAQMD Rule 1113 (Architectural Coatings), which requires that the construction contractor shall procure architectural coatings that comply with the SCAQMD grams per liter VOC limits as identified by application type (paint and other finishes) to reduce associated VOC emissions.

Three separate CalEEMod runs were performed for the construction phase to address the various potential impacts evaluated herein:

1. Base CalEEMod run for mass (regional) emissions that includes all on-site and off-site sources (see Appendix B-1, CalEEMod Output Files).
2. Adjusted CalEEMod run for the localized significance threshold (LST) analysis that includes all on-site sources and only a small portion of all off-site vehicles. Because the LST analysis is focused on localized emissions of criteria air pollutants, 0.25 miles for off-site vehicle travel for worker vehicles, vendor trucks, and haul trucks trips were assumed. This is conservative as the SCAQMD LST methodology indicates that "off-site mobile emissions from the project should not be included in the emissions compared to the LSTs" (SCAQMD 2008) (see Appendix B-1).
3. Adjusted CalEEMod run for the HRA analysis that includes all on-site sources and only a small portion of diesel-fueled off-site vehicles. Because the HRA analysis is focused on localized emissions of TACs, specifically DPM, 0.25 miles for off-site vehicle travel for vendor trucks and haul trucks trips were assumed, as heavy-heavy duty trucks (typical of haul trucks) are generally diesel-fueled and medium duty trucks (typical of vendor trucks) are generally diesel- or gasoline-fueled, whereas worker trucks as generally gasoline-fueled (see Appendix B-2, Construction Health Risk Assessment).

Operations

Emissions from operation of the total buildout of the proposed project were estimated using CalEEMod Version 2022.1.1.29 for operational year 2032 representing full buildout. In addition to the total project buildout scenario, two interim operational scenarios were analyzed after completion of Phase 1 and Phase 2, respectively. These interim operational scenarios are further detailed under the "Combined Construction and Operational Emissions" header below. All three operational scenarios are listed below, with the land use information for each phase shown in Table 4.3-8:

- Phase 1 Interim Operational Phase (2029)
- Phase 2 Interim Operational Phase (2031)
- Total Project Buildout Operations (2032)

Table 4.3-8. Land Use Development Summary for the Project under the Operational Scenarios

Project Component	CalEEMod Land Use Type	Land Use Amount (Size)	Building Square Footage	Population
Phase 1 Interim Operations (2029)				
Residential	Single Family Housing	123 DU	468,713	338
Residential	Condo/Townhouses	185 DU	312,475	507
Residential	Low-Rise Apartments	103 DU	112,625	282
Recreational	City Park	16.2 Acres	0	—
Recreational	Clubhouse/Amenity Building	6.68 KSF	6,680	—
Recreational	Swimming Pools/Spa	3.22 KSF	3,216	—
Circulation	Roadways	8.7 Acres	0	—
Phase 2 Interim Operations (2031)				
Residential	Single Family Housing	260 DU	983,153	709
Residential	Condo/Townhouses	389 DU	425,228	1,063
Residential	Low-Rise Apartments	216 DU	236,238	591
Recreational	City Park	16.2 Acres	0	—
Recreational	Clubhouse/Amenity Building	6.68 KSF	6,680	—
Recreational	Swimming Pools/Spa	3.22 KSF	3,216	—
Circulation	Roadways	8.7 Acre	0	—
Full Buildout Operations (2032)				
Residential	Single Family Housing	408 DU	1,499,880	1,081
Residential	Condo/Townhouses	612 DU	648,720	1,622
Residential	Low-Rise Apartments (affordable housing)	340 DU	360,400	901
Recreational	City Park	16.2 Acres	0	—
Recreational	Amenity Building	6.68 KSF	6,680	—
Recreational	Swimming Pools/Spa	3.22 KSF	3,216	—
Circulation	Roadways	8.7 Acres	0	—

Source: Appendix B-1.
Notes: CalEEMod = California Emissions Estimator Model; DU = dwelling unit; KSF = 1,000 square feet.

Area Sources

CalEEMod was used to estimate operational emissions from area sources, including emissions from consumer product use, architectural coatings, and landscape maintenance equipment.

Consumer products are chemically formulated products used by household and institutional consumers, including detergents; cleaning compounds; polishes; floor finishes; cosmetics; personal care products; home, lawn, and garden products; disinfectants; sanitizers; aerosol paints; and automotive specialty products. Other paint products, furniture coatings, or architectural coatings are not considered consumer products (CAPCOA 2022). Consumer product VOC emissions are estimated in CalEEMod based on the floor area of residential and nonresidential buildings and on the default factor of pounds of VOCs per building square foot per day. For parking lot land uses,

CalEEMod estimates VOC emissions associated with use of parking surface degreasers based on a square footage of parking surface area and pounds of VOCs per square foot per day.

VOC off-gassing emissions result from evaporation of solvents contained in surface coatings such as in paints and primers used during building maintenance. CalEEMod calculates the VOC evaporative emissions from application of residential and nonresidential surface coatings based on the VOC emission factor, the building square footage, the assumed fraction of surface area, and the reapplication rate. For the unmitigated scenario, CalEEMod assumes a default value of 50 grams/liter of residential interior and exterior paints, and 100 grams/liter of nonresidential interior and exterior VOCs, and 100 grams/liter for parking lot paint VOCs. The model default reapplication rate of 10% of area per year is used. Consistent with CalEEMod default values, the residential surface area for painting equals 2.7 times the floor square footage, with 75% assumed for interior coating and 25% assumed for exterior surface coating. For nonresidential land uses (e.g., recreational amenities), CalEEMod default values indicate that the surface area for painting equals 2.0 times the floor square footage, with 75% assumed for interior coating and 25% assumed for exterior surface coating.

Landscape maintenance includes fuel combustion emissions from equipment such as lawn mowers, rototillers, shredders/grinders, blowers, trimmers, chainsaws, and hedge trimmers. The emissions associated with landscape equipment use are estimated based on CalEEMod default values for emission factors (grams per residential dwelling unit per day and grams per square foot of nonresidential building space per day) and number of summer days (when landscape maintenance would generally be performed) and winter days (CAPCOA 2022).

Energy Sources

As represented in CalEEMod, energy sources include emissions associated with building electricity and natural gas usage. Electricity use would contribute indirectly to criteria air pollutant emissions; however, the emissions from electricity use are only quantified for GHGs in CalEEMod, since criteria pollutant emissions occur at the site of the power plant, which is typically off site.

As described in Section 4.3.4, Project Design Features, through incorporation of PDF-AQ/GHG-1, All-Electric Residential Development, into the project design, the project is committed to all-electric appliances within residences; therefore, the project would only include natural gas use for the nonresidential land uses (recreational amenity building and associated swimming pools/spa). CalEEMod default values for energy consumption for each land use were applied for the project analysis. The energy use from residential land uses is calculated in CalEEMod based on the Residential Appliance Saturation Survey. The energy use from nonresidential land uses is calculated in CalEEMod based on the California Commercial End-Use Survey database, with the exception of the natural gas energy associated with the recreational pools, which was calculated outside of CalEEMod based on a Southern California Edison study analyzing the average pool heater size.

Mobile Sources

Mobile sources for the proposed project would be motor vehicles (i.e., automobiles and light-duty trucks) traveling to and from the project site. Motor vehicles may be fueled with gasoline, diesel, or alternative fuels. Trip generation rates match the proposed project's trip generation rates presented in the project's Comprehensive Traffic Study by LSA (Appendix I). CalEEMod default data, including emissions factors, were conservatively used for the model inputs to estimate daily emissions from proposed vehicular sources. Emission factors representing the vehicle mix and emissions for 2032 were used to estimate emissions associated with full buildout of the proposed project.

Combined Construction and Operational Emissions

Project construction would be phased, with the first phase being land development of the site, including mass grading, utilities, and the construction of park areas and internal roadways, as well as off-site improvements. Following land development, the residential parcels would be developed in three overlapping phases. Construction of Phase 1 is anticipated to conclude in 2029, and Phase 2 construction would conclude in 2031. Because the residential units constructed during Phase 1 would be operational in 2029 (and Phase 2 in 2031), there would be an overlap of construction and operation for the project. To capture the overlapping emissions, two interim scenarios were analyzed. The Phase 1 interim scenario in 2029, following the completion of Phase 1 construction, would represent emissions from the operation of Phase 1 residential units and the construction of Phase 2. The Phase 2 interim scenario in 2031, following the completion of Phase 2 construction, would represent emissions from the operation of Phase 2 residential units and the construction of Phase 3. The operational emissions would increase from 2029 through 2032 as more dwelling units become operational. While not established in written SCAQMD guidance including the 1993 Air Quality Handbook or the City's thresholds, SCAQMD has recommended a calculation of combined construction and operational emissions, which is provided herein.

Threshold 3: Exposure of Sensitive Receptors to Substantial Pollutant Concentrations

The potential for the project to expose receptors to substantial pollutant concentrations includes an LST analysis, a quantitative construction HRA, and a qualitative CO hotspot analysis.

Localized Significance Thresholds

In addition to the above-listed regional emission-based thresholds, the City's guidance reflects SCAQMD's recommendation to evaluate localized air quality impacts to sensitive receptors in the immediate vicinity of the proposed project as a result of construction activities (City of Irvine 2020). Such an evaluation is referred to as an LST analysis. For project sites of 5 acres or less, SCAQMD LST Methodology (SCAQMD 2008) includes lookup tables that can be used to determine the maximum allowable daily emissions that would satisfy the localized significance criteria (i.e., the emissions would not cause an exceedance of the applicable concentration limits for NO_2, CO, PM_{10}, and $PM_{2.5}$) without performing project-specific dispersion modeling.

The LST significance thresholds for NO_2 and CO represent the allowable increase in concentrations above background levels in the vicinity of a project that would not cause or contribute to an exceedance of the relevant ambient air quality standards, while the threshold for PM_{10} represents compliance with Rule 403 (Fugitive Dust). The LST significance threshold for $PM_{2.5}$ is intended to ensure that construction emissions do not contribute substantially to existing exceedances of the $PM_{2.5}$ ambient air quality standards. The allowable emission rates depend on the following parameters:

- Source-receptor area in which the project is located
- Size of the project site
- Distance between the project site and the nearest receptor (any areas where persons can be situated for an hour or longer at a time)

The project site is located in Source-Receptor Area 20 (Central Orange County Coastal). The SCAQMD provides guidance for applying CalEEMod to the LSTs. LST pollutant screening level concentration data are currently published for 1-, 2-, and 5-acre sites for varying distances. The maximum number of acres disturbed on the peak day was estimated using the Fact Sheet for Applying CalEEMod to Localized Significance Thresholds (SCAQMD 2014). During grading activities, fugitive dust can be generated from the movement of dirt on the project site. CalEEMod estimates dust from dozers moving dirt around, dust from graders or scrapers leveling the land, and loading or unloading dirt

into haul trucks. Each of those activities is calculated differently in CalEEMod, based on the number of acres traversed by the grading equipment. Only some pieces of equipment generate fugitive dust in CalEEMod. The CalEEMod manual identifies various equipment and the acreage disturbed in an 8-hour day. For example:

- Crawler tractors, graders, and rubber-tired dozers: 0.5 acres per 8-hour day
- Scrapers: 1 acre per 8-hour day

The LST lookup tables that can be used to determine the maximum allowable daily emissions are provided at increments of 1 acre, 2 acres, and 5 acres. Based on the number of crawler tractors and scrapers during the mass grading phase and using the Fact Sheet for Applying CalEEMod to Localized Significance Thresholds guidance described above, the project site was calculated to use a 5-acre site LST for the LST analysis. Therefore, the analysis applies the LSTs for a 5-acre disturbance area, which is presented in Table 4.3-9.

The LST values from the SCAQMD lookup tables for Source-Receptor Area 20 (Central Orange County Coastal) are shown in Table 4.3-9.

Table 4.3-9. Localized Significance Thresholds for Source-Receptor Area 20

Pollutant	Threshold by Acres Disturbed per Day (Pounds per Day)
Localized Significance Thresholds for Peak Construction	
NO_2	197
CO	1,711
PM_{10}	14
$PM_{2.5}$	9

Source: SCAQMD 2008.
Notes: NO_2 = nitrogen dioxide; CO = carbon monoxide; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.
For all pollutants, localized significance thresholds were determined based on the values for a distance of 25 meters (82 feet) from the nearest receptor for a disturbed acreage of 5 acres.

Per the SCAQMD's Finalized LST Methodology, locations that an individual could remain for 24 hours (i.e., a residence, hospital, convalescent facility, hotel, etc.) should be considered to determine the threshold for PM_{10} and $PM_{2.5}$ (SCAQMD 2008). The closest off-site receptors to the project site's construction activity are single-family residences southwest of the project site. However, because of the nature of project buildout, there would be an overlap of phasing between construction and operational phases of the project. Therefore, the closest receptor to the project site's construction during peak activity would be on-site receptors located in the newly built residences during Phase 1. The minimum recommended distance of 25 meters has been used to determine LST receptor distance for emissions of NO_x, CO, PM_{10}, and $PM_{2.5}$. Emissions from peak construction (during construction of Phase 2 residences) are compared to LSTs for the on-site residential construction activities and represent the most conservative emissions, as construction activities at further distances would result in lower emissions due to increased distances. Based on equipment projections, the analysis applies the LSTs for a 5-acre disturbance area, which is presented in Table 4.3-9.

Construction Health Risk Assessment

A construction HRA was performed to evaluate potential health risk associated with TACs from construction of the proposed project. The HRA includes both off-site and on-site analyses as residential occupation is estimated to occur while construction will continue for the remainder of the project construction. The following discussion summarizes the dispersion modeling and HRA methodology.

The dispersion modeling of DPM was performed using the American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD), which is the model SCAQMD requires for atmospheric dispersion of emissions. AERMOD is a steady-state Gaussian plume model that incorporates air dispersion based on planetary boundary layer turbulence structure and scaling concepts, including treatment of surface and elevated sources, building downwash, and simple and complex terrain. For the proposed project, AERMOD was run with all sources emitting unit emissions (1 gram per second) to obtain the "X/Q" values. X/Q is a dispersion factor that is the average effluent concentration normalized by source strength and is used as a way to simplify the representation of emissions from many sources. The X/Q values of ground-level concentrations were determined for construction emissions using AERMOD and the maximum concentrations determined for the 1-hour and period averaging times. For the off-site analysis, sensitive receptor exposure was assumed for the entire construction schedule, approximately 6.3 years, and includes both on-site and off-site improvements. The on-site exposure assessment was assumed to conservatively start with Year 2029 construction and include emissions through the end of construction approximately 3.6 years. Principal parameters of the modeling are presented in Table 4.3-10.

Table 4.3-10. AERMOD Principal Parameters

Parameter	Details
Meteorological Data	The latest 5-year meteorological data for the John Wayne Airport station from SCAQMD were downloaded and then input into AERMOD.
Urban versus Rural Option	The urban dispersion option was selected and Orange County population for year 2023 (3,135,755 persons) was input into AERMOD.
Terrain Characteristics	Digital elevation model files were imported into AERMOD so that complex terrain features were evaluated as appropriate. Per SCAQMD guidance, the National Elevation Dataset data set with resolution of 1 arc-second was used.
Emission Sources and Release Parameters	A volume source was used to model the construction scenario. The release parameter was obtained from similar equipment.
Source Release Characterizations	Air dispersion modeling of DPM emissions was conducted assuming the equipment would operate in accordance with the modeling scenario estimated in CalEEMod (Appendix B-1). The construction equipment for on-site and off-site improvements and on-site truck travel DPM emissions were modeled as a line of adjacent volume sources across the project site to represent project construction with a release height of 5 meters, a plume height of 10 meters, and a plume width of 8 meters.
Discrete Receptors	The HRA evaluates the risk to existing residential receptors located in proximity to the project as well as on-site receptors that would be occupied prior to the end of construction. For the off-site analysis, a nested grid of receptors was utilized with 50-meter spacing out to a distance of 1,000 feet, 100-meter spacing to 2,000 meters, and 250-meter spacing to 5,000 meters from the project area was placed over a residential development to the surrounding of the project site. For the on-site analysis, receptors were placed at 50-meter spacing within the area to be occupied while construction remains.

Source: Appendix B-2.
Note: AERMOD = American Meteorological Society/Environmental Protection Agency Regulatory Model.

Dispersion model plotfiles from AERMOD were then imported into CARB's HARP2 to determine health risk, which requires peak 1-hour emission rates and annual-averaged emission rates for all pollutants for each modeling source. For the residential health risk, the HRA assumes exposure would start in the third trimester of pregnancy.

Carbon Monoxide Hotspots

Traffic-congested roadways and intersections have the potential to generate localized high levels of CO. Localized areas where ambient concentrations exceed federal and/or state standards for CO are termed "CO hotspots." The transport of CO is extremely limited, as it disperses rapidly with distance from the source. However, under certain extreme meteorological conditions, CO concentrations near a congested roadway or intersection may reach unhealthy levels, affecting sensitive receptors. The assessment of the potential for the project to result in a CO hotspot is based on comparison to the SCAQMD 2003 AQMP CO hotspot analysis.

Threshold 4: Other Emissions Such as Odors

The potential for the project to result in other emissions, specifically an odor impact (CEQA Guidelines, Appendix G, Threshold 4), is based on the project's anticipated construction activity, land use types, and the potential for the project to create an odor nuisance pursuant to SCAQMD Rule 402.

4.3.4 Project Design Features

The project design would incorporate the following PDFs to reduce criteria air pollutant emissions. The project would also implement PDFs that reduce other potential environmental impacts and thereby achieve direct or indirect air quality, GHG emissions, and energy co-benefits.

PDF-AQ/GHG-1 All-Electric Residential Development. All proposed residential development would use all-electric appliances and end uses (including heating, ventilation, and air conditioning; water heating; and induction cooking).

PDF-AQ/GHG-2 Energy Efficient Appliances Within Residential Development. During construction activities, the project applicant or its designee would install ENERGY STAR®–rated appliances within the residential land uses, including but not limited to refrigerators, dishwashers, clothes washers, and ceiling fans.

PDF-AQ/GHG-3 Exceedance of Title 24, Part 6 Standards. The project would exceed the requirements of the 2022 California Code of Regulations Title 24, Part 6, Building Energy Efficiency Standards by 10%.

4.3.5 Impacts Analysis

1. Would the project conflict with or obstruct implementation of the applicable air quality plan?

Significant and Unavoidable Impact. As previously discussed, the project is located within the SCAB under the jurisdiction of SCAQMD, which is the local agency responsible for administration and enforcement of air quality regulations for the area.

SCAQMD has established criteria for determining consistency with the AQMP, currently the 2022 AQMP, in Chapter 12, Sections 12.2 and 12.3, in the SCAQMD CEQA Air Quality Handbook (SCAQMD 1993). As discussed in Section 4.3.3, Thresholds of Significance, the City, in its CEQA Manual, includes its own guidance for project consistency with the SCAQMD AQMP (City of Irvine 2020), including the following tiered screening approach:

- **Tier 1:** Is the project consistent with the General Plan land use designation? If yes, the project is consistent with the AQMP; if no, proceed to Tier 2.
- **Tier 2:** Is the project a regionally significant project under SCAG's intergovernmental review criteria that could exceed regional employment, population, and housing projections within the region? If no, the project is consistent with the AQMP. This is because only projects that result in macro-level shifts in employment, population, or housing have the potential to alter the demographic projections of SCAG. If yes, proceed to Tier 3
- **Tier 3:** Does the project generate emissions that exceed the SCAQMD regional or localized significance thresholds? If yes, the project would be inconsistent with the AQMP; if no, the project is consistent with the AQMP.

Addressing Tier 1, the current General Plan designation for the project site is Recreation. Therefore, the project would require a General Plan Amendment to change the land use designation on the site to Medium Density and Medium High Density Residential. As such, the General Plan Amendment would result in residential units at the project site; therefore, the project is not consistent with the General Plan land use designation, and the consistency analysis would proceed to Tier 2.

Regarding Tier 2, SCAG relies on the definition of a project of regional significance stated in CEQA Section 15206. CEQA Section 15206 determines that a project is of regional significance if it meets any of the criteria described therein, including if a project has more than 500 dwelling units. A project that meets any of the criteria qualify as "a project [that] has the potential for causing significant effects on the environment extending beyond the city or county in which the project would be located… [such as] generating significant amounts of traffic or interfering with the attainment or maintenance of state or national air quality standards." The project proposes approximately 1,360 total dwelling units, which designates the project as with the potential to affect the environment extending beyond the City or County. Therefore, the project would be a regionally significant project under SCAG's review criteria that could exceed regional employment, population, and housing projections within the region, and the consistency analysis would proceed to Tier 3.

Addressing Tier 3, Section 4.3.5(2) includes quantification of the criteria air pollutant emissions generated by the proposed project and applies the SCAQMD mass daily construction and operational thresholds to evaluate the project's potential impacts with regards to cumulatively considerable net increase of a nonattainment criteria pollutant. As discussed below, emissions resulting from project construction would be below SCAQMD mass daily construction thresholds after inclusion of Mitigation Measure (MM) AQ-1 through MM-AQ-8, as shown in Table 4.13-11 and Table 4.3-12 (refer to Section 4.3.6 for the text of all mitigation measures specifically for air quality). However, criteria air pollutant emissions resulting from project operation would exceed the criteria pollutant thresholds established by SCAQMD for VOC emissions, as demonstrated in Table 4.3-13. Even with implementation of all applicable mitigation measures, the project would exceed the mass daily regional operational thresholds. As such, the project's criteria air pollutant emissions would be significant and unavoidable, as detailed in Section 4.3.5(2), and the project

would have the potential to increase the frequency or severity of a violation in the federal or state ambient air quality. Because the project would generate emissions that exceed the SCAQMD regional thresholds, the project would be inconsistent with the AQMP. Because the project would be inconsistent with the AQMP, according to the City's tiered approach, the project would conflict with the applicable air quality plan, resulting in a significant and unavoidable impact.

2. Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

Construction Emissions

Less-Than-Significant Impact with Mitigation Incorporated. Proposed construction activities would result in the temporary addition of pollutants to the local airshed caused by on-site sources (i.e., off-road construction equipment, soil disturbance, and VOC off-gassing from architectural coatings and asphalt pavement application) and off-site sources (i.e., on-road haul trucks, delivery trucks, and worker vehicle trips). Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation, and, for dust, the prevailing weather conditions. Therefore, such emissions levels can only be estimated, with a corresponding uncertainty in precise ambient air quality impacts.

As discussed in Section 4.3.3, criteria air pollutant emissions associated with temporary construction activity were quantified using CalEEMod based on the construction information presented in Tables 4.3-5 through 4.3-7.

Implementation of the project would generate criteria air pollutant emissions from entrained dust, off-road equipment, vehicle emissions, architectural coatings, and asphalt pavement application. Entrained dust results from the exposure of earth surfaces to wind from the direct disturbance and movement of soil, resulting in PM_{10} and $PM_{2.5}$ emissions. The project will be required to comply with SCAQMD Rule 403 to control dust emissions generated during the grading activities. Standard construction practices that were assumed to be employed to reduce fugitive dust emissions, and were quantified in CalEEMod, include watering of the active sites three times per day depending on weather conditions. Internal combustion engines used by construction equipment, haul trucks, vendor trucks (i.e., delivery trucks), and worker vehicles would result in emissions of VOCs, NO_x, CO, PM_{10}, and $PM_{2.5}$. The application of architectural coatings, such as exterior application/interior paint and other finishes, and application of asphalt pavement would also produce VOC emissions; however, the contractor will be required to procure architectural coatings from a supplier in compliance with the requirements of SCAQMD Rule 1113 (Architectural Coatings).

Construction emissions were calculated for the estimated worst-case day over the construction period associated with each phase and reported as the maximum daily emissions estimated during each year of construction (2026 through 2032). Table 4.3-11 presents the estimated maximum daily construction emissions generated during construction of the project. "Summer" emissions are representative of the conditions that may occur during the O_3 season (May 1 to October 31), and "winter" emissions are representative of the conditions that may occur during the balance of the year (November 1 to April 30). Details of the emission calculations are provided in Appendix B-1.

Table 4.3-11. Estimated Maximum Daily Construction Criteria Air Pollutant Emissions – Unmitigated

Year	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Maximum Pounds Per Day					
Summer						
2026	6.92	59.89	67.90	0.16	7.04	2.97
2027	44.78	81.16	154.89	0.19	14.72	5.00
2028	59.49	160.12	278.77	0.42	25.72	9.11
2029	59.10	118.56	231.63	0.31	18.12	6.64
2030	40.33	89.62	184.13	0.23	17.33	5.31
2031	10.44	29.34	63.93	0.07	6.85	1.97
2032	6.04	19.11	41.95	0.05	4.53	1.28
Winter						
2026	5.25	45.31	59.28	0.12	4.71	2.05
2027	34.74	89.75	163.74	0.21	13.74	5.23
2028	60.89	139.78	259.14	0.35	21.05	7.88
2029	23.42	106.00	179.63	0.30	18.54	6.08
2030	37.49	80.48	157.63	0.21	15.38	4.80
2031	16.67	50.79	106.61	0.12	11.72	3.38
2032	6.04	19.26	40.29	0.05	4.53	1.28
Maximum Daily Emissions (Summer or Winter)	**60.89**	**160.12**	**278.77**	**0.42**	**25.72**	**9.11**
SCAQMD Threshold	*75*	*100*	*550*	*150*	*150*	*55*
Threshold Exceeded?	**No**	**Yes**	**No**	**No**	**No**	**No**

Source: Appendix B-1.
Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SCAQMD= South Coast Air Quality Management District.

As shown in Table 4.3-11, although construction-related VOC, CO, SO_x, PM_{10}, and $PM_{2.5}$ emissions would not exceed the SCAQMD thresholds during construction, the project would exceed the SCAQMD mass daily thresholds for NO_x during construction. Therefore, impacts related to exceedance of SCAQMD mass daily regional thresholds during construction of the project would be potentially significant, and mitigation is required.

As provided in detail in Section 4.3.6, Mitigation Measures, Mitigation Measure (MM) AQ-1 through MM-AQ-4 would be required to reduce criteria air pollutant emissions during project construction. MM-AQ-1 (Construction Equipment Exhaust Minimization) would require the use of Tier 4 Final construction equipment for off-road equipment over 25 horsepower. MM-AQ-2 (Additional Construction Equipment Emission Reductions) would require additional equipment reductions through the use of alternatively fueled equipment over 25 horsepower where commercially available. MM-AQ-3 (Use of Super-Compliant Low-VOC Paint During Construction) would require the use of low-VOC architectural coatings during construction. Finally, MM-AQ-4 (Limit Truck and Equipment Idling During Construction) would require truck and equipment to be shut off when not in use and limit idling time during construction to 3 minutes.

Implementation of MM-AQ-2 and MM-AQ-4 would reduce emissions from construction; however, these mitigation measures are not quantified in the construction analysis and are therefore not reflected in Table 4.3-12. Details of the emission calculations are provided in Appendix B-1. It should be noted that while implementation of MM-AQ-3 is not required to reduce VOC emissions to less than significant regarding mass daily regional construction emissions, the emission reductions are quantified in Table 4.3-12 because MM-AQ-3 is necessary to reduce emissions under the combined construction and operational assessment presented in Table 4.3-15 of this section.

Table 4.3-12 presents the estimated maximum daily construction emissions generated during construction of the project with incorporation of the quantified MM-AQ-1 and MM-AQ-3.

Table 4.3-12. Estimated Maximum Daily Construction Criteria Air Pollutant Emissions – Mitigated

Year	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Maximum Pounds Per Day					
Summer						
2026	1.81	14.16	92.17	0.16	4.90	1.02
2027	38.01	37.91	159.72	0.19	12.89	3.24
2028	48.39	61.46	315.15	0.42	21.36	5.17
2029	48.40	53.58	246.87	0.31	15.58	4.02
2030	32.41	45.05	189.58	0.23	15.58	3.73
2031	7.89	18.02	61.27	0.07	6.44	1.59
2032	4.40	11.87	40.24	0.05	4.29	1.06
Winter						
2026	1.58	12.45	76.81	0.12	3.24	0.72
2027	26.67	40.02	170.02	0.21	11.20	2.93
2028	48.34	61.33	273.39	0.35	17.42	4.59
2029	15.03	41.23	208.97	0.30	15.92	3.71
2030	30.46	41.67	163.95	0.21	13.70	3.29
2031	12.31	30.41	102.41	0.12	11.00	2.73
2032	4.40	12.02	38.57	0.05	4.29	1.06
Maximum Daily Emissions (Summer or Winter)	**48.39**	**61.46**	**315.15**	**0.42**	**21.36**	**5.17**
SCAQMD Threshold	*75*	*100*	*550*	*150*	*150*	*55*
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Source: See Appendix B-1 for complete results.
Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SCAQMD= South Coast Air Quality Management District.
This analysis includes quantification of PDF-AQ/GHG-1 (All-Electric Residential Development), PDF-AQ/GHG-2 (Energy Efficient Appliances Within Residential Development), MM-AQ-1 (Construction Equipment Exhaust Minimization), and MM-AQ-3 (Use of Super-Compliant Low-VOC Paint During Construction).

Based on the emissions indicated in Table 4.3-12, after implementation of MM-AQ-1 to reduce NO_x emissions, regional construction emissions would not exceed the applicable SCAQMD thresholds of significance for any criteria pollutant.

Operational Emissions

Significant and Unavoidable Impact. Operation of the project would generate VOC, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ emissions from mobile sources, including vehicular traffic generated by residents, employees, customers, and visitors; energy sources from natural gas usage; area sources, including the use of landscaping equipment, consumer products, and hearths; and architectural coatings. As detailed in Section 4.3.3, pollutant emissions associated with long-term operations were quantified using CalEEMod using a combination of project-specific information and CalEEMod default values.

Table 4.3-13 compares the unmitigated maximum daily area, energy, and mobile source emissions associated with project operation (2032) to SCAQMD thresholds. Table 4.3-13 emissions include implementation of PDF-AQ/GHG-1 (All-Electric Residential Development) and PDF-AQ/GHG-2 (Energy Efficient Appliances Within Residential Development). Details of the emission calculations are provided in Appendix B-1.

Table 4.3-13. Estimated Maximum Daily Operation Criteria Air Pollutant Emissions – Unmitigated

Emissions Source	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
Project Buildout						
Summer						
Mobile	26.28	15.51	195.40	0.53	56.04	14.40
Area	65.33	0.72	77.79	0.00	0.04	0.03
Energy	0.12	2.16	1.81	0.01	0.16	0.16
Total Daily Summer Emissions	*91.73*	*18.38*	*275.00*	*0.55*	*56.24*	*14.59*
Winter						
Mobile	26.16	16.83	183.75	0.51	56.04	14.40
Area	58.61	0.00	0.00	0.00	0.00	0.00
Energy	0.12	2.16	1.81	0.01	0.16	0.16
Total Daily Winter Emissions	*84.89*	*18.99*	*185.56*	*0.53*	*56.20*	*14.57*
Maximum Daily Emissions (Summer or Winter)	**91.73**	**18.99**	**275.00**	**0.55**	**56.24**	**14.59**
SCAQMD Threshold	*55*	*55*	*550*	*150*	*150*	*55*
Threshold Exceeded?	**Yes**	**No**	**No**	**No**	**No**	**No**

Source: See Appendix B-1 for complete results.
Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SCAQMD = South Coast Air Quality Management District.
Emissions reflect operations including the implementation of PDF-AQ/GHG-1 and PDF-AQ/GHG-2.

As shown in Table 4.3-13, although NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ emissions would not exceed the SCAQMD thresholds during operations, the project would exceed the SCAQMD mass daily thresholds for VOC during operations. Therefore, mitigation is required to reduce impacts to less than significant.

To reduce VOC emissions during operation, the project would implement MM-AQ-5 (Low-VOC Cleaning Supplies and Paint Educational Program) and MM-AQ-6 (Use of Low-VOC Cleaning Supplies and Paint for Spaces Operated by Homeowner's Association), although these mitigation measures are not quantified in

the operations analysis. Moreover, while not quantified, MM-AQ-7 (Use of Zero-Emission Landscape Equipment for Homeowner's Association Land), MM-AQ-8 (Landscape Maintenance Equipment Emission Reduction), and MM-GHG-1 (Installation of Additional Electric Vehicle Chargers Beyond Title 24 Compliance) would also be applicable to reduce operational emissions.

As discussed in Section 4.3.2, Relevant Plans, Policies, and Ordinances, the SCAB has been designated as a national nonattainment area for O_3 and $PM_{2.5}$, and a California nonattainment area for O_3, PM_{10}, and $PM_{2.5}$. The nonattainment status is the result of cumulative emissions from various sources of air pollutants and their precursors within the SCAB, including motor vehicles, off-road equipment, and commercial and industrial facilities. Construction and operation of the project would generate VOC and NO_x emissions (which are precursors to O_3) and emissions of PM_{10} and $PM_{2.5}$. Because the project-generated operational emissions of VOC would exceed the SCAQMD thresholds, the project would result in potentially significant impact regarding a cumulatively considerable increase in emissions of nonattainment pollutants. The VOC emissions during operation of the proposed project are primarily a result of the area source emissions. Area source emissions of VOCs are a result of the anticipated use of consumer products by residents, reapplication of architectural coating over the life of the project and from the use of landscaping equipment. MM-AQ-5 through MM-AQ-8 would be implemented to reduce VOC emissions related to consumer products, architectural coatings, and landscape equipment. However, requiring that residents use low-VOC consumer products or limiting the VOC content of paints within residents' homes cannot be enforced. MM-AQ-5 through MM-AQ-8 would encourage these reductions but cannot guarantee that VOC emissions would be reduced below the SCAQMD's daily threshold. Because operational VOC emissions cannot feasibly be reduced to less than the applicable VOC threshold during operations, the project would exceed the mass daily regional operational thresholds even with implementation of all feasible mitigation.

Overlap of Construction and Operation

Significant and Unavoidable Impact. During project development, project construction activities would occur concurrently with partial project operation. Phase 1 would be operational in 2029 while Phase 2 and Phase 3 are being constructed; furthermore, Phase 2 would be operational in 2031 while Phase 3 is being constructed. Although it is not established in written SCAQMD guidance, including the 1993 Air Quality Handbook and the 2023 thresholds, a calculation of combined construction and operational emissions has been recommended by SCAQMD. Therefore, as recommended by SCAQMD, a calculation of combined construction and operational emissions is provided herein (Table 4.3-14). Table 4.3-14 presents the overlapping emissions of construction and operation under summer and winter conditions for each interim operation scenario prior to implementation of mitigation measures. Table 4.3-14 includes quantification of PDF-AQ/GHG-1 (All-Electric Residential Development) and PDF-AQ/GHG-2 (Energy Efficient Appliances Within Residential Development).

Table 4.3-14. Estimated Maximum Daily Concurrent Construction and Operational Criteria Air Pollutant Emissions – Unmitigated

Year	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Maximum Pounds Per Day					
Summer						
2029						
2029 Construction	59.10	118.56	231.63	0.31	18.12	6.64
Phase 1 Operation	29.70	7.78	89.92	0.18	17.14	4.54
Total	**88.79**	**126.34**	**321.55**	**0.49**	**35.26**	**11.18**
2031						
2031 Construction	10.44	29.34	63.93	0.07	6.85	10.44
Phase 1 + 2 Operation	60.23	12.93	178.95	0.36	35.87	9.36
Total	**70.67**	**42.27**	**242.88**	**0.43**	**42.72**	**11.33**
Winter						
2029						
2029 Construction	23.42	106.00	179.63	0.30	18.54	6.08
Phase 1 Operation	27.57	8.02	62.57	0.18	17.12	4.53
Total	**50.99**	**114.02**	**242.20**	**0.47**	**35.67**	**10.61**
2031						
2031 Construction	16.67	50.79	106.61	0.12	11.72	3.38
Phase 1 + 2 Operation	55.85	13.35	121.85	0.34	35.85	9.34
Total	**72.53**	**64.14**	**228.46**	**0.46**	**47.57**	**12.72**
Maximum Daily Emissions (Summer or Winter)	**88.79**	**126.34**	**321.55**	**0.49**	**35.67**	**12.72**
SCAQMD Mass Daily Regional Operational Thresholds	*55*	*55*	*550*	*150*	*150*	*55*
Threshold Exceeded?	**Yes**	**Yes**	**No**	**No**	**No**	**No**

Source: See Appendix B-1 for complete results.
Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SCAQMD = South Coast Air Quality Management District.
Emissions reflect operations including the implementation of PDF-AQ/GHG-1 and PDF-AQ/GHG-2.

As shown in Table 4.3-14, the combined construction and operations scenario for 2029 and 2031 would exceed the SCAQMD daily significance operational thresholds for VOC and NO_x prior to mitigation during construction activities, and therefore, the concurrent project construction and operational activities would result in emissions that would exceed the SCAQMD thresholds and result in a potentially significant impact under the 2029 and 2031 interim scenario. Several mitigation measures have been identified that would reduce the project's operational criteria air pollutant emissions to the extent feasible (see MM-AQ-5 through MM-AQ-8 and MM-GHG-1). The mitigation measures would reduce VOC emissions attributable to cleaning supplies and architectural coatings, reduce emissions attributable to the use of landscaping equipment, and reduce emissions from diesel vehicle trips by installing electric vehicle chargers. However, the emission reduction benefits of these mitigation measures are not readily quantifiable, and thus, mitigated emissions

are not presented herein. Further, the magnitude of emission reductions attributable to these mitigation measures is not expected to reduce the project's operational emissions below SCAQMD's numerical thresholds of significance, as the emission exceedances are primarily attributable to mobile sources (i.e., vehicles).

Table 4.3-15 provides the maximum construction and operational emissions combined in 2029 and 2031, including quantified reductions from implementation of PDF-AQ/GHG-1, PDF-AQ/GHG-2, MM-AQ-1 (Construction Equipment Exhaust Minimization), and MM-AQ-3 (Use of Super-Compliant Low-VOC Paint During Construction). Moreover, although not quantified in Table 4.3-15, MM-AQ-2 (Additional Construction Equipment Emission Reductions), MM-AQ-4 (Limit Truck and Equipment Idling During Construction), MM-AQ-5 (Low-VOC Cleaning Supplies and Paint Educational Program), MM-AQ-6 (Use of Low-VOC Cleaning Supplies and Paint for Spaces Operated by Homeowner's Association), MM-AQ-7 (Use of Zero-Emission Landscape Equipment for Homeowner's Association Land), MM-AQ-8 (Landscape Maintenance Equipment Emission Reduction), and MM-GHG-1 (Installation of Additional Electric Vehicle Chargers Beyond Title 24 Compliance) would also be applicable to reduce construction and operational emissions.

Table 4.3-15. Estimated Maximum Daily Concurrent Construction and Operational Criteria Air Pollutant Emissions – Mitigated

Year	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Maximum Pounds Per Day					
Summer						
2029						
2029 Construction	48.40	53.58	246.87	0.31	15.58	4.02
Phase 1 Operation	29.70	7.78	89.92	0.18	17.14	4.54
Total	**78.09**	**61.36**	**336.79**	**0.49**	**32.71**	**8.56**
2031						
2031 Construction	7.89	18.02	61.27	0.07	6.44	1.59
Phase 1 + 2 Operation	60.23	12.93	178.95	0.36	35.87	9.36
Total	**68.13**	**30.95**	**240.23**	**0.43**	**42.31**	**10.95**
Winter						
2029						
2029 Construction	15.03	41.23	208.97	0.30	15.92	3.71
Phase 1 Operation	27.57	8.02	62.57	0.18	17.12	4.53
Total	**42.60**	**49.25**	**271.54**	**0.47**	**33.04**	**8.24**
2031						
2031 Construction	12.31	30.41	102.41	0.12	11.00	2.73
Phase 1 + 2 Operation	55.85	13.35	121.85	0.34	35.85	9.34
Total	**68.17**	**43.76**	**224.27**	**0.46**	**46.85**	**12.07**
Maximum Daily Emissions (Summer or Winter)	**78.09**	**61.36**	**336.79**	**0.49**	**46.85**	**12.07**

Table 4.3-15. Estimated Maximum Daily Concurrent Construction and Operational Criteria Air Pollutant Emissions – Mitigated

Year	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Maximum Pounds Per Day					
SCAQMD Mass Daily Regional Operational Thresholds	*55*	*55*	*550*	*150*	*150*	*55*
Threshold Exceeded?	**Yes**	**Yes**	**No**	**No**	**No**	**No**

Source: See Appendix B-1 for complete results.
Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SCAQMD = South Coast Air Quality Management District.
Emissions reflect operations including the implementation of PDF-AQ/GHG-1 and PDF-AQ-2; emissions reflect construction mitigation including MM-AQ-1 and MM-AQ-3.

As shown in Table 4.3-15, overlapping emissions from the interim operational scenarios in 2029 and 2031 would exceed the numerical thresholds of significance established by the SCAQMD for emissions of VOCs and NO_x, even with the incorporation of all quantifiable mitigation measures.

Health Effects of Criteria Pollutants

The California Supreme Court's *Sierra Club v. County of Fresno* (2018) 6 Cal. 5th 502 decision (referred to herein as the Friant Ranch decision) (issued on December 24, 2018) addresses the need to correlate mass emission values for criteria air pollutants to specific health consequences and contains the following direction from the California Supreme Court: "The Environmental Impact Report (EIR) must provide an adequate analysis to inform the public how its bare numbers translate to create potential adverse impacts or it must explain what the agency *does* know and why, given existing scientific constraints, it cannot translate potential health impacts further" (italics original).

Currently, SCAQMD, CARB, and EPA have not approved a quantitative method to reliably, meaningfully, and consistently translate the mass emission estimates for the criteria air pollutants resulting from the project to specific health effects. In addition, there are numerous scientific and technological complexities associated with correlating criteria air pollutant emissions from an individual project to specific health effects or potential additional nonattainment days.

In connection with the judicial proceedings culminating in issuance of the Friant Ranch decision, the SCAQMD and the San Joaquin Valley Air Pollution Control District (SJVAPCD) filed amicus briefs attesting to the extreme difficulty of correlating an individual project's criteria air pollutant emissions to specific health impacts. Both SJVAPCD and SCAQMD have among the most sophisticated air quality modeling and health impact evaluation capabilities of the air districts in California. The key relevant points from SCAQMD and SJVAPCD briefs is summarized herein.

In requiring a health impact type of analysis for criteria air pollutants, it is important to understand how O_3 and PM are formed, dispersed, and regulated. The formation of O_3 and PM in the atmosphere, as secondary pollutants,[4] involves complex chemical and physical interactions of multiple pollutants from natural and anthropogenic sources. The O_3 reaction is self-perpetuating (or catalytic) in the presence of sunlight because NO_2 is photochemically reformed from nitric oxide. In this way, O_3 is controlled by both NO_x and

[4] Air pollutants formed through chemical reactions in the atmosphere are referred to as secondary pollutants.

VOC emissions (NRC 2005). The complexity of these interacting cycles of pollutants means that incremental decreases in one emission may not result in proportional decreases in O_3 (NRC 2005). Although these reactions and interactions are well understood, variability in emission source operations and meteorology creates uncertainty in the modeled O_3 concentrations to which downwind populations may be exposed (NRC 2005). Once formed, O_3 can be transported long distances by wind, and due to atmospheric transport, contributions of precursors from the surrounding region can also be important (EPA 2008). Because of the complexity of O_3 formation, a specific tonnage of VOCs or NO_x emitted in a particular area does not equate to a particular concentration of O_3 in that area (SJVAPCD 2015). PM can be divided into two categories: directly emitted PM and secondary PM. Secondary PM, like O_3, is formed via complex chemical reactions in the atmosphere between precursor chemicals such as SO_x and NO_x (SJVAPCD 2015). Because of the complexity of secondary PM formation, including the potential to be transported long distances by wind, the tonnage of PM-forming precursor emissions in an area does not necessarily result in an equivalent concentration of secondary PM in that area (SJVAPCD 2015). This is especially true for individual projects, like the project, where project-generated criteria air pollutant emissions are not derived from a single "point source," but from construction equipment and mobile sources (passenger cars and trucks) driving to, from, and around the project site.

Another important technical nuance is that health effects from air pollutants are related to the concentration of the air pollutant that an individual is exposed to, not necessarily the individual mass quantity of emissions associated with an individual project. For example, health effects from O_3 are correlated with increases in the ambient level of O_3 in the air a person breathes (SCAQMD 2015). However, it takes a large amount of additional precursor emissions to cause a modeled increase in ambient O_3 levels over an entire region (SCAQMD 2015). The lack of link between the tonnage of precursor pollutants and the concentration of O_3 and $PM_{2.5}$ formed is important because it is not necessarily the tonnage of precursor pollutants that causes human health effects; rather, it is the concentration of resulting O_3 that causes these effects (SJVAPCD 2015). Indeed, the ambient air quality standards, which are statutorily required to be set by EPA at levels that are requisite to protect the public health, are established as concentrations of O_3 and $PM_{2.5}$ and not as tonnages of their precursor pollutants (SJVAPCD 2015). Because the ambient air quality standards are focused on achieving a particular concentration regionwide, the tools and plans for attaining the ambient air quality standards are regional in nature. For CEQA analyses, project-generated emissions are typically estimated in pounds per day or tons per year and compared to mass daily or annual emission thresholds. CEQA thresholds are established at levels that the air basin can accommodate without affecting the attainment date for the ambient air quality standards; however, even if a project exceeds established CEQA significance thresholds, this does not mean that one can easily determine the concentration of O_3 or PM that will be created at or near the project site on a particular day or month of the year or what specific health impacts will occur (SJVAPCD 2015).

In regard to regional concentrations and air basin attainment, the SJVAPCD emphasized that attempting to identify a change in background pollutant concentrations that can be attributed to a single project, even one as large as the entire Friant Ranch Specific Plan,[5] is a theoretical exercise. The SJVAPCD brief noted that it "would be extremely difficult to model the impact on NAAQS attainment that the emissions from the Friant Ranch project may have" (SJVAPCD 2015). The situation is further complicated by the fact that background concentrations of regional pollutants are not uniform either temporally or geographically

[5] The Friant Ranch Specific Plan proposed 2,683 single-family age-restricted units, 83 multifamily age-restricted units, 180 non-age-restricted multifamily units, and 250,000 square feet of commercial village within a Village Core that also provides for up to 50 residential units on approximately 942 acres (County of Fresno 2010).

throughout an air basin but are constantly fluctuating based upon meteorology and other environmental factors. SJVAPCD noted that the currently available modeling tools are equipped to model the impact of all emission sources in the San Joaquin Valley Air Basin on attainment (SJVAPCD 2015). The SJVAPCD brief then indicated that, "Running the photochemical grid model used for predicting O_3 attainment with the emissions solely from the Friant Ranch project (which equate to less than one-tenth of one percent of the total NO_x and VOC in the Valley) is not likely to yield valid information given the relative scale involved" (SJVAPCD 2015).

SCAQMD and SJVAPCD have indicated that it is not feasible to quantify project-level health impacts based on existing modeling (SCAQMD 2015; SJVAPCD 2015). Even if a metric could be calculated, it would not be reliable because the models are equipped to model the impact of all emission sources in an air basin on attainment and would likely not yield valid information or a measurable increase in O_3 concentrations sufficient to accurately quantify O_3-related health impacts for an individual project.

Nonetheless, following the Supreme Court's Friant Ranch decision, some environmental impact reports (EIRs) where estimated criteria air pollutant emissions exceeded applicable air district thresholds have included a quantitative analysis of potential project-generated health effects using a combination of a regional photochemical grid model[6] and the EPA Benefits Mapping and Analysis Program (BenMAP or BenMAP–Community Edition; EPA 2023).[7] The publicly available health impact assessments (HIAs) typically present results in terms of an increase in health effect incidences and/or the increase in background health effect incidences for various health outcomes resulting from the project's estimated increase in concentrations of O_3 and $PM_{2.5}$.[8] To date, the six publicly available HIAs reviewed herein have concluded that the evaluated project's health effects associated with the estimated project-generated increase in concentrations of O_3 and $PM_{2.5}$ represent a small increase in incidences and a very small percent of the number of background incidences, indicating that these health impacts are negligible and potentially within the models' margin of error. Additionally, while the results of the six available HIAs conclude that the project emissions do not result in a substantial increase in health effect incidences, the estimated emissions and assumed toxicity are also conservatively input into the HIA and thus overestimate health effect incidences, particularly for $PM_{2.5}$.

As explained in the SJVAPCD brief and noted previously, running the photochemical grid model used for predicting O_3 attainment with the emissions solely from an individual project like the Friant Ranch project or the project is not likely to yield valid information given the relative scale involved. The six examples

6 The first step in the publicly available HIAs includes running a regional photochemical grid model, such as the Community Multiscale Air Quality model or the Comprehensive Air Quality Model with extensions to estimate the increase in concentrations of O_3 and $PM_{2.5}$ as a result of project-generated emissions of criteria and precursor pollutants. Air districts, such as the SCAQMD, use photochemical air quality models for regional air quality planning. These photochemical models are large-scale air quality models that simulate the changes of pollutant concentrations in the atmosphere using a set of mathematical equations characterizing the chemical and physical processes in the atmosphere (EPA 2017).

7 After estimating the increase in concentrations of O_3 and $PM_{2.5}$, the second step in the six examples includes use of BenMAP or BenMAP–Community Edition to estimate the resulting associated health effects. BenMAP estimates the number of health effect incidences resulting from changes in air pollution concentrations (EPA 2023). The health impact function in BenMAP–Community Edition incorporates four key sources of data: (i) modeled or monitored air quality changes, (ii) population, (iii) baseline health effect incidence rates, and (iv) an effect estimate. All of the six example HIAs focused on O_3 and $PM_{2.5}$.

8 The following CEQA documents included a quantitative HIA to address Friant Ranch: (1) World Logistics Center Revised Final EIR (City of Moreno Valley 2019), (2) March Joint Powers Association K4 Warehouse and Cactus Channel Improvements EIR (March JPA 2019), (3) Mineta San Jose Airport Amendment to the Airport Master Plan EIR (City of San Jose 2020), (4) City of Inglewood Basketball and Entertainment Center Project EIR (City of Inglewood 2019), (5) San Diego State University Mission Valley Campus Master Plan EIR (SDSU 2019), and (6) California State University Dominguez Hills 2018 Campus Master Plan EIR (CSU Dominguez Hills 2019).

reviewed provide support to the SJVAPCD's brief's contention that consistent, reliable, and meaningful results may not be provided by methods applied at this time. Accordingly, additional work in the industry and, more importantly, air district participation, is needed to develop a more meaningful analysis to correlate project-level mass criteria air pollutant emissions and health effects for decision makers and the public. Furthermore, at the time of writing, no HIA has concluded that health effects estimated using the photochemical grid model and BenMAP approach are substantial, provided that the estimated project-generated incidences represent a very small percentage of the number of background incidences, potentially within the models' margin of error.

Construction of the project would result in emissions that would not exceed the SCAQMD thresholds for NO_x, after implementation of MM-AQ-1 through MM-AQ-4. Operation of the project, would result in exceedances of regional thresholds for emissions of VOCs, even after implementation of PDFs and MM- AQ-5 through MM-AQ-8. It should be noted that, as detailed in Table 4.3-15, overlapping emissions from the interim operational scenarios in 2029 and 2031 and construction of the project would exceed the recommended numerical thresholds of significance established by SCAQMD for emissions of VOCs and NO_x, even with the incorporation of all quantifiable mitigation measures.

As discussed in Section 4.3.1, Existing Conditions, health effects associated with O_3 include respiratory symptoms, worsening of lung disease leading to premature death, and damage to lung tissue. VOCs and NO_x are precursors to O_3, for which the SCAB is designated as nonattainment with respect to the NAAQS and CAAQS. The contribution of VOCs and NO_x to regional ambient O_3 concentrations is the result of complex photochemistry. The increases in O_3 concentrations in the SCAB due to O_3 precursor emissions tend to be found downwind of the source location because of the time required for the photochemical reactions to occur. Further, the potential for exacerbating excessive O_3 concentrations would also depend on the time of year that the VOC emissions would occur, because exceedances of the O_3 NAAQS and CAAQS tend to occur between April and October when solar radiation is highest. As described above, due to the lack of quantitative methods to assess this complex photochemistry, the holistic effect of a single project's emissions of O_3 precursors is speculative. That being said, because the project would exceed the SCAQMD VOC and NO_x thresholds during project operations, the project could contribute to health effects associated with O_3.

Health effects associated with NO_x and NO_2 (which is a constituent of NO_x) include lung irritation and enhanced allergic responses (see Section 4.3.1). Although project-related NO_x emissions would exceed the SCAQMD operational mass daily thresholds, because the SCAB is a designated attainment area for NO_2 (and NO_2 is a constituent of NO_x) and the existing NO_2 concentrations in the area are well below the NAAQS and CAAQS standards,[9] it is not anticipated that the project would cause an exceedance of the NAAQS and CAAQS for NO_2 or result in potential health effects associated with NO_2 and NO_x. However, because the project would exceed the SCAQMD NO_x threshold during project operations, the project could contribute to health effects associated with NO_x and NO_2.

Health effects associated with CO include chest pain in patients with heart disease, headache, light-headedness, and reduced mental alertness (see Section 4.3.2). CO tends to be a localized impact associated with congested intersections. The potential for CO hotspots is discussed in Section 4.3.5(3) and determined to be less than significant. Thus, the project's CO emissions would not contribute to significant health effects associated with CO.

[9] See Table 4.3-3, which shows that ambient concentrations of NO_2 at the Anaheim–Vermont Street monitoring station did not exceed the NAAQS or CAAQS between 2021 and 2023.

Health effects associated with PM_{10} and $PM_{2.5}$ include premature death and hospitalization, primarily for worsening of respiratory disease (see Section 4.3.1). Operation of the project would not exceed the SCAQMD thresholds for PM_{10} and $PM_{2.5}$. As such, the project would not have the potential to contribute to exceedances of the NAAQS and CAAQS for PM and obstruct the SCAB from coming into attainment for these pollutants.

In summary, there are numerous scientific and technological complexities associated with correlating criteria air pollutant emissions from an individual project to specific health effects or potential additional nonattainment days, and methods available to quantitatively evaluate health effects may not be appropriate to apply to emissions associated with the project, which cannot be estimated with a high level of accuracy.

Summary

Overall, for project-related construction the criteria air pollutant emissions would be below the SCAQMD construction thresholds after accounting for implementation of MM-AQ-1 through MM-AQ-4. Operation of the proposed project would exceed the criteria air pollutant operational thresholds established by the SCAQMD for emissions of VOCs even after the implementation of MM-AQ-1 through MM-AQ-8 and MM- GHG-1 (refer to Section 4.3.6 for text of air quality mitigation measures and Section 4.8.6 for GHG mitigation measures). Similarly, the overlapping construction and operation emissions during the interim operation phases would exceed the criteria air pollutant operational thresholds established by SCAQMD for emissions of VOC and NO_x, resulting in a significant and unavoidable impact even after the implementation of all feasible mitigation.

3. Would the project expose sensitive receptors to substantial pollutant concentrations?

Localized Significance Thresholds Analysis

Less-Than-Significant Impact. Construction activities associated with the project would result in temporary sources of on-site fugitive dust and construction equipment emissions. An LST analysis has been prepared to determine potential impacts to nearby sensitive receptors during construction of the project. As indicated in the discussion of the thresholds of significance, SCAQMD recommends the evaluation of localized NO_2, CO, PM_{10}, and $PM_{2.5}$ impacts due to construction activities because of sensitive receptors in the immediate vicinity of the project site. The impacts were analyzed using methods consistent with those in SCAQMD's Final Localized Significance Threshold Methodology (2008). According to the Final Localized Significance Threshold Methodology, "Off-site mobile emissions from the project should not be included in the emissions compared to the LSTs" (SCAQMD 2008). Trucks and worker trips associated with the project are not expected to cause substantial air quality impacts to sensitive receptors along off-site roadways since emissions would be relatively brief in nature and would cease once the vehicles pass through the main streets. Nonetheless, in an effort to conservatively capture potential vehicle activity within the project boundary (i.e., the fence line), a small portion (0.25 miles) of the off-site vehicle travel for worker vehicles, vendor trucks, and haul trucks were conservatively treated as on-site emissions for the LST analysis.

The estimated maximum daily unmitigated on-site construction emissions generated by the project are presented in Table 4.3-16 and compared to the applicable SCAQMD LSTs. See Appendix B-1 for supporting CalEEMod LST files.

Table 4.3-16. Localized Significance Thresholds Analysis for Project Construction – Unmitigated

Maximum On-Site Emissions	NO_2	CO	PM_{10}	$PM_{2.5}$
	Pounds per Day			
Summer				
2026	57.89	64.29	5.70	2.61
2027	78.73	119.48	2.82	2.49
2028	156.81	227.62	9.11	5.20
2029	115.70	189.78	4.39	3.23
2030	87.45	147.12	4.20	2.23
2031	28.47	47.66	0.61	0.50
2032	18.66	31.63	0.37	0.30
Winter				
2026	44.77	56.30	3.59	1.78
2027	87.21	135.43	4.09	2.71
2028	135.77	217.85	7.24	3.98
2029	103.69	152.76	7.07	3.37
2030	78.32	131.97	4.09	2.14
2031	49.29	84.11	1.06	0.88
2032	18.68	31.89	0.37	0.30
Maximum Daily Emissions (Summer or Winter)	**156.81**	**227.62**	**9.11**	**5.20**
SCAQMD LST	*197*	*1,711*	*14*	*9*
LST Exceeded?	**No**	**No**	**No**	**No**

Source: SCAQMD 2009.
Notes: NO_2 = nitrogen dioxide; CO = carbon monoxide; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SCAQMD = South Coast Air Quality Management District; LST = localized significance threshold.
LSTs are shown for a 5-acre project site corresponding to a distance to a sensitive receptor of 25 meters. The estimates reflect control of fugitive dust (watering two times daily) required by SCAQMD Rule 403.

As depicted in Table 4.3-16, the project would not result in emissions of NO_x, CO, PM_{10}, and $PM_{2.5}$ that would exceed the applicable SCAQMD LSTs without mitigation. As such, the project would result in less-than-significant impacts related to construction LSTs.

Health Effects of Carbon Monoxide (Potential for Carbon Monoxide Hotspots)

Less-Than-Significant Impact. Mobile source impacts occur on two scales. Regionally, project-related travel would add to regional trip generation and increase the vehicle miles traveled within the local airshed and the SCAB. Locally, traffic generated by the project would be added to the local roadway system near the project site. If such traffic occurs during periods of poor atmospheric ventilation, is composed of many vehicles cold-started and operating at pollution-inefficient speeds, and is operating on roadways already crowded with non-project traffic, there is a potential for the formation of microscale CO hotspots in the area immediately around points of congested traffic. Because of continued improvement in vehicular emissions at a rate faster than the rate of vehicle growth and/or congestion, the potential for CO hotspots in the SCAB is steadily decreasing.

At the time that the SCAQMD Handbook (1993) was published, the SCAB was designated nonattainment under the CAAQS and NAAQS for CO. In 2007, the SCAB was designated in attainment for CO under both the CAAQS and NAAQS as a result of the steady decline in CO concentrations in the SCAB due to turnover of older vehicles, introduction of cleaner fuels, and implementation of control technology on industrial facilities. SCAQMD conducted CO modeling for the 2003 AQMP (SCAQMD 2003b) for the four worst-case intersections in the SCAB[10]: (1) Wilshire Boulevard and Veteran Avenue, (2) Sunset Boulevard and Highland Avenue, (3) La Cienega Boulevard and Century Boulevard, and (4) Long Beach Boulevard and Imperial Highway. At the time the 2003 AQMP was prepared, the intersection of Wilshire Boulevard and Veteran Avenue was the most congested intersection in Los Angeles County, with an average daily traffic volume of about 100,000 vehicles per day. Using CO emission factors for 2002, the peak modeled CO 1-hour concentration was estimated to be 4.6 ppm at the intersection of Wilshire Boulevard and Veteran Avenue. When added to the maximum 1-hour CO concentration from 2021 through 2023 at the Mission Viejo Monitoring Station (see Table 4.3-3, Local Ambient Air Quality Data), which was 2.3 ppm in 2023, the 1-hour CO would be 6.9 ppm, while the CAAQS is 20 ppm.

The 2003 AQMP also projected 8-hour CO concentrations at these four intersections for 1997 and from 2002 through 2005. From years 2002 through 2005, the maximum 8-hour CO concentration was 3.8 ppm at the Sunset Boulevard and Highland Avenue intersection in 2002; the maximum 8-hour CO concentration was 3.4 ppm at the Wilshire Boulevard and Veteran Avenue in 2002. Adding the 3.8 ppm to the maximum 8-hour CO concentration from 2020 through 2022 at the Mission Viejo Monitoring Station (see Table 4.3-3), which was 1.9 ppm in 2023, the 8-hour CO would be 5.7 ppm, while the CAAQS is 9.0 ppm.

Accordingly, CO concentrations at congested intersections would not exceed the 1-hour or 8-hour CO CAAQS unless projected daily traffic would be over 100,000 vehicles per day based on the ambient CO concentration considered in the SCAQMD study. The traffic analysis prepared for the project evaluated average daily trips at nearby intersections to the project area. Under the worst-case scenario, which considers full project buildout in addition to the cumulative traffic of other future development projects pending City review, the maximum daily intersection volume was estimated to be 102,290 trips at the intersection of Bake Parkway and Marine Way. Based on SCAQMD's 2003 AQMP, peak CO concentrations in the SCAB were driven by meteorological and topographical conditions to a greater degree than by traffic congestion. Therefore, although the maximum daily volume at one intersection in the project area could exceed 100,000 vehicles per day under a worst-case scenario, the comparatively low ambient 1-hour and 8-hour CO concentrations observed in the project area (as discussed above) indicate that even the most congested intersection would require higher traffic volumes than 100,000 vehicles per day to approach levels of concern for generating a CO hotspot.

Furthermore, the Bay Area Air District includes in its 2022 CEQA Guidelines screening criteria for project-generation of local carbon monoxide levels (BAAQMD 2023). According to the Bay Area Air District, a project would result in a less-than-significant impact related to CO if project-generated traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour. Based on the traffic study completed for the proposed project, the most congested intersection in the project vicinity, the intersection of Bake Parkway and Marine Way, would only result in 10,229 vehicles per hour during peak hours.

10 SCAQMD's CO hotspot modeling guidance has not changed since 2003.

Based on these considerations, the proposed project under the worst-case scenario would not result in a CO hotspot at any intersection in the project area. See Appendix B-3, Carbon Monoxide Hotspots Intersection Volume Calculations, for supporting intersection volume calculations.

Regarding potential CO hotspots during construction, the maximum daily trips during construction are estimated to be 922 daily trips (in 2029 during overlap of Phase 1, Phase 2, and Phase 3 construction), which would be substantially less than operational trip generation at project buildout (i.e., 10,825 net external trips per day). Thus, the maximum daily intersection volume with the addition of these vehicles on the roadway network during construction would be less than during operation. In addition, as identified in Table 4.3-16, the project would not result in on-site CO emissions that would exceed the SCAQMD LST.

Because the project would not contribute vehicles to any study intersection that would experience more than 100,000 vehicles per day during construction or operation and would not result in on-site CO emissions that would exceed the SCAQMD LST threshold during construction, a CO hotspot is not anticipated to occur, and associated impacts would be less than significant. As such, potential project-generated impacts associated with CO hotspots during construction and operation would be a less-than-significant impact.

Toxic Air Contaminants

Less-Than-Significant Impact with Mitigation Incorporated. "Incremental cancer risk" is the net increased likelihood that a person continuously exposed to concentrations of TACs resulting from a project over a 9-, 30-, and 70-year exposure period would contract cancer based on the use of standard Office of Environmental Health Hazard Assessment risk assessment methodology (OEHHA 2015). In addition, some TACs have noncarcinogenic effects. TACs that would potentially be emitted during construction activities would be DPM emitted from heavy-duty construction equipment and heavy-duty trucks. Heavy-duty construction equipment and diesel trucks are subject to CARB's Airborne Toxic Control Measures to reduce DPM emissions. According to the Office of Environmental Health Hazard Assessment, HRAs should be based on a 30-year exposure duration based on typical residency period; however, such assessments should be limited to the period/duration of activities associated with a project (OEHHA 2015).

As discussed in Section 4.3.3, under the "Construction Health Risk Assessment" heading, a construction HRA was performed to estimate the Maximum Individual Cancer Risk and the Chronic Hazard Index from emissions generated by project construction for proximate residential receptors. Results of the construction HRA under unmitigated conditions are presented in Table 4.3-17.

Table 4.3-17. Construction Health Risk Assessment Results – Unmitigated

Impact Parameter	Units	Project Impact	CEQA Threshold	Level of Significance
Maximum Individual Cancer Risk – Residential Off Site	Per million	21.3	10	**Potentially significant**
Chronic Hazard Index – Residential Off Site	Index value	0.009	1.0	Less than significant
Maximum Individual Cancer Risk – Residential On Site	Per million	34.9	10	**Potentially significant**
Chronic Hazard Index – Residential On Site	Index value	0.02	1.0	Less than significant

Source: SCAQMD 2023a.

Notes: CEQA = California Environmental Quality Act; **bold text** indicates a potentially significant impact.
See Appendix B-2.

As shown in Table 4.3-17, project construction activities would result in a Residential Maximum Individual Cancer Risk of 21.3 in 1 million for off-site receptors and 34.9 in 1 million for on-site receptors, which exceeds the significance threshold of 10 in 1 million. Project construction would result in a Residential Chronic Hazard Index of 0.009 for off-site receptors and 0.02 for on-site receptors, both of which are below the 1.0 significance threshold. The project's construction TAC health risk impacts would be potentially significant, and mitigation would be required to reduce these impacts to less than significant.

Table 4.3-18 shows the project's construction health risk results with implementation of MM-AQ-1 (Construction Equipment Exhaust Minimization).

Table 4.3-18. Construction Health Risk Assessment Results – Mitigated

Impact Parameter	Units	Project Impact	CEQA Threshold	Level of Significance
Maximum Individual Cancer Risk – Residential Off Site	Per million	3.34	10	Less than significant
Chronic Hazard Index – Residential Off Site	Index value	0.001	1.0	Less than significant
Maximum Individual Cancer Risk – Residential On Site	Per million	6.64	10	Less than significant
Chronic Hazard Index – Residential On Site	Index value	0.003	1.0	Less than significant

Source: SCAQMD 2023a.
Notes: CEQA = California Environmental Quality Act.
See Appendix B-2.
Results include implementation of MM-AQ-1.

The HRA results after incorporation of MM-AQ-1 show that the Residential Maximum Individual Cancer Risk for off-site receptors, on-site receptors, and nonresidential receptors would be avoided as cancer risk would be reduced below the threshold of 10 in 1 million.

Operational Health Risks

As detailed by the SCAQMD, projects that typically result in low operational health risk impacts include residential uses (e.g., apartments, condos, mobile homes, single-family homes), commercial uses (e.g., offices, banks, government, pharmacies), recreational uses (e.g., parks, restaurants, golf courses, health clubs, hotels, theaters), educational uses (e.g., daycares, schools, colleges, libraries, churches), and retail uses (e.g., auto care, supermarkets, malls) (SCAQMD 2023b). The project is a primarily residential development that would include residential and park land uses, all of which were identified by SCAQMD as having low potential health risk impacts. Operation of the project would not result in any non-permitted direct emissions (e.g., those from a stationary source such as diesel generators)[11] or in a substantial increase in diesel vehicles (i.e., delivery trucks greater than 100 per day). Thus, the project would not result in a long-term (i.e., 9-year, 30-year, or 70-year) operational source of TAC emissions.

[11] Stationary sources result in on-site emissions and could generate TAC emissions; however, during the SCAQMD permitting process, an HRA would be performed and control measures would be implemented if required to reduce potential impacts to sensitive receptors.

Cumulative Health Risk

The SCAQMD does not have an established cumulative health risk approach but has initiated a public process (including four Working Group meetings as of January 2024) for the development of additional guidance for public agencies when they evaluate cumulative air quality impacts from increased concentrations of TACs for projects subject to the requirements of CEQA.

Notably, as part of this public process, SCAQMD has not included most construction activity in its cumulative health risk analysis recommendations, since construction is typically short-term. However, the draft applicability framework of the SCAQMD's cumulative health risk concept includes long-term construction, with transportation projects such as high-speed rail provided as the example. The draft applicability framework does not define what number of years equates to long-term construction. Because construction of the project is assumed to have a duration of 6 years, it may or may not qualify as a short-term project under the final SCAQMD guidance, if/once issued. Nonetheless, as described above, the project itself would result in health risk impacts from construction that would be less than significant with implementation of MM-AQ-1 (Construction Equipment Exhaust Minimization). Therefore, it is anticipated that the project would also not result in a cumulatively considerable health risk impact from construction.

In addition, SCAQMD has indicated that projects that consist of primarily residential development, such as the project, would also screen out of a cumulative health risk analysis for operations since they tend to have low potential cancer risk (SCAQMD 2023b).

Valley Fever

As discussed in Section 4.3.1, under header "Non-Criteria Air Pollutants," valley fever is not highly endemic to Orange County, with an incidence rate of 10.0 cases per 100,000 people in 2022 (CDPH 2023). The California counties considered highly endemic for valley fever include Kern (264.9 per 100,000), Kings (111.0 per 100,000), Tulare (65.7 per 100,000), San Luis Obispo (51.5 per 100,000), Fresno (44.3 per 100,000), Madera (32.4 per 100,000), and Ventura (28.3 per 100,000), which accounted for 50.5% of the reported cases in 2022 (CDPH 2023).

Even if present at the project site, construction activities may not result in increased incidence of valley fever. Propagation of valley fever is dependent on climatic conditions, with the potential for growth and surface exposure highest following early seasonal rains and long dry spells. Valley fever spores can be released when filaments are disturbed by earthmoving activities, although receptors must be exposed to and inhale the spores to be at increased risk of developing valley fever. Moreover, exposure to valley fever does not guarantee that an individual will become ill—approximately 60% of people exposed to the fungal spores are asymptomatic and show no signs of an infection (Saubolle et al. 2006).

In order to reduce fugitive dust from the project and minimize adverse air quality impacts, the project would employ dust control measures in accordance with SCAQMD Rules 401 and 403, which limit the amount of fugitive dust generated during construction. These requirements are consistent with California Department of Public Health recommendations for the implementation of dust control measures, including regular application of water during soil-disturbing activities, to reduce exposure to valley fever by minimizing the potential that the fungal spores become airborne (CDPH 2013). Further, regulations designed to minimize exposure to valley fever hazards are included in CCR Title 8 and would be complied with during the project's construction phase (California Department of Industrial Relations 2017).

In summary, the project would not result in a significant impact attributable to valley fever exposure based on its geographic location and compliance with applicable regulatory standards and dust control measures, which will serve to minimize the release of and exposure to fungal spores.

Summary

Overall, the project would result in emissions of NO_x, CO, PM_{10}, and $PM_{2.5}$ that would be lower than the applicable SCAQMD LSTs.

Moreover, because the project would not contribute vehicles to any study intersection that would experience more than 100,000 vehicles per day during construction or operation and would not result in on-site CO emissions that would exceed the SCAQMD LST threshold during construction, no CO hotspots are anticipated to occur.

Furthermore, the construction HRA results after incorporation of MM-AQ-1 (Construction Equipment Exhaust Minimization) show that the Residential Maximum Individual Cancer Risk for off-site receptors, on-site receptors, and nonresidential receptors would be avoided as cancer risk would be reduced below the threshold of 10 in 1 million. Regarding TAC during operation, because the project's type (community residential) is identified by the SCAQMD as one that would not result in a long-term (i.e., 9-year, 30-year, or 70-year) operational source of TAC emissions.

Lastly, the project's geographic location and compliance with applicable regulatory standards would limit the risk of exposure to valley fever.

Overall, the project's localized criteria air pollutant emissions, potential for CO hotspots, operational health risks from TACs, and valley fever exposure would be less than significant without mitigation. After the implementation of MM-AQ-1, the potential cancer health risk during construction would be less than significant with mitigation incorporated.

4. Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Less-Than-Significant Impact. Construction and operation of the project would result in various emissions; however, criteria air pollutants, fugitive dust, and TACs are addressed in Sections 4.3.5(2) and 4.3.5(3). As such, this impact analysis is focused on the potential for an odor impact to occur. The occurrence and severity of potential odor impacts depend on numerous factors. The nature, frequency, and intensity of the source; the wind speeds and direction; and the sensitivity of receiving location each contribute to the intensity of the impact. Although offensive odors seldom cause physical harm, they can be annoying and cause distress among the public and generate citizen complaints.

Odors would be potentially generated from vehicles and equipment exhaust emissions during construction of the project. Potential odors produced during construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment, architectural coatings, and asphalt pavement application. Such odors would disperse rapidly from the project site and generally occur at magnitudes that would not affect substantial numbers of people. In addition, project construction and operation would be required to comply with SCAQMD Rule 402, Nuisance, which prohibits the discharge of air pollutants from a facility that could cause injury, detriment, nuisance, or annoyance to the public or damage business or property. Therefore, impacts associated with odors during construction would be less than significant. No mitigation is required.

Land uses and industrial operations associated with odor complaints include agricultural uses, wastewater treatment plants, food-processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding (SCAQMD 1993). The project would not include land uses that generate odors as discussed above during operation. The residences may emit odors outside during cooking or application of architectural coatings. These would be limited to the areas adjacent to the source and would not impact substantial numbers of people. These odors would also be short term in nature and would disperse rapidly. Any indoor odors would be limited to that building. Therefore, project operations would result in an odor impact that is less than significant. No mitigation is required.

Impact Summary

According to the City's tiered approach, the project would be inconsistent with the AQMP because it would require a general plan amendment, would be considered a regionally significant project by the SCAB, and would exceed the SCAQMD's mass daily criteria air pollutant significance thresholds. Therefore, the project would conflict with the applicable air quality plan, resulting in a significant and unavoidable impact.

After implementation of mitigation MM-AQ-1 through MM-AQ-8, the project would still exceed SCAQMD's mass daily criteria air pollutant thresholds during operation. Therefore, the project would result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard; impacts would be significant and unavoidable.

The project's localized criteria air pollutant emissions, potential for CO hotspots, operational health risks from TACs, and valley fever exposure would be less than significant. After the implementation of MM-AQ-1, the potential cancer health risk during construction would be less than significant with mitigation incorporated.

Odors during construction would disperse rapidly from the project site and generally occur at magnitudes that would not affect substantial numbers of people. The project does not propose any land uses as a part of long-term operations that would generate odors or other emissions that would adversely affect a substantial number of people; therefore, impacts would be less than significant.

4.3.6 Mitigation Measures

MM-AQ-1 through MM-AQ-8 and MM-GHG-1 would address impacts relating to air quality that would be potentially significant, absent mitigation. Note the following regarding quantification of these mitigation measures:

- **MM-AQ-1** is quantified in the construction analysis in the CalEEMod mitigation module, in which all off-road equipment with engines rated at 25 horsepower or greater was assumed to meet Tier 4 Final regulations.
- **MM-AQ-2** is not quantified in the construction analysis because it is dependent on whether the equipment is commercially available; however, additional emission reductions are anticipated from implementation of MM-AQ-2.
- **MM-AQ-3** is quantified in the construction analysis in the CalEEMod mitigation module, in which 10 grams/liter VOC was selected for residential interior, residential exterior, nonresidential interior, and nonresidential exterior.
- **MM-AQ-4** is not quantified in the construction analysis.
- **MM-AQ-5** through MM-AQ-8 are not quantified in the operational analysis.

The air quality mitigation measures are presented in full as follows:

MM-AQ-1 Construction Equipment Exhaust Minimization. Prior to the commencement of any construction activities, the applicant or its designee shall provide evidence to the City of Irvine (City) of the following: For off-road equipment with engines rated at 25 horsepower or greater, no construction equipment shall be used that is less than Tier 4 Final.

An exemption from the above requirement may be granted if the applicant documents that equipment with Tier 4 Final engines is not reasonably available, and the required corresponding reductions in criteria air pollutant emissions can be achieved for the project through other combinations of construction equipment. Before an exemption may be granted by the City's Community Development Director, the applicant's construction contractor shall demonstrate (1) that at least 3 construction fleet owners/operators in Orange County were contacted and that those owners/operators confirmed Tier 4 Final equipment could not be located within Orange County during the desired construction schedule and (2) that the proposed replacement equipment has been evaluated using California Emissions Estimator Model (CalEEMod) or other industry standard emission estimation method and documentation provided to the City to confirm that project-generated emissions will not exceed the estimated maximum daily construction criteria air pollutant emissions (with mitigation) set forth in Table 4.3-12 of the Draft EIR.

MM-AQ-2 Additional Construction Equipment Emission Reductions. Prior to the issuance of grading permits, the project applicant or its designee shall provide evidence to the City of Irvine (City) that the following strategies shall be implemented during the project's construction phase:

A. Use electric or hybrid powered equipment for small pieces of equipment under 25 horsepower (e.g., forklifts), as commercially available.
B. Use cleaner-fuel equipment, such as replacing diesel fuel with compressed natural gas or renewable diesel, as commercially available.

Commercially available equipment is herein defined as equipment sourced within 50 vehicle miles of the project site and within 10% of the cost of the diesel-fueled equivalent equipment. The project applicant must contact at least three contractors or vendors within Orange County and submit justification to the City if the specified equipment is not commercially available.

MM-AQ-3 Use of Super-Compliant Low-VOC Paint During Construction. During construction, the project shall use super-compliant low–volatile organic compound (VOC) paint (less than 10 grams per liter VOC) for all interior and exterior paint applications for residential and nonresidential land uses.

MM-AQ-4 Limit Truck and Equipment Idling During Construction. The project applicant shall reduce idling time of heavy-duty trucks either by requiring them to be shut off when not in use or limiting the time of idling to no more than 3 minutes (thereby improving upon the 5-minute idling limit required by the state Airborne Toxics Control Measure, 13 CCR 2485). The project applicant shall post clear signage reminding construction workers to limit idling of construction equipment.

MM-AQ-5 Low-VOC Cleaning Supplies and Paint Educational Program. Prior to the occupancy of any on-site development, the applicant or its designee shall provide evidence to the City of Irvine that the applicant/phase developer has developed a Green Cleaning Product and Paint education program

to be made available at rental and purchasing offices and/or on websites. The educational program shall include a flyer (hardcopy and/or digital) that includes, at a minimum, an explanation of what volatile organic compounds (VOCs) are, how VOCs affect us, and where to find low-VOC alternatives for cleaning supplies and paint, as well as including additional resources for learning more.

MM-AQ-6 Use of Low-VOC Cleaning Supplies and Paint for Spaces Operated by Homeowner's Association. Prior to the issuance of building permits, the applicant or its designee shall provide evidence to the City of Irvine that for applicant (or its designee) and homeowner's association–operated spaces that provisions are in place to ensure that only zero– or low–volatile organic compound (VOC) cleaning supplies and super-compliant VOC paints (less than 10 grams per liter VOC) are used during project operation.

MM-AQ-7 Use of Zero-Emission Landscape Equipment for Homeowner's Association Land. Only zero-emissions landscaping equipment shall be used during project operation on homeowner's association land. Gasoline-fueled landscaping equipment shall be prohibited consistent with the City's Ordinance No. 23-25.

MM-AQ-8 Landscape Maintenance Equipment Emission Reduction. The project applicant shall implement the following landscape maintenance equipment emission reduction measures:

- **Include Outdoor Electrical Outlets.** Prior to the issuance of building permits, the project applicant or its designee shall provide evidence to the City of Irvine that the design plans include electrical outlets on the exterior of the structure to facilitate use of electrical lawn and garden equipment.
- **Encourage Use of Existing Yard Equipment Exchange and Rebate Programs.** The project's future homeowner's association shall educate future residents about the South Coast Air Quality Management District Electric Lawn Mower Rebate Program and the Commercial Electric Lawn and Garden Equipment Exchange Program. When conventional gasoline-powered yard equipment (e.g., lawn mowers, leaf blowers and vacuums, shredders, trimmers, and chainsaws) are exchanged for electric and rechargeable-battery-powered yard equipment, direct greenhouse gas (GHG) emissions from fossil-fuel combustion are displaced by indirect GHG emissions associated with the generation of electricity used to power the equipment.

The following mitigation measure from Section 4.8, Greenhouse Gas Emissions, of the Draft EIR would also reduce air quality impacts (refer to Section 4.8.6 for text of MM-GHG-1):

- MM-GHG-1 (Installation of Additional Electric Vehicle Chargers Beyond Title 24 Compliance)

4.3.7 Level of Significance After Mitigation

Impacts relating to a potential conflict with the SCAQMD 2022 AQMP would be significant and unavoidable, even after implementation of all feasible mitigation measures.

Regarding cumulatively considerable increases of criteria air pollutants, implementation of MM-AQ-1 would reduce potential construction emissions from the project to below the SCAQMD significance threshold for NO_x. Because emissions from project operations would cause an exceedance of the SCAQMD significance threshold for VOC, and VOC and NO_x emissions in the interim operation that would overlap with construction project

operations would result in a potentially significant impact prior to mitigation. The implementation of MM-AQ-5 through MM-AQ-8 and MM-GHG-1 would reduce operational criteria air pollutant emissions; however, these are not readily quantified in the operational analysis. Operational emissions would continue to exceed the SCAQMD significance threshold for VOCs in the long term and NO_x emissions temporarily during interim operation. Accordingly, the potential of the project to violate any air quality standard or contribute substantially to an existing or projected air quality violation with mitigation would be significant and unavoidable.

Exposure of sensitive receptors to substantial pollutant concentrations would be less than significant without mitigation related to CO hotspots, localized emissions during construction, health risk from long-term TAC exposure, cumulative health risk, and valley fever exposure. For construction health effects from TACs, the project would result in a potentially significant impact to cancer risk prior to mitigation. Implementation of MM-AQ-1 would reduce DPM emissions associated with construction of the project, and the associated cancer risk would be below levels of significance.

The project would result in a less-than-significant impact regarding other emissions, including those leading to odors, during construction and operation.

4.3.8 Cumulative Impacts

This section provides an analysis of cumulative impacts from construction and operation of the project and other past, present, and reasonably foreseeable future projects, as required by Section 15130 of the CEQA Guidelines. The past, present, and reasonably foreseeable future projects (i.e., cumulative projects) used for this analysis are presented in Table 3-1, Cumulative Projects, of Chapter 3, Project Description, of this Draft EIR. For the purposes of air quality emissions, this cumulative analysis considers emissions within the air basin (i.e., SCAB).

As discussed in Section 4.3.5, Impacts Analysis, the City has adopted a tiered approach to addressing the project's potential to conflict with or obstruct implementation of the 2022 AQMP (City of Irvine 2020). As detailed in the project-specific analysis, the project would exceed the SCAQMD regional thresholds, even with implementation of mitigation measures, and as such, the project would be inconsistent with the AQMP according to the City's CEQA Manual guidance and would result in a significant and unavoidable project-specific impact. As the project would result in a significant and unavoidable impact at a project level, the project would also result in a significant and unavoidable cumulative impact regarding the potential to conflict with or obstruct implementation of the 2022 AQMP.

As discussed previously, air pollution by nature is largely a cumulative impact. The nonattainment status of regional pollutants is a result of past and present development, and SCAQMD develops and implements plans for future attainment of ambient air quality standards. The potential for the project to result in a cumulatively considerable impact, specifically, a cumulatively considerable new increase of any criteria pollutant for which the project region is nonattainment under an applicable NAAQS and/or CAAQS, is addressed in Section 4.3.5. Consistent with the finding for the project, the cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment would be less than significant during construction but significant for operation. Therefore, the project would result in a cumulatively significant impact regarding the potential to result in a cumulatively considerable net increase of any nonattainment criteria pollutant.

As discussed in Section 4.3.5, regarding sensitive receptors, the project would result in a less-than-significant impact for construction and operational impacts after mitigation. Emissions of TACs during construction and operation would not exceed applicable thresholds for off-site or on-site receptors. The project would also not cause or create a CO hotspot. The impact of the project, in addition to growth, including other cumulative projects, could

further increase the exposure of air quality pollutants to sensitive receptors. However, cumulative projects as listed in Table 3-1 (see Chapter 3 of this EIR) would not result in substantial concentrations of TAC emissions during operation because they are predominantly residential and commercial projects with the majority of their emissions (mobile sources) occurring off site. Emissions during construction would disperse rapidly from the project sites and would generally occur at magnitudes that would not affect substantial numbers of people. Consistent with the significance finding for the project, during construction there would be a less-than-significant cumulative impact related to exposure of sensitive receptors to substantial pollutant concentrations from TACs after implementation of MM-AQ-1. Consistent with the significance finding for the project, during operation there would be a less-than-significant cumulative impact with mitigation incorporated related to exposure of sensitive receptors to substantial pollutant concentrations from TACs.

As discussed in Section 4.3.5, regarding odors or other emissions, the project would result in a less-than-significant impact during construction and operation. Odor impacts are generally limited to the immediate area surrounding the source. Potential odors from the project site would be temporary and limited (due to the type of land uses—recreational and residential are not typically substantial odor-producing land uses) and cumulative projects listed in Table 3-1 of this Draft EIR, among other developments in the SCAB, would be subject to SCAQMD Rule 402. Therefore, the project would not contribute to a cumulatively considerable impact regarding other emissions, such as those leading to odors, which would adversely affect a substantial number of people. The cumulative impact would be less than significant.

4.3.9 References

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4.4 Biological Resources

This section describes the existing biological resources conditions of the project site and vicinity, identifies associated regulatory requirements, evaluates potential impacts, and identifies mitigation measures related to implementation of the proposed project. The analysis included in this section is based on the findings of the document listed below, as well as publicly available information referenced throughout this section and provided in full in Section 4.4.8, References. Sources used for this section include the following:

- **Appendix C:** Biological Resources Technical Report (BRTR); prepared by Dudek; dated August 14, 2025

4.4.1 Existing Conditions

An initial biological reconnaissance survey was to identify the existing conditions, map vegetation, and determine potential biological constraints to the project. Methodologies of the reconnaissance survey and BRTR are explained in Section 4.4.4, Impacts Analysis.

The project site is generally located along the northern boundary of the City of Irvine (City) in central Orange County, California (Figure 3-1, Project Location). Specifically, the project is located east of the Portola Parkway and Jeffrey Road intersection and is bounded by Portola Parkway to the south, Jeffrey Road/Hicks Haul Road to the west, and Bee Canyon Access Road to the east. Hicks Canyon Wash forms the northern boundary of the site. The project site is situated in Sections 20, 21 and 29 of Township 5 South, Range 8 West and can be found on the El Toro U.S. Geological Survey 7.5-minute topographic quadrangle map (USGS 2022). The project site consists of the following parcels: Assessor's Parcel Numbers 104-117-66, 104-117-67, 104-117-68, 104-117-69, 104-117-70, 104-117-12, 104-117-14, 104-117-15, 104-117-17, 104-117-18, 104-117-23, and 104-117-29.

The 120-acre residential village would include an approximately 104.19-acre development footprint, consisting of residential houses, parks, and streets, the Jeffrey Open Space Trail (JOST), and fuel management zones, referred to herein as the project site. Focused surveys for least Bell's vireo (*Vireo bellii pusillus*) and coastal California gnatcatcher (*Polioptila californica californica*) also include an adjacent 500-foot buffer, referred to herein as the survey area.

The project site has been subject to agricultural land use dating back to at least 1946 (NETR 2025), consisting of agricultural fields and facilities. As of 2018, agricultural fields in the northeastern section of the project site appear to have been graded and used for soil stockpiling or were left fallow. During surveys in 2024 and 2025, wheat fields were being actively farmed in the southwestern section of the property. The project site is heavily disturbed with non-native plant species, both cultivated as a part of past and current agricultural activities and naturalized via recruitment of invasives onto the site. Most notably, the project site is heavily impacted by stinknet (*Oncosiphon pilulifer*), poison hemlock (*Conium maculatum*), shortpod mustard (*Hirschfeldia incana*), and crowndaisy (*Glebionis coronaria*), which are on the California Invasive Plant Council (Cal-IPC) Inventory list (Cal-IPC 2025). Land use surrounding the project site consists of existing residential developments, consisting of the Stonegate neighborhood to the south and the Orchard Hills neighborhood to the west, and undeveloped Natural Community Conservation Plan & Habitat Conservation Plan, County of Orange Central & Coastal Subregion (NCCP/HCP) reserve lands to the east and north.

The most significant change in topography within the project site is its location at the southern end of Hick's Canyon, which is situated within the foothills of the Santa Ana Mountains. The environmental setting of the project site is described in greater detail in the sections below.

Climate

The project site is located within the foothills of the Santa Ana Mountains, west of the Peninsular Range, approximately 19 miles east of the Pacific Ocean. It is in a Mediterranean climate characterized by mild, dry summers and wet winters. Average temperatures in the City range from an annual low of 40°F to an annual high of 85°F, and the area generally receives a yearly rainfall of about 12.86 inches per year (WRCC 2025).

Soils

According to the Natural Resources Conservation Service Web Soil Survey (USDA 2025), the project site occurs within Orange County and Part of Riverside County California soil survey area (CA678). Ten soil types were found within the project site: Anaheim clay loam, 15% to 30% slopes; Anaheim clay loam, 30% to 50% slopes; Balcom clay loam, 15% to 30% slopes; Calleguas clay loam, 50% to 75% slopes, eroded; Cieneba sandy loam, 15% to 30% slopes; Metz loamy sand; San Emigdio fine sandy loam, 0% to 2% slopes; Soper gravelly loam, 30% to 50% slopes, Major Land Resource Area (MLRA) 20; Sorrento loam, 0% to 2% slopes, warm Mean Annual Air Temperature, MLRA 19; and pits.

Observed surface soils throughout the majority of the project site are highly disturbed due to historical agricultural and industrial uses. Two soil types mapped within the project site, Metz loamy sand and pits, are considered hydric by the Natural Resources Conservation Service (USDA 2025); however, these portions of the project site are primarily developed or in an upland setting.

Terrain

The project site is located in central Orange County and occurs predominantly on flat agricultural fields and facilities. The site gently slopes from northeast to southwest and has a relatively flat grade, with an elevation ranging between 330 feet above mean sea level (amsl) and 515 feet amsl.

Vegetation Communities and Land Cover Types

Vegetation communities were mapped in the field during the biological reconnaissance survey. Mapping found that the project site consists of developed, disturbed, and agricultural land and a mix of native and non-native vegetation communities (Figure 4.4-1, Vegetation and Land Cover Map). A total of 11 vegetation communities and land cover types were mapped in the project site (Table 4.4-1). The vegetation communities and land covers listed here were adapted from the Manual of California Vegetation, Online Edition (CNPS 2025a).

Vegetation communities and land cover types mapped on the project site include two native vegetation communities, five naturalized vegetation communities, and four non-natural land cover types. These vegetation communities and land covers are described in further detail below and are summarized in Table 4.4-1. Vegetation communities with a state rarity rank of S1, S2, or S3, as well as those communities regulated by the resource agencies (U.S. Army Corps of Engineers [USACE], Regional Water Quality Control Board [RWQCB], and/or California Department of Fish and Wildlife [CDFW]), such as riparian habitats, are considered sensitive natural communities. No vegetation communities with a state rarity rank of S1, S2, or S3 were mapped on the project site. One riparian vegetation community (mulefat thickets), which is considered sensitive, was mapped in the previously permitted portion of the project site. Vegetation communities and land cover types are described in further detail below.

Table 4.4-1. Vegetation Communities and Land Cover Types Within the Project Site

Vegetation Communities and Land Cover Types	Alliance[a]	Association	Ranking[b]	Project Site (Acres)[c]
Native Vegetation Communities				
Laurel sumac scrub	*Malosma laurina* shrubland alliance	*Malosma laurina* association	G4 S4	5.21
Mulefat thickets	*Baccharis salicifolia* shrubland alliance	*Baccharis salicifolia* association	G5 S5	0.37
		Native Vegetation Communities Subtotal		*5.58*
Naturalized Vegetation Communities				
Upland mustards or star-thistle fields	*Brassica nigra*–*Centaurea* (*solstitialis*, *melitensis*) herbaceous semi-natural alliance	*Hirschfeldia incana* association	GNA SNA	18.68
		Centaurea melitensis association	GNA SNA	1.26
Red brome or mediterranean grass grasslands	*Bromus rubens*–*Schismus* (*arabicus*, *barbatus*) herbaceous semi-natural alliance	*Bromus rubens*–mixed herbs association	GNA SNA	2.55
Eucalyptus–tree of heaven–black locust groves	*Eucalyptus* spp.–*Ailanthus altissima*–*Robinia pseudoacacia* woodland semi-natural alliance	*Eucalyptus* (*globulus*, *camaldulensis*) association	GNA SNA	2.56
Pepper tree or myoporum groves	*Schinus* (*molle*, *terebinthifolius*)–*Myoporum laetum* forest & woodland semi-natural alliance	*Schinus molle* association	GNA SNA	0.68
		Naturalized Vegetation Communities Subtotal		*25.72*
Non-Natural Land Cover Types				
General agriculture	None	None	None	35.60
Urban/developed	None	None	None	21.33
Disturbed habitat	None	None	None	15.32
Ornamental plantings	None	None	None	0.63
		Non-Natural Land Cover Types Subtotal		*72.88*
			Total	**104.19**

Notes:

1 The term "semi-natural" is used in the Manual of California Vegetation to distinguish vegetation types dominated by non-native plants from natural vegetation communities (CNPS 2025a).

2 The conservation status of a vegetation community is designated by a number from 1 to 5, preceded by a letter reflecting the appropriate geographic scale of the assessment (G = global, S = subnational/state). The numbers have the following meaning (NatureServe 2025):
1 = critically imperiled
2 = imperiled
3 = vulnerable to extirpation or extinction
4 = apparently secure
5 = demonstrably widespread, abundant, and secure
NA = no applicable ranking

3 Totals may not sum precisely due to rounding.

Laurel Sumac Scrub

Laurel sumac scrub includes laurel sumac as dominant or co-dominant in the shrub canopy with California sagebrush, bigpod ceanothus (*Ceanothus megacarpus*), bush monkeyflower, coastal buckwheat (*Eriogonum cinereum*), California brittlebush, California buckwheat, chaparral yucca, toyon (*Heteromeles arbutifolia*), hollyleaf redberry, lemonade sumac, sugar sumac, purple sage (*Salvia leucophylla*), black sage, and poison oak. These communities typically occur on steep slopes where soils are shallow and fine textured (CNPS 2025a). Laurel sumac scrub is mapped in the northern portion of the project site in uplands associated with a mapped drainage feature. It is also mapped in the eastern extent of the project site, west of Bee Canyon Access Road. Areas mapped as laurel sumac also include non-native trees, such as river redgum (*Eucalyptus camaldulensis*) and Peruvian peppertree (*Schinus molle*), as well as scattered native riparian trees and shrubs, such as blue elderberry (*Sambucus mexicana*), mulefat (*Baccharis salicifolia*), and Goodding's willow (*Salix gooddingii*), that were too low in cover to be considered dominant. Additionally, these areas contain a high cover of poison hemlock, shortpod mustard, and crowndaisy, which are included in the Cal-IPC Inventory (Cal-IPC 2025).

The laurel sumac scrub alliance has a rank of G4S4, meaning it is globally secure and secure in the state (NatureServe 2025). Therefore, this alliance is not considered a sensitive vegetation community by CDFW (CDFW 2025a). The association within the laurel sumac scrub alliance mapped on site is the *Malosma laurina* association. This association is also ranked as G4S4 and is therefore not considered sensitive by CDFW (2025a).

Mulefat Thickets

Mulefat thickets feature mulefat as the dominant or co-dominant shrub in the canopy. Mulefat thicket communities are characterized by a continuous two-tiered canopy that is less than 16 feet (5 meters) in height, with one tier under 16 feet and the secondary tier under 6.5 feet (2 meters) in height. Mulefat thickets commonly have a sparse herbaceous layer (CNPS 2025a). Species associated with this alliance include California sagebrush, coyote brush (*Baccharis pilularis*), laurel sumac, tree tobacco (*Nicotiana glauca*), arrow weed (*Pluchea sericea*), blackberry (*Rubus* spp.), sandbar willow (*Salix exigua*), arroyo willow (*Salix lasiolepis*), blue elderberry (*Sambucus nigra*), and tamarisk (*Tamarix ramosissima*). Emergent trees present at low covers may include foothill pine (*Pinus sabiniana*), California sycamore (*Platanus racemosa*), Fremont cottonwood (*Populus fremontii*), oak trees (*Quercus* ssp.), and willows (CNPS 2025a). Mulefat thickets are mapped in the northern corner of the project site, entirely within the previously permitted area.

Mulefat thickets has a rank of G5S4, meaning it is globally secure and apparently secure in California (NatureServe 2025). The association within the mulefat thickets alliance mapped on site is the *Baccharis salicifolia* association. This association is ranked as G5S5, secure both globally and within California, and is therefore not considered sensitive by CDFW (2025a). However, this riparian vegetation community is considered a sensitive vegetation community.

Upland Mustards or Star Thistle Fields

This semi-natural alliance is described by the Manual of California Vegetation as non-native ruderal forbs that are dominant in an open to continuous herbaceous layer, with emergent shrubs or trees that may be present at low cover (CNPS 2025a). Areas dominated by shortpod mustard and Maltese star-thistle (*Centaurea melitensis*) are present throughout the project site. Both species are listed in the Cal-IPC inventory. Within the project site, upland mustards and star thistle fields are primarily located in former agricultural areas. These areas also included a high cover of other invasives, most notably stinknet and crowndaisy, which are also included in the Cal-IPC Inventory (Cal-IPC 2025).

Upland mustards or star-thistle fields semi-natural alliance is ranked by CDFW (2025) as a GNA SNA alliance. This ranking indicates that globally and within California, the alliance is not applicable for a conservation status rank (NatureServe 2025). Two associations within the upland mustards or star-thistle fields alliance were mapped on site: *Hirschfeldia incana* and *Centaurea melitensis*. The *Centaurea melitensis* association is also ranked as GNA SNA while the *Hirschfeldia incana* association is provisionally ranked as GNA SNA (CDFW 2025a).

Red Brome or Mediterranean Grass Grasslands

Red brome or Mediterranean grass grasslands communities include red brome (*Bromus rubens*), Mediterranean grass (*Schismus arabicus*), and/or common Mediterranean grass (*Schismus barbatus*) as dominant or co-dominant species, with other non-natives in the herbaceous layer. This alliance has an open to continuous herbaceous layer that is less than 2.5 feet (75 centimeters) in height. Emergent trees and shrubs may be present at low cover. Red brome or Mediterranean grass grasslands can be found along all topographic settings and soil textures (CNPS 2025a). Red brome or Mediterranean grass grassland were mapped on uplands in the northern portion of the project site.

The red brome or Mediterranean grass grasslands semi-natural alliance is ranked by CDFW (2025a) as a GNA SNA alliance. This ranking indicates that globally and within California, the alliance is not applicable for a conservation status rank (NatureServe 2025). The association within the red brome or Mediterranean grass grasslands alliance mapped on site is the *Bromus rubens* - mixed herbs association. This association is not ranked by CDFW (2025a).

Eucalyptus–Tree of Heaven–Black Locust Groves

This semi-natural alliance is described by the Manual of California Vegetation as non-native trees planted as groves and windbreaks. The *Eucalyptus* (*globulus, camaldulensis*) association refers to areas dominated by eucalyptus trees (*Eucalyptus* spp.) with an open to continuous canopy and sparse to intermittent shrub and herb layers (CNPS 2025a). Stands of eucalyptus trees were mapped along the eastern boundary of the project bordering Bee Canyon Access Road.

This semi-natural alliance is ranked as GNA SNA by CDFW (2025a), indicating that globally and within California, the alliance is not applicable for a conservation status rank (NatureServe 2025). The association within the Eucalyptus–tree of heaven–black locust groves alliance mapped on site is the *Eucalyptus* (*globulus, camaldulensis*) association. This association is ranked as GNA SNA (CDFW 2025a).

Pepper Tree or Myoporum Groves

This semi-natural alliance is described by the Manual of California Vegetation as non-native trees planted as groves and windbreaks where pepper tree (*Schinus* spp.) or Myoporum dominate in an open to continuous canopy less than 59 feet (18 meters) in height, with a simple to diverse herbaceous layer (CNPS 2025a). Small patches of pepper tree groves are present along the eastern boundary bordering Bee Canyon Access Road.

Pepper tree or Myoporum groves semi-natural alliance is ranked as GNA SNA by CDFW (2025a), indicating that globally and within California, it is not applicable for a conservation status rank (NatureServe 2025). The association within the Pepper tree or Myoporum groves alliance mapped on site is the *Schinus molle* association. This association is ranked as GNA SNA (CDFW 2025a).

General Agriculture

General agriculture is not described by the Manual of California Vegetation but is described within the Orange County Habitat Classification System (Gray and Bramlet 1992). Agricultural land refers to non-native anthropogenic habitat including dryland field crops, irrigated row and field crops, vineyards and orchards, dairies, stockyards, stables, and nurseries. The southwestern section of the project site supports actively maintained agricultural fields.

Agriculture is not a listed vegetation community under the California Natural Community List (CDFW 2025a); as such, this community is not globally or state ranked and is not considered a sensitive natural community under the California Environmental Quality Act (CEQA).

Urban/Developed Land

According to Oberbauer et al. (2008), the Urban/Developed Land mapping unit refers to areas that have been constructed upon or otherwise physically altered to an extent that native vegetation is no longer supported. Developed land is characterized by permanent or semi-permanent structures, pavement or hardscape, and landscaped areas that often require irrigation. Urban and/or developed land on the project site consists of work yards associated with on-site industrial and agricultural facilities and paved access roads. There are stands of non-native ornamental trees within the developed facilities in the central and northeastern portions of the project site.

Urban/Developed Land is not a listed vegetation community under the California Natural Community List (CDFW 2025a); as such, this community is not globally or state ranked and is not considered a sensitive natural community under CEQA.

Disturbed Habitat

The Disturbed Habitat mapping unit is not recognized by the Natural Communities List (CDFW 2025a) but is described by Oberbauer et al. (2008). The Disturbed Habitat mapping unit refers to areas that lack vegetation but still retain a pervious surface, or that are dominated by a sparse cover of non-native grasses and ruderal species, such as wild oat (*Avena fatua*), black mustard (*Brassica nigra*), red brome, and prickly lettuce (*Lactuca serriola*). Disturbed habitat is mapped throughout the project site, associated with dirt access roads, work yards, and areas along Jeffrey Road and Portola Parkway. Human-made features associated with agricultural activities (i.e., basins, ditches) are also mapped as disturbed habitat on the project site. Vegetation within areas mapped as disturbed habitat was limited to Cal-IPC Inventory listed invasives, such as stinknet, shortpod mustard, and crowndaisy (Cal-IPC 2025).

Disturbed habitat is not a listed vegetation community under the California Natural Community List (CDFW 2025a); as such, this community is not globally or state ranked and is not considered a sensitive natural community under CEQA.

Ornamental Plantings

The Ornamental Plantings mapping unit is not recognized by the Natural Communities List (CDFW 2025a) but is described by Gray and Bramlet (1992). The Ornamental Plantings mapping unit refers to areas that are consistently managed and planted with decorative tree, shrub, and herbaceous species. Ornamental Plantings border urban development on the northern portion of the project site adjacent to the unnamed drainage on site.

Ornamental Plantings is not a listed vegetation community under the California Natural Community List (CDFW 2025a); as such, this community is not globally or state ranked and is not considered a sensitive natural community under CEQA.

Floral Diversity

A total of 135 species of native or naturalized plants, 63 native (47%) and 72 non-native (53%), were recorded on the site during the survey. No rare plants were observed on the project site. A list of plant species observed in the project site is presented in Appendix B, Species Compendium, to Appendix C, BRTR, of this Draft EIR.

Wildlife

A total of 89 species of wildlife were observed in the project site, consisting of 86 native species and 3 non-native species. A cumulative list of wildlife species observed within the project site is presented in Appendix B, Species Compendium, to the BRTR.

Reptiles and Amphibians. Four reptile species were observed during surveys. Species observed include orange-throated whiptail (*Aspidoscelis hyperythra*), gophersnake (*Pituophis catenifer*), western fence lizard (*Sceloporus occidentalis*), and side-blotched lizard (*Uta stansburiana*). One amphibian species, Baja California treefrog (*Pseudacris hypochondriaca*), was observed during the surveys.

Birds. A total of 73 bird species were observed on the project site, representing 31 different families. Common species frequently observed include hooded oriole (*Icterus cucullatus*), bushtit (*Psaltriparus minimus*), lazuli bunting (*Passerina amoena*), house finch (*Haemorhous mexicanus*), lesser goldfinch (*Spinus psaltria*), black phoebe (*Sayornis nigricans*), red-tailed hawk (*Buteo jamaicensis*), Anna's hummingbird (*Calypte anna*), Allen's hummingbird (*Selasphorus sasin*), American crow (*Corvus brachyrhynchos*), northern mockingbird (*Mimus polyglottos*), house sparrow (*Passer domesticus*), mourning dove (*Zenaida macroura*), barn swallow (*Hirundo rustica*), Bewick's wren (*Thryomanes bewickii*), and California towhee (*Melozone crissalis*).

Mammals. A total of five mammal species were observed on the project site, including desert cottontail rabbits (*Sylvilagus* audubonii.), coyote (*Canis latrans*), and California ground squirrel (*Otospermophilus beecheyi*).

Invertebrates. Four bee species and two butterfly species were detected on the project site. Common species observed include western honeybee (*Apis mellifera*), Vosnesensky bumble bee (*Bombus vosnesenskii*), yellow bumble bee (*Bombus fervidus*), and cabbage white (*Pieris rapae*). Other common invertebrate species that could forage within suitable floral nectar resources onsite include checkered white (*Pontia protodice*), west coast lady (*Vanessa annabella*), and painted lady (*V. cardui*). Numerous other insects and invertebrates are expected to occur in the native vegetation communities on the project site.

Sensitive Plants and Wildlife

Endangered, rare, or threatened species, as defined in CEQA Guidelines Section 15380(b) (14 CCR 15000 et seq.), are referred to as "special-status species" in this Draft EIR and include (1) plant and wildlife species listed or proposed for listing as endangered or threatened under the federal Endangered Species Act (FESA); (2) plant and wildlife species listed, or which are candidates for listing, as endangered or threatened under the California Endangered Species Act (CESA); (3) plant species with a California Rare Plant Rank (CRPR) of 1 or 2, as designated by the California Native Plant Society (2025b); (4) Species of Special Concern (SSC), as designated by CDFW (CDFW 2025b); (5) Fully Protected species, as described in California Fish and Game Code Sections 4700 and 3511; and (6) Birds of

Conservation Concern as designated by the U.S. Fish and Wildlife Service (USFWS 2021). Plant and wildlife species that are "covered" under the NCCP/HCP are also evaluated in this report (County of Orange 1996).

Special-Status and NCCP/HCP Covered Plant Species

A summary of all special-status plant species known to occur in the vicinity of the project site and plant species covered under the NCCP/HCP, along with their habitat requirements and potential to occur determination, is provided in the BRTR. The BRTR provides evaluations for each of these species' occurrence in the project vicinity and their potential to occur on site based on known range, habitat associations, preferred soil substrate, life form, elevation, and blooming period.

No special-status plants were observed during focused botanical surveys conducted in May and July 2025 for the BRTR. One special-status plant species, intermediate mariposa-lily (*Calochortus weedii* var. *intermedius*), which is also a covered species in the NCCP/HCP, was determined to have a high potential to occur. This evaluation was based on a review of the species' known distribution within the region, their known habitat associations, and the site conditions observed during the biological reconnaissance survey. The species' status, primary habitat associations, life form, blooming period, elevation range, and potential to occur are summarized in Table 4.4-2. A discussion of the evaluation is detailed further below and in Section 4.4.4. Southern California black walnut (*Juglans californica*), a CRPR 4.2 plant, was also observed within the project site. Six individuals were mapped along the drainage in the northern portion of the project site.

Table 4.4-2. Special-Status and NCCP/HCP Covered Plant Species with a High Potential to Occur

Scientific Name	Common Name	Status (Federal/ State/NCCP/CRPR)	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet amsl)	Potential to Occur
Calochortus weedii var. *intermedius*	intermediate mariposa-lily	None/None/Yes/1B.2	Chaparral, coastal scrub, and valley and foothill grasslands in rocky substrates. Perennial herb that blooms May–July at elevations between 345–2,805 feet amsl.	High potential to occur in limited areas (i.e., road cuts along Bee Canyon Access Road); low potential to occur within remainder of the project site.

Notes: NCCP = Natural Community Conservation Plan & Habitat Conservation Plan, County of Orange Central & Coastal Subregion; CRPR = California Rare Plant Rank; amsl= above mean sea level.
Status: CRPR 1B: Plants rare, threatened, or endangered in California and elsewhere; .2: Moderately threatened in California (20%–80% occurrences threatened/moderate degree and immediacy of threat).

Intermediate Mariposa Lily (*Calochortus weedii* var. *intermedius*). This perennial bulbiferous herb is ranked 1B.2 by CRPR. Plants with a 1B ranking are considered rare, threatened, or endangered in California and elsewhere, with the majority endemic to California and rare throughout their entire range. Plants with a 0.2 threat rank are moderately threatened in California, with 20%–80% of occurrences threatened with a moderate degree/immediacy of threat (CNPS 2025b). This is a covered species under the NCCP/HCP.

Intermediate mariposa lily blooms from May to July at elevations ranging between 345 feet amsl and 2,805 feet amsl, in chaparral, coastal scrub, and valley and foothill grasslands, preferring rocky substrate. Minimal rocky habitat is present within the project site, limited to road cuts along Bee Canyon Access Road.

Intermediate mariposa lily was not observed during focused botanical surveys, which were conducted within this species' blooming period in May and July 2025. However, there are nearby records for this species, including a 2023 record within the southern boundary of the project site (iNaturalist 2025). Additionally, California Natural Diversity Database (CNDDB) occurrence records for this species are located approximately 0.1 miles from the project site, with numerous observations within 3 miles of the project site in NCCP/HCP reserve lands to the east and north. Intermediate mariposa lily is a bulbiferous herbaceous species that may not have bloomed during the drier than normal conditions during 2025; therefore, due to potential on-site and numerous nearby observations, the potential for this species to occur within the project site is high where small patches of remnant suitable habitat occur (i.e., on road cuts along Bee Canyon Access Road). This species has a low potential to occur in the remainder of the project site due to disturbance from historical land use and lack of suitable habitat.

Special-Status and NCCP/HCP Covered Wildlife Species

A summary of all special-status wildlife species known to occur in the vicinity of the project site, wildlife species covered under the NCCP/HCP, along with their habitat requirements, potential to occur in the survey area, and survey observations, is provided in Appendix D, Special-Status Wildlife Potential to Occur, of the BRTR. Six special-status wildlife species were observed on the project site: monarch (*Danaus plexippus*), white-tailed kite (*Elanus leucurus*), yellow-breasted chat (*Icteria virens*), yellow warbler (*Setophaga petechia*), least Bell's vireo, and Crotch's bumble bee. Three special-status wildlife species were determined to have a moderate potential to occur within the project site or the 500-foot buffer: San Diegan tiger whiptail (*Aspidoscelis tigris stejnegeri*), red diamondback rattlesnake (*Crotalus ruber*), and coastal California gnatcatcher. Two non-special-status NCCP/HCP covered species were observed within the project site: red-shouldered hawk (*Buteo lineatus*) and coyote (*Canis latrans*). One non-special-status NCCP/HCP covered species was determined to have a high potential to occur: orange-throated whiptail. Special-status and NCCP/HCP covered species that were observed and determined to have a moderate to high potential to occur are presented in Table 4.4-3 and discussed in further detail below. Special-status species with a low potential to occur and species that are not expected to occur are excluded from further discussion in this report, with the exception of burrowing owl and mountain lion (*Puma concolor*), due to their high sensitivity status.

Table 4.4-3. Special-Status and NCCP/HCP Covered Wildlife Species Observed or with a Low to High Potential to Occur

Scientific Name	Common Name	Listing Status (Federal/ State/NCCP)	Habitat	Potential to Occur
Birds				
Athene cunicularia (burrow sites & some wintering sites)	burrowing owl	BCC/SSC, SC/No	Nests and forages in grassland, open scrub, and agriculture, particularly with ground squirrel burrows	Not expected to nest; low potential to overwinter.
Buteo lineatus	red-shouldered hawk	None/None/Yes	Nests in dense riparian areas, especially with adjacent edges, swamps, marshes, and wet meadows for hunting	Observed; low potential to nest.

Table 4.4-3. Special-Status and NCCP/HCP Covered Wildlife Species Observed or with a Low to High Potential to Occur

Scientific Name	Common Name	Listing Status (Federal/ State/NCCP)	Habitat	Potential to Occur
Elanus leucurus (nesting)	white-tailed kite	None/FP/No	Nests in woodland, riparian, and individual trees near open lands; forages opportunistically in grassland, meadows, scrubs, agriculture, emergent wetland, savanna, and disturbed lands	Observed; moderate potential to nest.
Icteria virens (nesting)	yellow-breasted chat	None/SSC/No	Nests and forages in thickets of willows, vine tangles, and dense brush	Observed; high potential to nest.
Setophaga petechia (nesting)	yellow warbler	None/SSC/No	Nests and forages in riparian and oak woodlands, montane chaparral, open ponderosa pine, and mixed-conifer habitats	Observed; high potential to nest.
Polioptila californica californica	coastal California gnatcatcher	FT/SSC/Yes	Nests and forages in various sage scrub communities, often dominated by California sagebrush and buckwheat; generally avoids nesting in areas with a slope of greater than 40%; majority of nesting at less than 1,000 feet above mean sea level	Not expected to nest within the project site; moderate potential to forage and nest in coastal sage scrub located in the 500-foot buffer in future years.
Vireo bellii pusillus (nesting)	least Bell's vireo	FE/SE/Yes	Nests and forages in low, dense riparian thickets along water or along dry parts of intermittent streams; forages in riparian and adjacent shrubland late in nesting season	Observed; nesting on site and high potential to nest in future years.
Invertebrates				
Bombus crotchii	Crotch's bumble bee	None/SCE/No	Open grassland and scrub communities supporting suitable floral resources.	Observed; moderate potential to nest.
Danaus plexippus plexippus pop. 1	monarch - California overwintering population	FPT/None/No	Wind-protected tree groves with nectar sources and nearby water sources	Observed; not expected to overwinter.
Mammals				
Canis latrans	Coyote	None/None/Yes	Many areas except very highly urbanized areas	Observed; high potential to occur in future years.

Table 4.4-3. Special-Status and NCCP/HCP Covered Wildlife Species Observed or with a Low to High Potential to Occur

Scientific Name	Common Name	Listing Status (Federal/ State/NCCP)	Habitat	Potential to Occur
Puma concolor	mountain lion - Southern California/Central Coast ESU	None/SC/No	Scrubs, chaparral, riparian, woodland, and forest; rests in rocky areas and on cliffs and ledges that provide cover; most abundant in riparian areas and brushy stages of most habitats throughout California, except deserts	Low potential to occur; natal dens are not expected to occur.
Reptiles				
Aspidoscelis hyperythra	orange-throated whiptail	None/WL/Yes	Low-elevation coastal scrub, chaparral, and valley–foothill hardwood	High potential to occur.
Aspidoscelis tigris stejnegeri	San Diegan tiger whiptail	None/SSC/Yes	Hot and dry areas with sparse foliage, including chaparral, woodland, and riparian areas.	Moderate potential to occur.
Crotalus ruber	red diamondback rattlesnake	None/SSC/Yes	Coastal scrub, chaparral, oak and pine woodlands, rocky grasslands, cultivated areas, and desert flats	Moderate potential to occur.

Notes: NCCP/HCP = Natural Community Conservation Plan & Habitat Conservation Plan, County of Orange Central & Coastal Subregion; NCCP = NCCP/HCP.
Status:
Federal
BCC: U.S. Fish and Wildlife Service Bird of Conservation Concern
FE: federally endangered
FPT: federally proposed for listing as threatened
FT: federally threatened
State
FP: California fully protected species
SC: state candidate for listing as threatened or endangered
SCE: state candidate for listing as endangered
SE: state listed as endangered
SSC: California Department of Fish and Wildlife (CDFW) Species of Special Concern
WL: CDFW Watch List

Burrowing Owl

Burrowing owl is a USFWS Bird of Conservation Concern, a CDFW SSC, and a state candidate for listing under CESA. It occurs throughout North and Central America west of the eastern edge of the Great Plains south to Panama. The winter range is much the same as the nesting range, except that most burrowing owls migrate south from the Great Plains and the Great Basin in winter (Poulin et al. 2020). Most burrowing owls that breed in Canada and the northern United States are believed to migrate south during September and October and north during March and April and into the first week of May. These individuals winter within the nesting habitat of more southern populations. Thus, winter observations may include migratory individuals and the resident population. The burrowing owls in Northern California are believed to migrate (Coulombe 1971).

In California, burrowing owls are year-round residents of flat, open, dry grassland and desert habitats at lower elevations. They can inhabit annual and perennial grasslands and scrublands characterized by low growing vegetation. They may be found in areas that include trees and shrubs if the cover is less than 30%; however, they prefer treeless grasslands (Bates 2006). Although burrowing owls prefer large, contiguous areas of treeless grasslands, they have also been known to occupy fallow agriculture fields, golf courses, cemeteries, road allowances, airports, vacant lots in residential areas and university campuses, and fairgrounds when nest burrows are present (Bates 2006; County of Riverside 2008). They typically require burrows made by fossorial mammals, such as California ground squirrels. This species also prefers sandy soils with higher bulk density and less silt, clay, and gravel (Lenihan 2007).

Protocol wintering and breeding season surveys for this species were negative. Due to a lack of recent breeding records and breeding season observations in central Orange County, this species is considered to be extirpated as a breeder and is not expected to nest on the project site (CDFW 2025c; iNaturalist 2025; Gervais et al. 2008). However, suitable overwintering habitat (e.g., grassland and agricultural land with small mammal burrows) is present on the project site with multiple recent winter observations within 3 miles (CDFW 2025c; iNaturalist 2025). Therefore, this species has a low potential to overwinter on site in future years.

Red-Shouldered Hawk

Red-shouldered hawk is an NCCP/HCP covered species and is a year-round resident of coastal California. They nest in riparian and oak woodlands but can also nest in eucalyptus groves or residential areas in southern California (Dykstra et al. 2020). These medium-sized buteo hawks are diurnal hunters, hunting from perches or by flying low to the ground for small mammals, reptiles, amphibians, and occasionally birds and invertebrates. Red-shouldered hawks nest in large trees but have been observed to avoid nesting near red-tailed hawks (Dykstra et al. 2020).

A red-shouldered hawk was incidentally observed flying over the project site during 2025 field surveys. This species has a low potential to nest because riparian habitat within the project site is small in size and degraded. Additionally, red-tailed hawks were observed nesting on site, which likely would deter red-shouldered hawks as noted in Birds of the World (Dykstra et al. 2020).

White-Tailed Kite

White-tailed kite is a state fully protected species that occurs mainly in lowlands of southern and northwestern cismontane California in savannah, open woodland, marshes, cultivated fields, and partially cleared lands (Zeiner et al. 1990). White-tailed kite hunts in the morning and late afternoon for voles and mice, usually near farmlands. It is non-migratory but can be nomadic and dispersive in its movements and often occurs in communal roosts (Dunk 2020). Nests are made of piled sticks and twigs and placed near the tops of oak, willow, or other trees near marshes and foraging areas (Zeiner et al. 1990).

This species was observed during a field survey conducted on March 20, 2025. No nesting was observed on site during several surveys conducted between July 24, 2024, and July 22, 2025, within its breeding period; however, trees suitable for nesting with adjacent foraging habitat occur on the project site and numerous (>10) known CNDDB occurrences are present within 10 miles (CDFW 2025c). Therefore, this species has a moderate potential to nest on the project site in future years.

Yellow-Breasted Chat

Yellow-breasted chat is a CDFW SSC and resident of riparian areas in coastal and Northern California (Zeiner et al. 1990). This species inhabits dense thickets and tangles near water (Zeiner et al. 1990).

This species was observed within the northeastern portion of the project site in areas mapped as laurel sumac scrub. Laurel sumac scrub is typically considered an upland habitat; however, during surveys, this vegetation community atypically appeared to stand in as substitute habitat for riparian-associated birds using the site. Mulefat thickets mapped within the project site are located in the previously permitted area associated with adjacent development; this vegetation community was no longer present or providing suitable habitat for the species during 2025 surveys. Therefore, yellow-breasted chat is present on site and has a high potential to nest in laurel sumac scrub on the project site.

Yellow Warbler

Yellow warbler is a CDFW SSC and summer resident of riparian areas in coastal California and the foothills of the Sierra Nevada (Zeiner et al. 1990). This species is most often found in willows and cottonwoods but also inhabits a variety of wooded habitats (Zeiner et al. 1990).

This species was observed in wooded areas throughout the project site. Wooded areas and riparian stand-in habitat, such as laurel sumac scrub, within the project site provide suitable nesting habitat. Therefore, yellow warbler is present and has a high potential to nest on the project site.

Coastal California Gnatcatcher

Coastal California gnatcatcher is federally listed as threatened and is a CDFW SSC. It is also an NCCP/HCP covered species. It is closely associated with coastal sage scrub habitat and typically occurs below 950 feet amsl and on slopes less than 40% (Atwood 1990), but coastal California gnatcatcher have also been observed at elevations greater than 2,000 feet amsl. The species is primarily threatened by loss, degradation, and fragmentation of coastal sage scrub habitat, and is also impacted by brown-headed cowbird (*Molothrus ater*) nest parasitism (Braden et al. 1997).

Protocol surveys for coastal California gnatcatcher were negative. The project site does not contain suitable coastal sage scrub habitat. However, suitable coastal sage scrub habitat is present off site in the property east of Bee Canyon Access Road, where a population of this species has been consistently documented (CDFW 2025c); therefore, this species has a moderate potential to occur and to nest in off-site habitat in future years. The methods and results of the focused coastal California gnatcatcher surveys are provided in Appendix E, Coastal California Gnatcatcher Survey Report, to the BRTR.

Least Bell's Vireo

Least Bell's vireo is a federally and state-listed endangered species that is conditionally covered under the NCCP/HCP. It nests and forages in low, dense riparian thickets along water or along dry parts of intermittent streams, as well as adjacent shrubland late in the nesting season. Nesting habitats in cismontane and coastal areas include willow (*Salix*) riparian scrub, mulefat scrub, and Fremont cottonwood. In the coastal portions of its Southern California range, it occurs in lower areas of canyons, typically below 2,000 feet amsl.

Least Bell's vireo was observed in laurel sumac scrub on site and in adjacent areas during the 2025 focused surveys. Within the project site, a total of seven territories were observed over the course of the focused surveys, with four confirmed to be occupied by mated pairs, and nesting was confirmed at two territories. One singing individual was only observed once early in the season and was therefore presumed to be a migrant. Six more territories were observed off site within the 500-foot buffer across Bee Canyon Access Road. This species has a high potential to nest on the project site and in suitable habitat within 500 feet of the project site in future years. As mentioned above under "Yellow-Breasted Chat," laurel sumac scrub is usually considered an upland vegetation community but appeared to stand in as an atypical substitute habitat for riparian-associated birds, including least Bell's vireo, during 2025 field surveys.

Crotch's Bumble Bee

Crotch's bumble bee is a state candidate for listing and, as such, is afforded protection by CESA equivalent to a threatened listing. This species is found in open grassland and scrub habitats and has been found to persist in semi-natural habitats surrounded by intensely modified landscapes. This species is restricted to a very limited climatic range that is much hotter and drier than most bumble bees thrive in. It uses a wide array of flowers; food plants include *Asclepias, Chaenactis, Lupinus, Medicago, Phacelia,* and *Salvia* (Williams et al. 2014).

Crotch's bumble bee was observed within the project site during focused surveys. One transient individual was observed in the eastern portion of the project site, and one foraging worker was observed in the western portion of the project site (Figure 4.4-2, Special-Status Species). No nests were detected during surveys. This species may forage for nectar on the Salvia species (*Salvia mellifera*) and other floral resources within suitable off-site coastal sage scrub present east of the project site across Bee Canyon Access Road and within vegetation communities on the project site. Hymenoptera (bees) and Lepidoptera (butterflies) were observed on site during the biological surveys, and suitable floral nectar resources and scrub habitat capable of supporting these species can persist year-round on site. In addition, the nearest known CNDDB occurrence record (from 2016) is 4.6 miles east from the project site. Potential nesting resources, such as small mammal burrows, brush piles, debris piles, rock piles, and bare ground were observed within the project site. Additionally, areas under tree cover with insulating leaf litter within the project site could provide overwintering habitat (CDFW 2023). Therefore, there is a moderate potential for Crotch bumble bee nesting to occur on the project site. The methods and results of the focused Crotch's bumble bee surveys are provided in Appendix F, Crotch's Bumble Bee Survey Report, to the BRTR.

Monarch Butterfly

Monarch butterfly is a federal candidate for listing under the federal Endangered Species Act. Within the United States, monarch butterflies follow a pattern of seasonal migration, in which spring and summer breeding occurs in New England, the Great Lakes region, and the northern Rocky Mountains from May through late August to mid-September. The Rocky Mountains population migrates to wintering grounds along the California coast (Urquhart 1987). Over-wintering sites in California are usually comprised of roost trees sheltered by a larger grove or windrow of trees (Pelton et al. 2016). Native Monterey pine (*Pinus radiata*) and Monterey cypress (*Cupressus macrocarpa*), as well as the non-native Tasmanian blue gum, are tree species most commonly used for winter roosting, though monarch clusters have also been found on other large trees found in coastal areas, such as river redgum, California sycamore (*Platanus racemosa*), coast redwood (*Sequoia sempervirens*), and coast live oak (*Quercus agrifolia*) (Xerces Society 2016, 2017).

Monarch butterfly was observed flying through the project site during 2024–2025 field surveys. However, trees on the project site are not sufficiently sheltered from wind to provide winter roosting habitat. In addition, the nearest known overwintering roost occurrence is 12.4 miles away (CDFW 2025c). Therefore, this species may occur on site as a transient but is not expected overwinter on the project site.

Coyote

Coyote is an NCCP/HCP covered species and a permanent resident throughout the state, occurring in almost all habitats with elevations as high as 9,840 feet amsl. They inhabit open brush, scrub, shrub and herbaceous habitats as well as opportunistically associating with croplands. The species will dig dens, usually on brushy, south-facing slopes, and utilize natural cavities in rocky areas, hollow trees and logs, caves, and holes. Coyotes are omnivorous opportunists, with a diet consisting mostly of rodents and rabbits but also occasionally fruits, amphibians, reptiles, fawns, and birds and their eggs (CDFW 2025d).

Coyote individuals, scat, and trails were observed on several occasions during 2024-2025 field surveys. Additionally, open fields with small mammal populations offer ample forage opportunities for the species. The project site also contains dense vegetation and structures that would provide denning habitat. This species has a high potential to occur on the project site in future years.

Mountain Lion

The Southern California and central coast evolutionary significant units of mountain lion are state candidates for listing and, as mentioned previously, afforded protection by CESA equivalent to a threatened listing. Mountain lions are large predatory mammals that inhabit a wide variety of habitat types, such as deserts, humid coast forests, arid hillsides, scrub, and oak woodlands, but often utilize areas with dense undergrowth and cover (CDFW 2025d).

This species is known to occur in the Santa Ana Mountains and is expected to be present in the open space areas to the northeast of the project site. Access to the project site is constrained by Highways 241 and 261, Bee Canyon Access Road, and urban development. Therefore, mountain lion has a low potential to occur. Natal dens of the species are not expected due to surrounding disturbance from agricultural and industrial activities.

Orange-Throated Whiptail

Orange-throated whiptail is a state Watch List species and NCCP/HCP covered species occurring on the cismontane side of the Peninsular Ranges in Orange, Riverside and San Diego Counties with an elevational range extending from near sea level to 3,410 feet amsl. They inhabit low-elevation coastal scrub, chamise–redshank chaparral, mixed chaparral, and valley–foothill hardwood habitats. They prefer patches of brush and rocks in washes and other sandy areas while utilizing dense vegetation and surface debris to forage for small arthropods. Breeding usually occurs in April and hatchlings emerge from August to early September (CDFW 2025d).

Although orange-throated whiptail was not observed on site during 2024–2025 surveys, suitable chaparral habitat is present within the project site. Additionally, an orange-throated whiptail individual was incidentally observed off site during a focused coastal California gnatcatcher survey of the 500-foot buffer south of Bee Canyon Access Road. There are numerous known occurrences in the vicinity of the project site, including an iNaturalist observation on the project site in the already permitted area where construction was ongoing at the time of field surveys (CDFW 2025c; iNaturalist 2025).

San Diegan Tiger Whiptail

San Diegan tiger whiptail is a CDFW SSC and NCCP/HCP covered species that occurs in coastal Sothern California, mostly west of the Peninsular Ranges and south of the Transverse Ranges as well as north into Ventura County and south into Baja California. They can primarily be found in hot and dry open areas with sparse foliage in chaparral, woodland and riparian ecosystems. This species forages for small invertebrates and lizards near cover to which they can rapidly escape (Nafis 2025).

Although this species was not observed during 2024–2025 surveys, suitable dry open habitat is present on the project site. In addition, there are known occurrences in the vicinity of the project site (CDFW 2025c; iNaturalist 2025).

Red Diamondback Rattlesnake

Red diamondback rattlesnake is a CDFW SSC and NCCP/HCP covered species that occurs in southwestern California, from the Morongo Valley west to the coast, and south along the Peninsular Ranges to mid–Baja California (Nafis 2025). It inhabits arid scrub, coastal chaparral, oak and pine woodlands, rocky grassland, cultivated areas on the desert slopes of mountains, and rocky desert flats. The breeding period for this species is July through September (Nafis 2025).

Although this species was not observed during 2024–2025 surveys, suitable chaparral, grassland, and cultivated habitat is present on the project site. In addition, there are known occurrences in the vicinity of the project site (CDFW 2025c; iNaturalist 2025).

Jurisdictional Wetlands and Waters

A formal delineation of potentially jurisdictional waters and wetlands was conducted by Dudek on July 24, 2024. The results of this jurisdictional delineation are provided in Appendix G, Aquatic Resources Delineation Report, to the BRTR, which details the methods, results, and all data forms. The project site is located within the Peters Canyon Wash and Lower San Diego Creek watersheds within the larger Newport Bay watershed. Flows from this watershed generally flow toward the southwest and discharge to the Pacific Ocean through Newport Bay.

The results of the jurisdictional delineation determined that one unnamed drainage, Non-Wetland Waters (NWW) 1, is present along the northern boundary of the project site. The drainage is depicted as a blue line on the U.S. Geological Survey 7.5-minute Lake Forest, California quadrangle map (USGS 2022); it begins at the confluence of two drainages approximately 2,500 feet east of the project site and flows west for approximately 3,300 feet before connecting to Hicks Canyon Wash. Hicks Canyon Wash flows into Peters Canyon Wash, which is a direct tributary to San Diego Creek, and flows eventually into the Pacific Ocean, a traditional navigable water.

NWW-1 was determined to be ephemeral using the Streamflow Duration Assessment Method. Additionally, no hydrophytic vegetation was observed at this feature. Based on these results, field observations, and best professional judgment, the tributary lacks relatively permanent water (i.e., surface water flows are likely only present in direct response to precipitation).

Three additional features associated with agricultural use within the project site were observed in the southern region, including two agricultural basins and one agricultural irrigation ditch. The basins exhibited wetland hydrology, and hydrophytic vegetation was observed within them, including tamarisk (*Tamarix ramosissima*) and cottonwood trees (*Populus* sp.). Wetland sampling points were taken within each basin, and the basins were determined not to be wetlands due to lack of hydric soils (Appendix G to the BRTR). Examination of historical aerial

maps indicates that the two basins were not present prior to 2003, and the irrigation ditch does not show evidence of surface water connectivity with downstream drainages. Therefore, the two basins and irrigation ditch are human-made agricultural features wholly within upland areas and are not jurisdictional.

Because NWW-1 was determined to be ephemeral, and the agricultural irrigation ditch and basins did not exhibit evidence of hydric soils or connectivity, no jurisdictional areas potentially regulated by USACE are present on the project site.

Portions of NWW-1 within the ordinary high water mark (OHWM) were identified as non-wetland waters of the state subject to regulation by the RWQCB under the Porter–Cologne Water Quality Control Act (Porter–Cologne Act). Because CDFW regulates from bank to bank, certain portions of the NWW-1 where the top of a channel bank extended beyond the OHWM are subject to regulation by CDFW as streambed. Table 4.4-4 details the jurisdictional extent and location of NWW-1. Figures 4.4-3 and 4.4-4 (Potential Jurisdictional Aquatic Resources – RWQCB and CDFW) depict the potential jurisdictional extents regulated by RWQCB and CDFW, respectively.

Table 4.4-4. Aquatic Resources Summary for the Project Site

Feature Name	Location (Latitude/Longitude; Decimal Degrees)	Acreage
RWQCB Non-Wetland Waters of the State		
NWW-1 (Unnamed Tributary to Hicks Canyon Wash)	33.719625°, −117.730824°	0.07
CDFW Streambed		
NWW-1 (Unnamed Tributary to Hicks Canyon Wash)	33.719625°, −117.730824°	0.26

Notes: RWQCB = Regional Water Quality Control Board; NWW = Non-Wetland Waters; CDFW = California Department of Fish and Wildlife.

Within NWW-1, the OHWM was delineated to be potentially regulated by RWQCB. This feature may also be regulated by CDFW beyond the OHWM to the top of bank. In total, 0.07 acres of non-wetland waters (below the OHWM) of RWQCB jurisdiction and 0.26 acres of CDFW streambed (below and above the OHWM, to top of bank) occur on the project site (Appendix G to the BRTR).

Wildlife Corridors, Habitat Linkages, and Nursery Sites

Wildlife corridors are linear features that connect large patches of natural open space and provide avenues for dispersal or migration of animals, as well as dispersal of plants (e.g., via wildlife vectors). Wildlife corridors contribute to population viability in several ways: (1) they assure continual exchange of genes between populations, which helps maintain genetic diversity; (2) they provide access to adjacent habitat areas representing additional territory for foraging and mating; (3) they allow for a greater carrying capacity; and (4) they provide routes for colonization of habitat lands following local population extinctions or habitat recovery from ecological catastrophes.

Habitat linkages are patches of native habitat that function to join two larger patches of habitat. They serve as connections between habitat patches and help reduce the adverse effects of habitat fragmentation. Although individual animals may not move through a habitat linkage, the linkage is a potential route for gene flow and long-term dispersal. Habitat linkages may serve both as habitat and avenues of gene flow for small animals such as reptiles, amphibians, and rodents. Habitat linkages may be represented by continuous patches of habitat or by nearby habitat "islands" that function as steppingstones for dispersal and movement (especially for birds and flying insects).

The project site consists primarily of agricultural land and associated roads, lots, and buildings. Undeveloped but maintained areas include slopes along the eastern boundary of the project site and the drainage along the northern boundary of the project site. The project site occurs at the northern extent of dense urban areas within the City of Irvine. Development of the Orchard Hills neighborhood was actively ongoing west of the project site during the time of surveys, and dense residential development is present to the south and southwest. Undeveloped land associated with NCCP/HCP reserve lands lies immediately north and east of the project site. The eastern edge of the project site is bounded by Bee Canyon Access Road, which is heavily trafficked by trucks traveling to and from the Frank R. Bowerman Landfill, located approximately 2 miles east of the project site. Movement to/from the project site from open space in the Santa Ana Mountains is also constrained by State Route (SR) 241 to the east and north and by SR-261 to the west.

The project site has the potential to provide for local wildlife movement of common wildlife species to and/or from open space to the east and may function as a stop-over site for avian species moving through the area. However, the project site itself does not function as a wildlife corridor or habitat linkage between two larger blocks of native habitat. The project site does not contain any native wildlife nursery sites.

City Protected Trees

Trees subject to a City of Irvine Municipal Code tree removal permit are present on the project site. The project site includes several trees that may meet the definition of a significant tree pursuant to the Municipal Code, composed of a broad array of non-native ornamental and naturalized species, including kaffir plum (*Harpephyllum caffrum*), Peruvian pepper tree, blue jacaranda (*Jacaranda mimosifolia*), Jerusalem thorn (*Parkinsonia aculeata*), Chinese banyan (*Ficus macrocarpa*), monkeypod (*Pithecellobium dulce*), eucalyptus, and Italian stone pine (*Pinus pinea*), among many others, as well as native trees like coast live oak, Southern California black walnut, Goodding's willow, and Fremont cottonwood.

4.4.2 Relevant Plans, Policies, and Ordinances

Federal

Federal Endangered Species Act

The federal Endangered Species Act (FESA) of 1973, as amended, (16 USC 1531 et seq.) serves as the enacting legislation to list, conserve, and protect threatened and endangered species, and the ecosystems on which they depend, from extinction. In addition, for those wildlife species listed as federally endangered, FESA provides for the ability to designate critical habitat, defined as that habitat considered "essential to the conservation of the species" and that "may require special management considerations or protection." Under FESA Section 7, if a project that would potentially result in adverse impacts to threatened or endangered species includes any action that is authorized, funded, or carried out by a federal agency, that agency must consult with USFWS to ensure that any such action is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of designated critical habitat for that species. FESA Section 9(a)(1)(B) prohibits the taking, possession, sale, or transport of any endangered fish or wildlife species. "Take" is defined to mean "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct" (16 USC 1532 (19)). With respect to any endangered species of plant, Sections 9(a)(2)(A) and 9(a)(2)(B) prohibit the possession, sale, and import or export, of any such species, and prohibits any action that would "remove and reduce to possession any such species from areas under federal jurisdiction; maliciously damage or destroy any such species on any such area; or remove, cut, dig up, or damage

or destroy any such species on any other area in knowing violation of any law or regulation of any State or in the course of any violation of a State criminal trespass law." Pursuant to FESA Section 10(a)(1)(B), USFWS may issue a permit for the take of threatened or endangered species provided that such taking is "incidental to, and not the purpose of, the carrying out of an otherwise lawful activity."

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) regulates or prohibits taking, killing, possession of, or harm to migratory bird species listed in Title 50, Section 10.13 of the Code of Federal Regulations. The MBTA is an international treaty for the conservation and management of bird species that migrate through more than one country and is enforced in the United States by USFWS. Hunting of specific migratory game birds is permitted under the regulations listed in Title 50, Section 20 of the Code of Federal Regulations. The MBTA was amended in 1972 to include protection for migratory birds of prey (raptors). On December 22, 2017, the Department of Interior issued a legal opinion (M-Opinion 37050) that interpreted the above prohibitions as only applying to direct and purposeful actions of which the intent is to kill, take, or harm migratory birds; their eggs; or their active nests. Incidental take of birds, eggs, or nests that are not the purpose of such an action, even if there are direct and foreseeable results, was not prohibited. On January 7, 2021, USFWS published a final rule (the January 7 rule) that codified the previous administration's interpretation, which after further review was determined to be inconsistent with the majority of relevant court decisions and readings of the MBTA's text, purpose, and history. On May 7, 2021, USFWS published a proposed rule to revoke the January 7 rule, which would result in a return to implementing the statute as prohibiting incidental take. On July 19, 2021, USFWS announced the availability of two revised economic analysis documents for public review that evaluate the potential for the proposed rule to impact small entities, including businesses, governmental jurisdictions, and other organizations. The public review period on these documents ended on August 19, 2021. A final rule revoking the January 7 rule was published on October 4, 2021, and went into effect on December 3, 2021. In their summary of the October 4, 2021, final rule, USFWS explained that "the immediate effect of this final rule is to return to implementing the MBTA as prohibiting incidental take and applying enforcement discretion, consistent with judicial precedent and longstanding agency practice prior to 2017" (86 FR 54642).

Clean Water Act

The Clean Water Act provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters. Section 401 requires a project operator for a federal license or permit that allows activities resulting in a discharge to waters of the United States to obtain state certification, thereby ensuring that the discharge will comply with provisions of the Clean Water Act . RWQCBs administer the certification program in California. Section 402 establishes a permitting system for the discharge of any pollutant (except dredged or fill material) into waters of the United States. Section 404 establishes a permit program administered by USACE that regulates the discharge of dredged or fill material into waters of the United States, including wetlands. USACE implementing regulations are found at 33 Code of Federal Regulations (CFR) 320 and 330. Guidelines for implementation are referred to as the Section 404(b)(1) Guidelines, which were developed by the U.S. Environmental Protection Agency in conjunction with USACE (40 CFR 230). The guidelines allow the discharge of dredged or fill material into the aquatic system only if there is no practicable alternative that would have less adverse impacts.

Wetlands and Other Waters of the United States

Aquatic resources, including riparian areas, wetlands, and certain aquatic vegetation communities, are considered sensitive biological resources and can fall under the jurisdiction of several regulatory agencies. USACE exerts jurisdiction over waters of the U.S., including all waters that are subject to the ebb and flow of the tide; wetlands

and other waters such as lakes, rivers, streams (including intermittent or ephemeral streams), mudflats, sandflats, sloughs, prairie potholes, vernal pools, wet meadows, playa lakes, or natural ponds; and tributaries of the above features.

The extent of waters of the U.S. is generally defined as that portion that falls within the limits of an OHWM. Typically, the OHWM corresponds to the water surface elevation of a 2-year flood event (USACE 2008). In addition, waters of the United States may include wetlands, including swamps, bogs, seasonal wetlands, seeps, marshes, and similar areas, defined by USACE as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3[b]; 40 CFR 230.3[t]). Indicators of three wetland parameters (i.e., hydric soils, hydrophytic vegetation, and wetlands hydrology), as determined by field investigation, must be present for a site to be classified as a wetland by USACE.

State

California Endangered Species Act

CDFW administers the California Endangered Species Act (CESA), which prohibits the take of plant and animal species designated by the Fish and Game Commission as endangered or threatened in California. Under CESA Section 86, "take" is defined as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." CESA Section 2053 stipulates that state agencies may not approve projects that will "jeopardize the continued existence of any endangered species or threatened species, or result in the destruction or adverse modification of habitat essential to the continued existence of those species, if there are reasonable and prudent alternatives available consistent with conserving the species or its habitat which would prevent jeopardy."

CESA defines an endangered species as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease." CESA defines a threatened species as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required by this chapter. Any animal determined by the Commission as rare on or before January 1, 1985, is a threatened species." A candidate species is defined as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that the Commission has formally noticed as being under review by the department for addition to either the list of endangered species or the list of threatened species, or a species for which the Commission has published a notice of proposed regulation to add the species to either list." CESA does not list invertebrate species.

California Department of Fish and Wildlife Special-Status Plants

Special-status plant species are defined as plants that are legally protected or that are otherwise considered sensitive by federal, state, or local resource conservation agencies. These species fall into one or more of the following categories:

- Listed by the federal government under the federal Endangered Species Act of 1973 or by the state of California under the California Endangered Species Act of 1970 as endangered, threatened, or rare.
- Plant species that are proposed for listing under the federal Endangered Species Act.
- A candidate for state listing as endangered or threatened

- Taxa that are biologically rare, very restricted in distribution, or declining throughout their range but not currently threatened with extirpation.
- Population(s) in California that may be peripheral to the major portion of a taxon's range but are threatened with extirpation in California.
- Taxa closely associated with a habitat that is declining in California at a significant rate (e.g., wetlands, riparian, vernal pools, old growth forests, desert aquatic systems, native grasslands, valley shrubland habitats).

Taxa considered to be "rare, threatened, or endangered in California" as defined by CDFW and assigned a CRPR. The CDFW system includes six rarity and endangerment ranks for categorizing plant species of concern, as follows:

- CRPR 1A – Plants presumed to be extinct in California
- CRPR 1B – Plants that are rare, threatened, or endangered in California and elsewhere
- CRPR 2A – Plants presumed to be extinct in California, but more common elsewhere
- CRPR 2B – Plants that are rare, threatened, or endangered in California, but more common elsewhere
- CRPR 3 – Plants about which more information is needed (a review list)
- CRPR 4 – Plants of limited distribution (a watch list)

Plants ranked as CRPR 1A, 1B, 2A, or 2B may qualify as endangered, rare, or threatened species within the definition of CEQA Guidelines Section 15380. CDFW recommends that potential impacts to CRPR 1 and 2 species be evaluated in CEQA review documents. In general, CRPR 3 and 4 species do not meet the definition of endangered, rare, or threatened pursuant to CEQA Guidelines Section 15380, but these species may be evaluated on a case-by-case basis.

California Department of Fish and Wildlife Species of Special Concern

CDFW maintains a list of vertebrate animal species considered of "special concern" because declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction. A Species of Special Concern (SSC) is a species, subspecies, or distinct population of an animal native to California that currently satisfies one or more of the following (not necessarily mutually exclusive) criteria:

- Is extirpated from the state or, in the case of birds, is in its primary seasonal or breeding role
- Is listed as threatened or endangered federally, but not by the state
- Meets the state definition of threatened or endangered, but has not formally been listed
- Is experiencing, or formerly experienced, serious noncyclical population declines or range retractions (not reversed) that, if continued or resumed, could qualify it for threatened or endangered status by the state
- Has naturally small populations exhibiting high susceptibility to risk from any factor(s) that, if realized, could lead to declines that would qualify it for threatened or endangered status by the state

Impacts to SSC are typically evaluated and mitigated within the context of an environmental impact report or other document prepared pursuant to CEQA.

California Fish and Game Code Section 1600 – Lake and Streambed Alteration Agreement

Under Sections 1600–1616 of the California Fish and Game Code, CDFW regulates activities that would alter the flow, bed, channel, or bank of streams and lakes. The limits of CDFW's jurisdiction are defined in the code as the "bed, channel or bank of any river, stream, or lake designated by the department in which there is at any time an existing fish or wildlife resource or from which these resources derive benefit" (Section 1601). In practice, CDFW usually marks its jurisdictional limit at the top of the stream or bank, or at the outer edge of the riparian vegetation, whichever is wider.

California Department of Fish and Wildlife – Wetlands Protection Regulations

CDFW derives its authority to oversee activities that affect wetlands from state legislation. This authority includes California Fish and Game Code Sections 1600–1616 (lake and streambed alteration agreements), the California Endangered Species Act (protection of state-listed species and their habitats, which could include wetlands), and the Keene–Nejedly California Wetlands Preservation Act of 1976 (states a need for an affirmative and sustained public policy program directed at wetlands preservation, restoration, and enhancement). In general, CDFW asserts authority over wetlands within the state through any of the following: review and comment on USACE Section 404 permits, review and comment on CEQA documents, preservation of state-listed species, or lake and streambed alteration agreements.

California Fish and Game Code, Section 1940 – Sensitive Natural Communities

California Fish and Game Code Section 1940 requires CDFW to develop and maintain a vegetation mapping standard for the state. More than half of the vegetation communities in the state have been mapped through the Vegetation Classification and Mapping Program.

Natural vegetation communities are evaluated by CDFW and are assigned global (G) and state (S) ranks based on rarity of and threats to these vegetation communities in California. Natural communities with ranks of S1 through S3 (S1: critically imperiled; S2: imperiled; S3: vulnerable) are considered sensitive. Sensitive natural communities are communities that have a limited distribution and are often vulnerable to the environmental effects of projects. These communities may or may not contain special-status species or their habitats. For purposes of this assessment, sensitive natural communities include vegetation communities listed in CDFW's CNDDB and communities listed in the Natural Communities List with a rarity rank of S1, S2, or S3 (S1: critically imperiled; S2: imperiled; S3: vulnerable). Additionally, all vegetation associations within the alliances with ranks of S1 through S3 are considered sensitive habitats. CEQA requires that impacts to sensitive natural communities be evaluated and mitigated to the extent feasible.

California Fish and Game Code, Sections 3503, 3503.5, 3511, 3513

Section 3503 of the California Fish and Game Code states that it is unlawful to take, possess, or needlessly destroy the nests or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto. Section 3503.5 protects all birds of prey (raptors) and their eggs and nests. Section 3511 states that fully protected birds or parts thereof may not be taken or possessed at any time. Section 3513 states that it is unlawful to take or possess any migratory non-game bird as designated in the MBTA.

California Fish and Game Code, Section 4150

California Fish and Game Code Section 4150 states that a mammal occurring naturally in California that is not a game mammal, fully protected mammal, or fur-bearing mammal is a non-game mammal. A non-game mammal may not be taken or possessed under this code. All bat species occurring naturally in California are considered non-game mammals and are therefore prohibited from take as stated in California Fish and Game Code Section 4150.

Porter–Cologne Water Quality Control Act

The Porter–Cologne Act established the State Water Resources Control Board and each RWQCB as the principal state agencies responsible for the protection of water quality in California. As noted under the discussion of the Clean Water Act, the Santa Ana RWQCB has regulatory authority over the project area.

The Porter–Cologne Act provides that "All discharges of waste into the waters of the State are privileges, not rights." Waters of the state are defined in Section 13050(e) of the Porter–Cologne Act as "any surface water or groundwater, including saline waters, within the boundaries of the state." All dischargers are subject to regulation under the Porter–Cologne Act, including both point and nonpoint source dischargers. As noted in the discussion of the Clean Water Act, the Santa Ana Regional Water Quality Control Board is the appointed authority for Section 401 compliance in the project area.

California Environmental Quality Act

CEQA Guidelines Section 15380(b) provides that a species not listed on the federal or state list of protected species may be considered rare or endangered if the species can be shown to meet certain criteria. These criteria have been generally modeled after the definition in FESA and Chapter 1.5 of the California Fish and Game Code that addresses rare or endangered plants and animals. Appendix G of the CEQA Guidelines requires a lead agency to determine whether or not a project would "have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service." CEQA Guidelines Section 15065 requires that a lead agency find an impact to be significant if a project would "substantially reduce the number or restrict the range of an endangered, rare, or threatened species."

Regional

Natural Community Conservation Plan & Habitat Conservation Plan, County of Orange Central & Coastal Subregion

The proposed project is located in the Central Subarea of the NCCP/HCP. The NCCP/HCP, which covers an approximately 208,000-acre planning area in central and coastal Orange County, is a planning and policy document designed to protect and manage habitat supporting a broad range of plant and animal populations within the Central and Coastal Subregion of Orange County and intended to avoid, minimize and mitigate for alterations to coastal sage scrub and other covered habitats constituting 'harm' or 'harass' and therefore take under FESA that are incidental to Planned Activities in the Central and Coastal Subregion. To accomplish this goal, the NCCP/HCP creates a subregional habitat reserve system (Reserve System) and implements a coordinated program to manage biological resources within the Reserve (County of Orange 1996). The Implementing Agreement for the NCCP/HCP was reviewed and approved by USFWS and the California Department of Fish and Game (now CDFW) in 1996.

Local

City of Irvine Municipal Code

Title 5 (Planning), Division 7 (Sustainability in Landscaping), Chapter 4 (Urban Forestry)

Chapter 4: Urban Forestry, Article E, Section 5-7-410 of the City of Irvine Municipal Code requires a tree removal permit from a City Arborist to remove any significant tree on public or private land except when:

- Safety Hazard. Deemed to an immediate hazard to life or property.
- Condition. Dead, decayed or diseased beyond correction; or malformed or stunted due to crowding.
- Trees causing damage to structures or deemed to be incompatible with the growing space available.

Trees are defined as any woody plant species that can typically grow with a single trunk with distinguishable crown and a height of 15 feet or greater at maturity. Significant trees include public trees in the right-of-way of public streets, public trees located in and around parks and other public facilities, trees in common areas located in village edges and landscape or parking lot setbacks on arterial streets, private trees on nonresidential properties to the extent zoning ordinance requirements are effective, and trees in eucalyptus (*Eucalyptus globulus*) windbreaks and trees in remnant eucalyptus windbreaks of the same ages as known windbreak trees in the City. Removal of trees shall be replaced at a 1:1 ratio either on site or in a similar location, in a different location on site, or off site as outlined in the Urban Forestry Guideline manual based on the determination of the City Arborist.

Title 3 (Community Services), Division 4 (Parks), Chapter 1 (In General)

Section 3-4-132 (Protection of Natural, Cultural, Structural and Archaeological Resources) of Chapter 1 prohibits any person from possessing, destroying, injuring, defacing, removing, digging, or disturbing from its natural state any of the following: plants, wildlife, artifacts, minerals, landscape structures, improvements, wood, and natural products.

Irvine 2045 General Plan – Conservation and Open Space Element

The General Plan Conservation and Open Space Element contains a variety of goals, objectives, and policies related to the protection of biological resources (City of Irvine 2024):

Goal 1. Ensure the permanent protection and preservation of designated conservation and open space areas amidst the development of commercial, industrial, institutional, and residential zones.

Objective COS-1: Continue the implementation of programs that effectively integrate the protection and preservation of conservation and open space areas with the development of designated zones.

Policy (a): Continue to prioritize the identification and delineation of conservation and open space areas within the city's planning framework.

Policy (b): Require developers to conduct comprehensive environmental assessments to identify potential impacts on designated conservation and open space areas during project planning.

Policy (c): Encourage the adoption of land use zoning regulations that incorporate buffer zones around conservation and open space areas to mitigate adverse impacts from adjacent development.

Policy (d): Facilitate partnerships between public agencies, private developers, and conservation organizations to acquire, manage, and maintain designated conservation and open space areas.

Policy (e): Implement incentives such as density bonuses or development credits for projects that contribute to the enhancement or restoration of conservation and open space areas.

Goal 2. Implement the Natural Communities Conservation Plan/Habitat Conservation Plan (NCCP/HCP) agreement and program to accomplish multi-species and multi-habitat conservation.

Objective COS-2: Continue to effectively implement the Natural Communities Conservation Plan/Habitat Conservation Plan (NCCP/HCP) agreement and program to achieve comprehensive conservation goals, including the preservation and management of diverse species and habitats across the designated area, ensuring long-term ecological sustainability and biodiversity conservation.

Policy (a): Review project proposals within the reserve system to assure consistency with the NCCP/HCP implementation agreement and program.

Policy (b): Assure that nonparticipating landowners provide evidence of payment of mitigation fees.

Policy (c): Manage all City open space lands enrolled in the NCCP/HCP Reserve System consistent with the terms, conditions and obligations of the NCCP/HCP permit and Implementation Agreement and associated Recreation and Resource Management Plan (RRMPs), including the City's obligation to restore Coastal Sage Scrub (CSS) habitat in exchange for development of the open space trail system authorized in the RRMP.

Policy (d): Use the NCCP as a Program Environmental Impact Report for purposes of consistency with the California Environmental Quality Act, applying the Coastal Sage Scrub (CSS) mitigation measures applicable to planned activities.

Policy (e): Adopt fuel modification ordinances and standards consistent with the Fuel Modification Zones established in the NCCP/HCP.

Policy (f): Encourage and avoid adverse impacts to viable wildlife movement corridors connecting the Santa Ana Mountains to the coast open space areas of Bommer and Shady Canyons, Laguna Coast Wilderness Park, and Crystal Cove State Park.

Goal 10. Enhanced open space accessibility and utilization, and conservation efforts of resources.

Objective COS-10: The City commits to creating and fostering well-integrated and sustainable open space resources available to City residents and visitors.

Policy (d): Balance access to open space for outdoor passive and active recreation with conservation needs consistent with City's Open Space management obligations and permit conditions such as the NCCP/HCP. Policy

Policy (j): Safeguard and maintain biotic communities and habitats within designated conservation and open space areas in alignment with Environmental Protection and Climate Action Element, NCCP/HCP and Resource Management Plans, including the protection of native flora and fauna, restoration of degraded habitats, and management practices aimed at enhancing biodiversity and ecological resilience.

4.4.3 Thresholds of Significance

The significance criteria used to evaluate the project impacts to biological resources are based on Appendix G of the CEQA Guidelines. For the purposes of this project, a significant impact related to biological resources would occur if the project would:

1. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.
2. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.
3. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
4. 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.
5. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
6. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

4.4.4 Impacts Analysis

Methodology

Data regarding biological resources present in the project site were obtained through a review of pertinent literature, field reconnaissance, and focused surveys, which are described in detail below.

Literature Review

Special-status biological resources present or potentially present on the project site were identified through a literature search, conducted in 2024. The following sources were used during the literature review process:

- The CNDDB (CDFW 2025c) was queried to compile a list of potentially occurring flora and fauna tracked by the CNDDB in the El Toro quadrangle and the surrounding eight quadrangles.

- California Native Plant Society's Inventory of Rare and Endangered Plants of California, 9th online edition (CNPS 2025b), was searched to compile a list of potentially occurring special-status plants in the El Toro topographic quadrangle and the surrounding eight quadrangles.
- USFWS's Information for Planning and Consultation tool (USFWS 2025) was queried to compile a list of flora and fauna listed, candidate, or proposed for listing, under FESA within or near the project site.

The NCCP/HCP (County of Orange 1996) was also reviewed with respect to regional reserve planning and conservation.

Resource Mapping

An initial biological reconnaissance survey was conducted by Dudek biologist Tommy Molioo on July 24, 2024, to identify the existing conditions, map vegetation, and determine potential biological constraints to the project. Focused field surveys conducted by Dudek include an aquatic resources jurisdictional delineation and surveys for special-status plants, burrowing owl (*Athene cunicularia*), coastal California gnatcatcher, least Bell's vireo, western spadefoot (*Spea hammondii*), and Crotch's bumble bee (*Bombus crotchii*). Table 4.4-5 lists the dates, conditions, and focus for each survey.

Table 4.4-5. Schedule of Surveys

Date	Hours	Focus	Personnel	Conditions
07/24/2024	08:00–12:00	General biological reconnaissance	TM	71°F–82°; 10% cloud cover; 1–5 mph winds
07/24/2024	08:00–12:00	Jurisdictional delineation	VG; MSM	71°F–82°F; 10% cloud cover; 1–5 mph winds
11/27/2024	08:00–10:08	Jurisdictional delineation update	MSM; AV	59°F–64°F; 50%–100% cloud cover; 1–3 mph winds
12/19/2024	07:00–09:30	Winter BUOW Pass 1	KN; MDM	51°F–62°F; 10% cloud cover; 0–2 mph winds
01/02/2025	07:11–09:45	Winter BUOW Pass 2	KN; MDM	43°F–59°F; 0% cloud cover; 1–3 mph winds
01/16/2025	07:30–10:57	Winter BUOW Pass 3	MDM; OK	47°F–66°F; 0% cloud cover; 0–3 mph winds
01/27/2025	15:45–20:05	WESP Pass 1	MDM; RS	Air temperature: 48°F–58°F; water temperature: N/A; 30%–50% cloud cover; 0–5 mph winds
01/30/2025	07:30–11:29	Winter BUOW Pass 4	OK; SC	50°F–58°F; 30%–80% cloud cover; 1–3 mph winds
02/17/2025	08:30–10:00	WESP Pass 2	MDM	Air temperature: 53°F–63°F; water temperature: 50°F–54°F; 0% cloud cover; 3–7 mph winds
03/12/2025	17:30–19:00; 20:00–22:00	WESP Pass 3	KN; MSM	Air temperature: 55°F–57°F; water temperature: 60°F; 70%–100% cloud cover; 2–5 mph winds
03/20/2025	07:30–09:32	Breeding BUOW Pass 1	TM; SL	45°F–62°F; 0%–10% cloud cover; 0–2 mph winds

Table 4.4-5. Schedule of Surveys

Date	Hours	Focus	Personnel	Conditions
04/01/2025	17:45–19:00	WESP Pass 4	MSM	Air temperature: 60°F; water temperature: N/A; 50% cloud cover; 10 mph winds
04/16/2025	07:00–10:00	Breeding BUOW Pass 2	KN; LB	53°F–58°F; 100% cloud cover; 1–2 mph winds
04/16/2025	06:45–09:34	LBVI Pass 1	MDM	53°F–56°F; 100% cloud cover; 0–4 mph winds
04/29/2025	07:20–10:29	LBVI Pass 2	LB	52°F–66°F; 0% cloud cover; 0–2 mph winds
05/01/2025	10:48–13:25	CBB Pass 1	CA; ES	64°F–74°F; 20%–90% cloud cover; 1–4 mph winds
05/07/2025	09:17–15:30	Special-Status Plant May Pass	TP; LB	62°F–70°F; 0%–100% cloud cover; 0–1 mph wind
05/13/2025	07:07–10:46	LBVI Pass 3	LB	56°F–62°F; 50%–80% cloud cover; 0–5 mph winds
05/15/2025	07:00–10:00	Breeding BUOW Pass 3	PL; KN	60°F–70°F; 0%–70% cloud cover; 1–2 mph winds
05/22/2025	09:41–12:44	CBB Pass 2	LB; SL	70°F–79°F; 10% cloud cover; 0–4 mph winds
05/28/2025	07:55–11:00	LBVI Pass 4	JE	60°F–69°F; 70%–100% cloud cover; 0–5 mph winds
06/06/2025	08:00–12:00	CAGN Pass 1	SC	63°F–74°F; 60%–90% cloud cover; 0–4 mph wind
06/10/2025	07:00–09:00	Breeding BUOW Pass 4	MDM; LB	60°F–62°F; 100% cloud cover; 1–3 mph wind
06/10/2025	09:00–13:00	CBB Pass 3	LB, KN	62°F–71°F; 10%–100% cloud cover, 2–5 mph wind
06/11/2025	07:04–10:00	LBVI Pass 5	LB	60°F–70°F; 70%–100% cloud cover; 0–2 mph wind
06/20/2025	08:15–12:00	CAGN Pass 2	SC	65°F–72°F; 0%–50% cloud cover; 1–9 mph wind
06/24/2025	05:29–09:57	LBVI Pass 6	MSM	59°F–67°F; 70%–100% cloud cover; 0–4 mph wind
06/27/2025	08:00–12:00	CAGN Pass 3	SC	64°F–76°F; 0%–20% cloud cover; 1–8 mph wind
07/08/2025	07:10–10:08	LBVI Pass7	LB	62°F–74°F; 0%–100% cloud cover; 0–2 mph wind
07/15/2025	08:00–11:00	Special-Status Plants July Pass	AV; SZ	64°F–72°F; 30%–100% cloud cover; 1–4 mph wind
07/22/2025	05:35–09:50	LBVI Pass 8	MSM	68°F–88°F; 0%–100% cloud cover; 0 mph wind

Personnel: TM= Tommy Molioo; VG= Valerie Goodwin; MSM = Megan Minter; AV = Aleen Vartivarian; KM = Kim Narel; MDM = Max Murray; OK = Olivia Koziel; RS = Ryan Stanley; SC = Shana Carey; SL = Sony Leming; LB = Luz Badillo; CA = Callie Amoaku; ES = Eilleen Salas; TP = Tracy Park; SZ = Sharon Zarate; PL = Peter Lam; JE = Josh Elson.
Notes: mph = miles per hour; °F = degrees Fahrenheit; N/A = not applicable due to lack of surface water; TBD = to be determined; BUOW = burrowing owl; WESP = western spadefoot; LBVI = least Bell's vireo; CBB = Crotch's bumble bee; CAGN = coastal California gnatcatcher.

Vegetation Communities and Land Covers

Dudek biologist Tommy Molioo mapped vegetation communities in the field digitally using the Field Maps ArcGIS mobile application, and a GIS coverage was created. Once in ArcGIS, the acreage of each vegetation community and land cover present on the project site was determined. Native plant community classifications used in this report follow the Habitat Classification System for Orange County (Gray and Bramlet 1992) and the California Native Plant Society's A Manual of California Vegetation (Sawyer et al. 2009) where feasible, with modifications to accommodate the lack of conformity of the observed communities to those listed in the Habitat Classification System for Orange County. The initial mapping of the project site used an approximately 0.25-acre minimum mapping unit for vegetation community polygons; clusters of particular vegetation types smaller than 0.25 acres were not mapped separately from the surrounding, larger vegetation community.

Flora

All plant species encountered during the field reconnaissance surveys and potential jurisdictional delineations were identified and recorded. Latin and common names for plant species with a California Rare Plant Rank (formerly California Native Plant Society List) follow the California Native Plant Society On-Line Inventory of Rare and Endangered Plants of California (CNPS 2025b). For plant species without a California Rare Plant Rank, Latin names follow the Jepson Interchange List of Currently Accepted Names of Native and Naturalized Plants of California (Jepson Flora Project 2024) and common names follow the California Natural Community list (CDFW 2025a) or the U.S. Department of Agriculture Natural Resources Conservation Service PLANTS Database (USDA 2024).

Fauna

Wildlife species detected during field surveys by sight, calls, tracks, scat, or other signs were recorded. Binoculars were used to aid in the identification of observed wildlife. In addition to species actually detected, expected wildlife use of the survey area was determined by known habitat preferences of local species and knowledge of their relative distributions in the area. Latin and common names of animals follow Nicholson (2025) for reptiles and amphibians, American Ornithological Society (AOS 2025) for birds, Mammal Diversity Database (2025) for mammals, North American Butterfly Association (NABA 2025) or SDNHM (2002) for butterflies, and Moyle (2002) for fish. Digital mobile maps on Esri Field Maps were utilized during the surveys to assist in navigating the survey area and collecting data.

Special-Status and Regulated Resources

Focused Special-Status Plant Survey

Based on the results of the literature review and the reconnaissance-level field surveys conducted in July 2024, 12 special-status plant and/or covered species were preliminarily determined to have potential to occur within the project site based on known species distribution, species-specific habitat preferences, and habitat conditions on site: Catalina mariposa lily (*Calochortus catalinae*), intermediate mariposa-lily (*Calochortus weedii* var. *intermedius*), small-flowered mountain mahogany (*Cercocarpus minutiflorus*), prostrate spineflower (*Chorizanthe procumbens*), summer holly (*Comarostaphylis diversifolia* ssp. *diversifolia*), many-stemmed dudleya (*Dudleya multicaulis*), Palmer's grapplinghook (*Harpagonella palmeri*), Tecate cypress (*Hesperocyparis forbesii*), decumbent goldenbush (*Isocoma menziesii* var. *decumbens*), Allen's pentachaeta (*Pentachaeta aurea* ssp. *allenii*), white rabbit-tobacco (*Pseudognaphalium leucocephalum*), and Coulter's matilija poppy (*Romneya coulteri*). Therefore, focused surveys were conducted for target species on May 7, 2025, and July 15, 2025, within the blooming period range for these species.

Surveys for special-status species were conducted by walking meandering transects throughout the entire project site, where accessible. The survey dates and biologists for the focused special-status plant surveys on the project site are included in Table 4.4-5. Focused special-status plant surveys conformed to the California Native Plant Society's Botanical Survey Guidelines (CNPS 2001), CDFW Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities (CDFW 2018), and General Rare Plant Survey Guidelines (Cypher 2002). All plant species encountered during the field surveys were identified and recorded to subspecies or variety, if applicable, to determine sensitivity status.

Focused Burrowing Owl Surveys

Focused winter and breeding season burrowing owl surveys were conducted in accordance with the March 7, 2012, Staff Report on Burrowing Owl Mitigation (CDFW 2012). Dudek biologists conducted four evenly spaced non-breeding season survey passes between December 2024 through January 2025, following the methodology of breeding-season surveys (Table 4.4-5). Dudek biologists conducted four breeding season survey passes in March through June of 2025 under suitable weather conditions, between morning civil twilight (before sunrise, when objects are visible and the horizon is clear, but it is not yet fully daylight) and 10:00 a.m. (Table 4.4-5). Surveys were scheduled at least 3 weeks apart as per CDFW protocol, with the first survey visit between February 15 and April 15, two survey visits between April 15 and June 15, and one survey visit after June 15. The first visit included a habitat assessment concurrent with searching for suitable burrows and burrowing owls.

Dudek biologists conducted the survey on foot by slowly walking 20-meter-wide (66-foot-wide) transects to inspect all vegetation for evidence of burrowing owl within the project site as well as the surrounding 500-foot buffer area. The surveys covered all portions of the site that included suitable burrowing owl habitat (i.e., short, sparse vegetation with few shrubs, level to gentle topography, and well-drained soils). Pauses were taken to scan the area with appropriate binoculars to search for burrowing owls. Any potentially suitable burrows or burrow surrogates (e.g., rock cavities, pipes, culverts, debris piles with crevices) greater than 11 centimeters (4 inches) in diameter were mapped using a GPS handheld unit with sub-meter accuracy and inspected for burrowing owl sign (e.g., owl pellets, whitewash, abundant insect remains, feathers).

Focused Coastal California Gnatcatcher Surveys

Focused protocol surveys for the federally listed threatened coastal California gnatcatcher were conducted in the project site between June 6, 2025, and June 27, 2025. The survey was conducted within weather conditions and time frames appropriate for the detection of gnatcatchers. Weather conditions and survey dates are provided in Table 4.4-5. The survey routes focused on areas within the project site and a 500-foot-wide buffer (the survey area) that contain typical suitable habitat to support coastal California gnatcatcher (i.e., California sagebrush-dominated scrub), as well as additional vegetation types that would not typically support coastal California gnatcatcher but that were included in the survey area due to the observation of foraging and dispersing coastal California gnatcatcher on the project site within these vegetation types.

The survey was conducted following the currently accepted USFWS protocol for coastal California gnatcatcher (USFWS 1997). The project site is part of the Central/Coastal Subarea within the NCCP/HCP. Therefore, the coastal California gnatcatcher focused survey included three survey passes at a minimum of 7-day intervals between visits during the breeding season (March 15 through June 30). In accordance with the protocol, no more than 100 acres of suitable habitat were surveyed by a single permitted biologist during each site visit conducted. Survey routes allowed for complete audible and visual coverage of all suitable coastal California gnatcatcher habitat within the project site (Figure 3, Coastal California Gnatcatcher Survey Route, in Appendix C to the BRTR). A recording of

gnatcatcher vocalizations was played approximately every 50 to 500 feet to induce responses from potentially present gnatcatchers. Vocalization playback would have been terminated immediately upon detection of any gnatcatchers to minimize the potential for harassment.

Focused Least Bell's Vireo Surveys

Eight protocol-level presence/absence surveys for the state- and federally listed endangered least Bell's vireo were conducted on the project site between April and July 2025 (Table 4.4-5). Surveys along linear routes were conducted to cover all potential habitat within the survey area. Surveys were originally planned to occur along the drainages on site; however, biologists adjusted their routes to include laurel sumac (*Malosma laurina*) scrub due to observations of atypical least Bell's vireo use of the vegetation community.

The eight surveys for least Bell's vireo followed the USFWS least Bell's vireo survey guidelines (USFWS 2001), which state that a minimum of eight survey visits should be made to all riparian areas and any other potential vireo habitats between April 10 and July 31. The site visits are required to be conducted at least 10 days apart to maximize the detection of early and late arrivals, females, non-vocal birds, and nesting pairs. Taped playback of vireo vocalizations was not used during the surveys. Surveys were conducted between dawn and noon and were not conducted during periods of excessive or abnormal cold, heat, wind, rain, or other inclement weather. Focused least Bell's vireo survey routes are depicted on Figure 4, Least Bell's Vireo Survey Route, in the BRTR.

Focused Western Spadefoot Surveys

Focused western spadefoot surveys were conducted in the project site during the wet season between January and April of 2025 (Table 4.4-5). This species is designated an SSC by CDFW and it is a covered species in the NCCP/HCP. The southern distinct population segment (DPS) of this species is federally proposed for listing as threatened under FESA. However, there is no official or standard survey technique for western spadefoot. Dudek biologists conducted surveys for western spadefoot egg clusters and larvae in all suitable aquatic habitat. If observed, an extrapolation of the appropriate occupied upland area was modeled using recorded occupied breeding locations and typical movement buffers. Suitable aquatic features suitable for western spadefoot breeding were identified and their locations were recorded; these features were revisited during subsequent survey visits. Other wildlife species observed incidentally, including all frogs or toads encountered, were recorded.

Focused Crotch's Bumble Bee Surveys

Dudek biologists conducted three evenly spaced surveys for Crotch's bumble bee in May and June 2025 (Table 4.4-5), coinciding with the Colony Active Period (April through August) to ensure the highest detection probability. The surveys were conducted in accordance with the recommendations described in the CDFW's "Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species" (CDFW 2023). The first survey was conducted by Callie Amoaku, who holds a Memorandum of Understanding (MOU) and Scientific Collecting Permit (SCP) to capture Crotch's bumble bee (S-221820002-22332-001). Surveys occurred at least one hour after sunrise, were concluded at least 3 hours before sunset and were not conducted during wet conditions (e.g., foggy, raining, or drizzling) or windy conditions (i.e., sustained winds greater than 8 miles per hour). The surveys were conducted during optimal conditions when there were sunny to partly sunny skies with temperatures greater than 60°F. Suitable habitat within the project site was visually surveyed for 1 person-hour per 3 acres of potential habitat. Biologists walked meandering transects throughout the vegetated areas with the highest cover of floral resources, with a goal of observing bumble bees in passing and observing bumble bee nest sites associated with small mammal burrows or other appropriate soil cavities.

Jurisdictional Aquatic Resources Delineation

Dudek biologists conducted a formal wetlands delineation in accordance with the 1987 USACE Wetlands Delineation Manual (USACE 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACE 2008a). A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States: A Delineation Manual (OHWM Manual) (USACE 2008b) was used to determine the limits of non-wetland waters. Non-wetland waters were delineated on topographical maps on a mobile device in conjunction with Esri Collector. The widths of each non-wetland water were determined in the field according to the OHWM Manual. Waters of the state regulated by RWQCB were mapped in accordance with the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (SWRCB 2021).

CDFW jurisdictional areas were mapped to include the bank of the stream/channel and outer dripline of adjacent riparian vegetation, as set forth under California Fish and Game Code Section 1602. Streambeds under the jurisdiction of CDFW were delineated using the Cowardin method of waters classification, which defines waters boundaries by a single parameter (i.e., hydric soils, hydrophytic vegetation, or hydrology) (Cowardin et al. 1979).

Current vegetation mapping was reviewed to assess whether the project site supports hydrophytic vegetation and potential wetlands; several areas supporting hydrophytic vegetation were also assessed for the presence of wetland hydrology and hydric soils to determine whether they were three-parameter wetlands. Jurisdictional boundaries were mapped in the field using Esri Collector on a mobile device. Wetland Determination Forms were completed for certain points within drainages or vegetation communities where a predominance of hydrophytic vegetation was present; hydrology, vegetation, and soils were assessed to determine whether USACE three-parameter wetlands were present. A Streamflow Duration Assessment Method data form was completed for non-wetland features to distinguish between ephemeral, intermittent, and perennial stream flows.

Survey Limitations

Survey limitations are primarily due to a diurnal bias for most wildlife species and drier than normal conditions, leading to fewer blooming plants.

Surveys were conducted mostly during the daytime to maximize visibility and detection of plants and most animals. As such, birds represent the largest component of vertebrate fauna recorded during the surveys, as they are usually most active during daytime hours. In contrast, daytime surveys usually result in few observations of mammals, many of which may only be active at night, particularly rodent and bat species. Therefore, identification of mammals primarily relied on detection of surface sign such as scat, burrows, and tracks. Many species of reptiles and amphibians are similarly nocturnal and/or secretive in their habits and are difficult to observe using standard meandering transects.

Irvine received approximately 6.68 inches of precipitation from September 2024 to April 2025 (Agricultural Applied Climate Information System [AgACIS] 2025) as compared with the average annual precipitation of 12.86 inches (WRCC 2025; Tustin Irvine Ranch, California weather station). Thus, the region experienced lower-than-average precipitation totals during the current rain year. This may have led to lower germination rates or, in the case of bulbiferous plants, lower sprouting rates. It is possible that some herbaceous plant species are present within the project site but were not observed during the rare plant surveys. In order to account for this, the assessment took into account the proximity of locally known occurrences, project site habitat quality, and the species' sensitivity to drought to determine the likelihood of their presence despite being absent during 2025 field surveys.

Despite these limitations, the survey work conducted within the project site provides an adequate overall assessment of floral and faunal resources for purposes of evaluating potential biological constraints in the context of CEQA.

1. Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Less-Than-Significant Impact with Mitigation Incorporated. The following impact analysis covers impacts to special-status plants and wildlife and includes a discussion of both direct and indirect impacts. A "direct impact" refers to complete loss of a biological resource. For purposes of this analysis, it refers to the area where vegetation clearing, grubbing, or grading replaces biological resources. Direct impacts were quantified by overlaying the proposed impact limits on biological resources mapped within the survey area. Direct impacts would occur from grading and construction of the proposed project.

"Indirect impacts" are reasonably foreseeable effects caused by a project's implementation on remaining or adjacent biological resources outside the direct disturbance zone. For purposes of this analysis, indirect impacts may affect areas outside the development footprint boundary, including native habitats and aquatic resources in the vicinity of the project site. Indirect impacts may be short term and construction related, or long term and associated with development in proximity to biological resources. Table 4.4-2 includes the special-status and NCCP/HCP covered plant species with a moderate to high potential to occur.

Table 4.4-3 summarizes the special-status and NCCP/HCP covered wildlife species observed or with a moderate to high potential to occur.

Special-Status Plants

One special-status plant species, intermediate mariposa-lily, was determined to have a high potential to occur on sparsely shrubby road cuts along the southeastern boundary of the project site. If present, intermediate mariposa-lily individuals would be directly impacted by vegetation clearing and grading for construction of the proposed project. Potential short-term indirect impacts include construction-related dust, soil erosion, and water runoff decreasing or permanently altering habitat suitability. Potential long-term impacts are expected to be less than significant due to the already disturbed nature of the project site and surrounding areas, particularly with respect to impacts resulting from noise, dust, and invasives.

The project site and adjacent areas are largely disturbed with past agricultural and industrial use. Therefore, this species is likely to occur only on road cuts where sparsely shrubby habitat is present. These areas consist of less than 0.25 acres, and likely would not be completely occupied. In the surrounding vicinity, similar habitat types are separated from the project by paved roads or existing facilities. This species has a low potential to occur in the remainder of the project site due to disturbance from historical land use and lack of suitable habitat. Although this species is moderately threatened in California (CRPR 1B.2), removal of potentially occupied habitat and indirect impacts to nearby populations would be adverse, but not significant. The loss of intermediate mariposa-lily individuals as a result of project activities at this scale would not have a significant impact on the species due to the relatively small population this area would likely support compared with the prevalence of the species locally in Orange County (CCH2025; iNaturalist 2025). Therefore, this impact would not reduce regional populations of the species to below self-sustaining numbers.

Due to presence of minimal habitat within the project site, project implementation would not reduce regional populations of intermediate mariposa-lily to below self-sustaining numbers. Therefore, impacts to special-status plant species would be less than significant.

Special-Status Wildlife

Six special-status wildlife species were observed on the project site: monarch (*Danaus plexippus*), white-tailed kite (*Elanus leucurus*), yellow-breasted chat (*Icteria virens*), yellow warbler (*Setophaga petechia*), least Bell's vireo, and Crotch's bumble bee. Three special-status wildlife species were determined to have a moderate potential to occur within the project site or the 500-foot buffer: San Diegan tiger whiptail, red diamondback rattlesnake, and coastal California gnatcatcher (Table 4.4-3). Additionally, vegetation on the project site would provide suitable nesting habitat for migratory birds and raptors protected under the MBTA and California Fish and Game Code Sections 3503.5, 3503, and 3513. If present at the start of construction, these species would be directly and permanently impacted by vegetation clearing and grading related to construction of the proposed project.

Monarch Butterfly

Monarch butterfly is not expected to overwinter in trees on the project site. Therefore, the project would result in a less-than-significant impact on monarch butterfly and no mitigation is required.

Non-Listed Special-Status Birds and Regulated Nesting Birds

The proposed project has the potential to directly and indirectly impact non-listed special-status birds, as well as birds protected under the MBTA and California Fish and Game Code, that nest on or adjacent to the project site during construction. Impacts to these species would be potentially significant absent mitigation. Mitigation Measure (MM) BIO-1 (Avian Nest Avoidance; see Section 4.4.5, Mitigation Measures, for the text of all measures specific to biological resources) requires complete avoidance of the avian nesting season, pre-construction nesting bird surveys if the nesting season cannot be avoided, and establishment of no-disturbance buffers around active nests if found. Additionally, MM-BIO-2 (Demarcation of Disturbance Limits) requires installation of temporary fencing and/or staking around the perimeter of the work areas prior to construction activities, installation of silt fencing within 100 feet of aquatic resources, and installation of temporary 6-foot-high chain-link fencing covered with dust cloth within 500 feet of least Bell's vireo habitat, which also often coincides with habitat for yellow warbler, yellow-breasted chat, and other nesting birds. Therefore, implementation of MM-BIO-1 and MM-BIO-2 would reduce direct and indirect impacts to non-listed special-status and nesting birds to less significant with mitigation incorporated.

Burrowing Owl

The proposed project has the potential to result in direct and indirect impacts to burrowing owl should this species occupy the project site or adjacent areas during construction. Impacts to burrowing owl due to project implementation would be potentially significant absent mitigation. MM-BIO-3 (Pre-Construction Burrowing Owl Survey) requires preconstruction surveys to determine presence or absence of burrowing immediately prior to start of construction. If burrowing owl is found to have colonized the project site prior to the initiation of ground-disturbing activities, MM-BIO-3 requires preparation of a Burrowing Owl Management Plan, as well as implementation of avoidance measures and monitoring. In the case that take cannot be avoided, MM-BIO-3 outlines the pathway for obtaining an Incidental Take Permit pursuant to

California Fish and Game Code Section 2081, which would also include compensatory mitigation of occupied habitat at a minimum of a 1:1 ratio. Additionally, MM-BIO-2 requires installation of temporary fencing and/or staking around the perimeter of the work areas prior to construction activities. Therefore, direct and indirect impacts to burrowing owl would be reduced to less than significant with implementation of MM-BIO-2 and MM-BIO-3.

Least Bell's Vireo

The proposed project will result in the permanent loss of occupied least Bell's vireo habitat. Should project activities occur during the vireo breeding season, the project could also result in direct and/or indirect impacts to least Bell's vireo individuals, active nests, eggs, or young. Impacts to least Bell's would be potentially significant absent mitigation. MM-BIO-4 (Least Bell's Vireo Mitigation) requires obtaining incidental take authorization for least Bell's vireo under the terms of the NCCP/HCP or instead through consultation and permitting with CDFW and USFWS (i.e., federal Section 7 consultation or federal Section 10 processes, and state 2080.1 consistency determination or 2081 Incidental Take Permit requirements). Obtaining conditional coverage under the NCCP/HCP would require, at minimum, preparation and implementation of a mitigation plan, compensatory mitigation for impacted least Bell's vireo habitat (i.e., 5.02 acres of laurel sumac scrub), monitoring and adaptive management, seasonal avoidance of directly impacting least Bell's vireo habitat, noise monitoring for construction related activities within 500 feet of least Bell's vireo habitat, biological monitoring for construction within 500 feet of least Bell's vireo habitat. Additionally, MM-BIO-2 requires installation of temporary fencing and/or staking around the perimeter of the work areas prior to construction activities, installation of silt fencing within 100 feet of aquatic resources, and installation of temporary 6-foot-high chain-link fencing covered with dust cloth within 500 feet of least Bell's vireo habitat, reducing short-term indirect impacts to less than significant. Compensatory mitigation associated with MM-BIO-4 would reduce long-term indirect impacts to less than significant through preservation of suitable habitat within the region. Therefore, direct and indirect impacts to least Bell's vireo would be reduced to less than significant with implementation of MM-BIO-2 and MM-BIO-4.

Crotch's Bumble Bee

Should Crotch's bumble nest on the project site during construction, the proposed project has the potential to directly and indirectly impact this species, which would be potentially significant absent mitigation. MM- BIO-5 (Crotch's Bumble Bee Pre-Construction Surveys) requires pre-construction surveys in order to determine presence or absence of Crotch's bumble bee immediately prior to start of construction. If Crotch's bumble bee is identified and nest resources are detected, MM-BIO-5 provides avoidance measures to avoid take. In the case that avoidance of take is not feasible, MM-BIO-5 provides guidance on obtaining incidental take authorization pursuant to Section 2081 of the Fish and Game Code as well as requirements for compensatory mitigation for the loss of nesting habitat. Therefore, impacts to Crotch's bumble bee would be reduced to less than significant with implementation of MM-BIO-5.

Special-Status Reptiles

Direct impacts to special-status reptiles, should they be present on site during construction, would be potentially significant absent mitigation. MM-BIO-6 (Biological Monitoring) requires environmental training, pre-construction sweeps, regular spot checks during construction, relocation of wildlife out of harm's way, and covering or providing escape routes within steep excavations to ensure avoidance of direct impacts to any special-status reptiles species. Additionally, MM-BIO-2 requires installation of temporary

fencing and/or staking around the perimeter of the work areas prior to construction activities. Therefore, direct and indirect impacts to special-status reptiles would be reduced to less than significant with implementation of MM-BIO-2 and MM-BIO-6.

Mountain Lion

Mountain lions are not expected to have natal dens on the project site and individual mountain lions would be expected to avoid the area during construction. Therefore, there will be no impact on mountain lions as a result of the proposed project and no mitigation is required.

Coastal California Gnatcatcher

Direct impacts to coastal California gnatcatcher are not expected to occur as a results of project implementation due to lack of suitable habitat within the project site. The project site does not contain coastal sage scrub habitat to support coastal California gnatcatcher. Therefore, this species is not expected to occur within the project site. Areas in the 500-foot-wide buffer south of Bee Canyon Access Road do support coastal sage scrub. Although focused protocol surveys in this buffer area were negative, a population of this species has been observed frequently in the adjacent property (CDFW 2025c) and has a moderate potential to occur in future years. As such, the Project has the potential to indirectly impact these species if the adjacent habitat becomes occupied in future years and Project activities occur within 500 feet. Visual disturbance, noise, or vibrations from Project activities such as nearby grading, vegetation removal, or construction could disrupt breeding activities and cause nest failure. During construction activities, indirect effects to coastal California gnatcatcher could include construction-related noise, dust, soil erosion, and water runoff decreasing or permanently reducing the quality of nearby habitat where these species may be present. Potential long-term impacts are expected to be less than significant due to the already disturbed nature of the project site and surrounding areas. The proposed project could indirectly impact coastal California gnatcatcher nesting within 500 feet of construction activities, which would be a potentially significant impact absent mitigation. MM-BIO-7 (Coastal California Gnatcatcher Monitoring) requires noise monitoring within coastal sage scrub habitat within the 500-foot-wide buffer and ceasing of activities when project activity noise exceeds 60dB. Therefore, indirect impacts to coastal California gnatcatcher would be reduced to less than significant with implementation of MM-BIO-7.

Summary

All impacts relating to project impacts that would have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species would be less than significant with mitigation incorporated.

2. ***Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?***

Direct Impacts

Less-Than-Significant Impact. Implementation of the proposed project would result in permanent impacts to 104.19 acres of vegetation communities and land covers mapped on the project site (Table 4.4-6). Approximately 20.73 acres of these impacts are within an area previously permitted as part

of a separate project, were already cleared at the time of the Notice of Preparation (NOP) for the proposed project and are not attributable to the proposed project. Impacts attributable to the proposed project include the permanent loss of approximately 83.46 acres of vegetation communities and land covers. Impacts to vegetation communities and land covers on the project site, including both previously permitted impacts and project impacts, are summarized in Table 4.4-6 and depicted on Figure 4.4-5, Project Impacts, with impacts attributable to the proposed project depicted as "permanent impacts" on Figure 4.4-5.

As discussed in Section 4.4.1, Existing Conditions, vegetation communities with CDFW state rankings of S1, S2, or S3, as well as communities regulated by the resource agencies (USACE, RWQCB, and/or CDFW), are considered sensitive natural communities and impacts to these communities could be considered significant absent mitigation. Although none of the vegetation communities mapped on site have a state rarity rank of S1, S2, or S3, one riparian vegetation community (mulefat thickets) was mapped in the northern corner of the project site. Approximately 0.37 acres of mulefat thickets were mapped within the project site during the initial biological reconnaissance survey in 2024. However, these areas are entirely within the previously permitted portion of the site (see Figure 4.4-5), and at the time of the NOP for the proposed project had already been removed as a part of a separate and previously permitted project.

Table 4.4-6. Permanent Impacts to Vegetation Communities and Land Cover Types Within the Project Site

Vegetation Communities and Land Cover Types	Alliance[a]	Association	Ranking[b]	Previously Permitted Impacts (Acres)[c]	Project Impacts (Acres)[c]
Native Vegetation Communities					
Laurel sumac scrub	*Malosma laurina* shrubland alliance	*Malosma laurina* association	G4 S4	0.19	5.02
Mulefat thickets	*Baccharis salicifolia* shrubland alliance	*Baccharis salicifolia* association	G5 S5	0.37	0
		Native Vegetation Communities Subtotal		*0.55*	*5.02*
Naturalized Vegetation Communities					
Upland mustards or star-thistle fields	*Brassica nigra*–*Centaurea* (*solstitialis*, *melitensis*) herbaceous semi-natural alliance	*Hirschfeldia incana* association	GNA SNA	4.29	14.38
		Centaurea melitensis association	GNA SNA	0	1.26
Red brome or mediterranean grass grasslands	*Bromus rubens*–*Schismus* (*arabicus*, *barbatus*) herbaceous semi-natural alliance	*Bromus rubens*–mixed herbs association	GNA SNA	1.35	1.20
Eucalyptus–tree of heaven–black locust groves	*Eucalyptus* spp.–*Ailanthus altissima*–*Robinia pseudoacacia* woodland semi-natural alliance	*Eucalyptus* (*globulus*, *camaldulensis*) association	GNA SNA	0	2.56
Pepper tree or myoporum groves	*Schinus* (*molle*, *terebinthifolius*)–	*Schinus molle* association	GNA SNA	0	0.68

Table 4.4-6. Permanent Impacts to Vegetation Communities and Land Cover Types Within the Project Site

Vegetation Communities and Land Cover Types	Alliance[a]	Association	Ranking[b]	Previously Permitted Impacts (Acres)[c]	Project Impacts (Acres)[c]
	Myoporum laetum forest & woodland semi-natural alliance				
			Naturalized Vegetation Communities Subtotal	*5.64*	*20.08*
Non-Natural Land Cover Types					
General agriculture	None	None	None	0.27	35.33
Urban/developed	None	None	None	7.82	13.51
Disturbed habitat	None	None	None	6.40	8.92
Ornamental plantings	None	None	None	0.04	0.59
			Non-Natural Land Cover Types Subtotal	*14.53*	*58.35*
			Total	**20.73**	**84.08**

[a] The term semi-natural is used in the Manual of California Vegetation to distinguish vegetation types dominated by non-native plants from natural vegetation communities (CNPS 2025a).

[b] The conservation status of a vegetation community is designated by a number from 1 to 5, preceded by a letter reflecting the appropriate geographic scale of the assessment (G = global, S = subnational/state). The numbers have the following meaning (NatureServe 2025):
1 = critically imperiled
2 = imperiled
3 = vulnerable to extirpation or extinction
4 = apparently secure
5 = demonstrably widespread, abundant, and secure
NA = no applicable ranking

[c] Totals may not sum precisely due to rounding.

Indirect Impacts

Less-Than-Significant Impact. Potential indirect impacts to sensitive vegetation communities surrounding the project site would be similar to indirect impacts to special-status plant species and would include short-term construction-related effects and long-term development-related effects. However, no sensitive vegetation communities were mapped on the project site, and none are expected to occur in the areas surrounding the site. Areas west and south of the project site are either developed or are under development and lands north and east of the project site are generally disturbed with historical agricultural (i.e., grazing and farming) and industrial use. Therefore, no significant indirect impacts are expected to occur to sensitive vegetation communities.

Summary

The proposed project would result in less-than-significant direct or indirect impacts to sensitive vegetation communities and no mitigation is required.

3. Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Direct Impacts

Less-Than-Significant Impact with Mitigation Incorporated. A USACE wetlands delineation was conducted in accordance with the 1987 USACE Wetlands Delineation Manual (USACE 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACE 2008a). A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States: A Delineation Manual (OHWM Manual) (USACE 2008b) was used to determine the limits of non-wetland waters. Non-wetland waters were delineated on topographical maps on a mobile device in conjunction with Esri Collector. The widths of each non-wetland water were determined in the field according to the OHWM Manual. CDFW jurisdictional areas were mapped to include the bank of the stream/channel and outer dripline of adjacent riparian vegetation, as set forth under California Fish and Game Code Section 1602. Streambeds under the jurisdiction of CDFW were delineated using the Cowardin method of waters classification, which defines waters boundaries by a single parameter (i.e., hydric soils, hydrophytic vegetation, or hydrology) (Cowardin et al. 1979).

One unnamed drainage, NWW-1, is present in the northern portion of the project site along an agricultural access road. NWW-1 was determined to be ephemeral and therefore not USACE jurisdictional. However, this feature was assessed as potentially subject to regulation by the RWQCB and CDFW.

Direct impacts to jurisdictional waters and wetlands would be potentially significant absent mitigation. For direct impacts to 0.03 acres of non-wetland waters under RWQCB jurisdiction and 0.16 acres under CDFW jurisdiction, permits would be required and typically entail providing compensatory mitigation to offset the impacts. RWQCB regulates waters of the state under California's Porter–Cologne Act. California Fish and Game Code Sections 1600–1616 give CDFW regulatory powers over streams and lakes, as well as vegetation associated with these features. MM-BIO-8 (Waters and Wetland Mitigation) would require the applicant/developer to obtain permits from the regulatory agencies (i.e., RWQCB and CDFW), and to implement the associated compensatory mitigation and habitat mitigation and monitoring plan. Implementation of MM-BIO-8 would reduce direct impacts to jurisdictional aquatic resources to less than significant with mitigation incorporated.

Indirect Impacts

Less-Than-Significant Impact with Mitigation Incorporated. Construction-related indirect impacts may include inadvertent spillover impacts outside of the construction footprint, chemical spills, and stormwater erosion and sedimentation. Post-construction (long-term) indirect impacts from operations and maintenance activities may include changes in water quality and accidental chemical spills. Implementation of MM-BIO-8 would ensure that permits, which typically include conditions or measures that would protect adjacent waters or wetlands, would be obtained from the regulatory agencies and that the requirements of these agencies would be met. MM-BIO-2 would also require installation of temporary fencing and/or staking around the perimeter of the work areas prior to construction activities, installation of silt fencing within 100 feet of aquatic resources, and installation of temporary 6-foot-high chain-link fencing covered with dust cloth within 500 feet of least Bell's vireo habitat, which includes vegetation within drainages. MM-BIO-6 requires a biological monitor to be present during ground disturbance or removal

activities and includes dust control monitoring. Implementation of MM-BIO-2, MM-BIO-6, and MM-BIO-8 would ensure that indirect impacts related to adverse effects on state or federally protected wetlands would be less than significant with mitigation incorporated.

Summary

The project would cause both direct and indirect impacts to jurisdictional waters and wetlands. Implementation of MM-BIO-2, MM-BIO-6, and MM-BIO-8 would reduce direct and indirect impacts to jurisdictional aquatic resources to less than significant with mitigation incorporated.

4. Would the project 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?

No Impact. The project site does not contain any native wildlife nursery sites; therefore, there would be no impact to native wildlife nursery sites as a result of project implementation.

The project site is at the northern edge of existing development within the City of Irvine. Although it is adjacent to the Santa Ana Mountains and NCCP/HCP reserve lands, the site does not provide connection to open space areas farther east or north due to the existing developed lands immediately abutting the project site to the west and south. As discussed in Section 4.4.1, local wildlife movement is further constrained by Bee Canyon Access Road to the east, SR-241 to the north, and SR-261 to the west. The site does not provide suitable habitat for nesting rookeries or bat maternity roosts due to lack of perennial aquatic habitat or suitable cavern habitat.

Although the project site does provide opportunities for local wildlife movement, it does not function as a corridor or habitat linkage between two larger blocks of native habitat. Therefore, there would be no impact to wildlife corridors, habitat linkages, or native wildlife nursery sites as a result of project implementation.

5. Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Less-Than-Significant Impact with Mitigation Incorporated. The project has been planned in a manner consistent with the relevant goals, objectives, and policies related to biological resources in the Resources Element of the County General Plan. The project has also been planned to be consistent with the relevant goals, objectives, and policies related to biological resources in the Conservation and Open Space Element of the City General Plan. Therefore, the project would not result in direct or indirect impacts associated with these local plans.

The project has the potential to result in the removal of trees subject to a City of Irvine Municipal Code tree removal permit. The project site is known to support trees that may be subject to a tree removal permit if removed and if the tree meets the definition of a significant tree pursuant to the Municipal Code and determined necessary by the City Arborist, including kaffir plum, Peruvian pepper tree, blue jacaranda, Jerusalem thorn, Chinese banyan, monkeypod, eucalyptus, Italian stone pine, coast live oak, Goodding's willow, Fremont cottonwood, or Southern California black walnut, among many others.

Chapter 4: Urban Forestry, Article E, Section 5-7-410 of the City's Municipal Code requires a tree removal permit from a City Arborist to remove any significant tree on public or private land with exceptions including safety hazards, tree condition, and trees causing damage to structures or are incompatible with the growing space available. Trees removed shall be replaced at a one-for-one ratio either on site in a similar location, on site in a different location, or off site as prescribed in the Urban Forestry Guideline Manual based on the determination of the City Arborist. Tree replacement on site may not be feasible due to fire safety practices required by the City and state, including CFC Chapter 33 regulations and the implementation of a Fire-Resistant Landscape Plan (per MM-WF-2; see Section 4.19, Wildfire) which includes incorporating designated fuel modification zones and using plant material in accordance with the Orange County Fire Authority (OCFA) Fuel Modification Zone Plant List. Some plant communities and their associated plant species have increased flammability based on plant physiology, biological function, physical structure, and overall fuel loading. The landscape plan would be submitted to OCFA for review and approval prior to the issuance of building permits. Therefore, any trees subject to removal would require a tree removal permit and may be replaced off site due to restrictions on allowable vegetation types on the project site per OCFA. Additionally, the Applicant would be required to pay a fee in an amount established by resolution of the City Council to cover the costs of administering tree removal permits. As such, the project is considered consistent with the goals, objectives, and policies related to biological resources in the County's General Plan and City's General Plan; therefore, there would be no impact due to conflicting with the local policies of these plans as a result of the proposed project. However, the project has the potential to result in the removal of tree species subject to a tree removal permit under the City's Municipal Code and has the potential to conflict with a local ordinance if not done so accordingly, which would be considered a significant impact absent mitigation. To determine whether trees would need to be removed, implementation of MM-BIO-9 would be required to mitigate the potential impacts. Implementation of MM-BIO-9 would reduce potential impacts on local ordinances to less than significant with mitigation incorporated.

6. Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No Impact. The project site is within the boundaries of the NCCP/HCP (Figure 4.4-6, Orange County NCCP/HCP). The NCCP/HCP conservation strategy, which serves as the mitigation basis for incidental take of covered species and covered habitats authorized by the NCCP/HCP, is composed of several key elements, including the establishment of an approximately 37,000-acre Reserve System, implementation of the Adaptive Management Program described in the NCCP/HCP within the Reserve System, and the designation of Special Linkage Areas and Existing Use Areas to enhance biological connectivity within the Reserve System and Central/Coastal Subregion. Activities and uses within these Reserve and non-Reserve components of the NCCP/HCP are restricted and development within them is generally prohibited. Although the project site is located within the plan area of the NCCP/HCP, it is not located within the Reserve, nor is it within areas designated in the NCCP/HCP as Special Linkages or Special Use Areas. The project site is also outside the North Ranch Policy Plan Area, as described in the NCCP/HCP.

Because coastal sage scrub habitat is absent from the project site and take of coastal sage scrub species listed as endangered or threatened under CESA and/or FESA are not expected, payment of the mitigation fee for impacts outside of the Reserve to listed coastal sage scrub species, as described in Section 4.4.2, Part 4, and Section 7 of the NCCP/HCP Implementing Agreement, is not required. Construction-related minimization measures described in Section 4.4.2, part 6, of the Implementing Agreement and Section

7.5.3 of the Joint Programmatic EIS/EIR for the NCCP/HCP for development/construction in areas recommended to be authorized for incidental take of coastal sage scrub are also not applicable since the project will not result in impacts to coastal sage scrub habitat. Note, however, that the project would comply with all applicable regulations (e.g., project-specific stormwater pollution prevention plan; SCAQMD Rule 403) and would implement standard construction best management practices (BMPs), which would minimize impacts to nearby off-site coastal sage scrub habitat.

The project would result in impacts to least Bell's vireo, one of several conditionally covered "identified species" in the NCCP/HCP, which allows for incidental take provided specific conditions are met. Specific conditions related to least Bell's vireo are described in Section 8.3.2, Part 3, of the Implementing Agreement and are summarized here:

1. For incidental take of least Bell's vireo to be covered under the NCCP/HCP, the affected habitat supporting migrating or nesting least Bell's vireo must be of lesser long-term conservation value in the subregion. Incidental take resulting from loss of habitat that is of potentially significant long-term conservation value in the subregion is not covered.
2. Planned activities resulting in take of least Bell's vireo shall be consistent with a mitigation plan, to be developed in coordination with the Wildlife Agencies (USFWS and CDFW) and the Natural Communities Coalition (NCC), that:
    a. Addresses design modifications and other on-site measures that are consistent with the project's purposes, minimizes impacts, and provides appropriate feasible protections.
    b. Provides for compensatory habitat restoration/enhancement activities at an appropriate location (which may include the Reserve or other open space) and which may include planting of riparian trees and shrubs and/or cowbird trapping.
    c. Provides for monitoring and adaptive management of habitat within the Reserve System, including cowbird trapping, consistent with Chapter 5 of the NCCP/HCP.

Occupied least Bell's vireo habitat consists primarily of upland vegetation, mapped as laurel sumac scrub. Vireo typically breed in riparian areas dominated by willow species with a stratified canopy and vegetated understory. Although some mulefat and willows are present, occupied areas on site are considered atypical breeding habitat, forming a patchy network of low-quality habitat that is isolated from areas of higher-quality riparian vegetation. As such, these areas are considered to be of lesser long-term conservation value.

Should take coverage for least Bell's vireo be obtained under the NCCP/HCP, special conditions related to the preparation of a mitigation plan would be met, as described in Section 4.4.4(1). Accordingly, the project is considered consistent with the NCCP/HCP. Therefore, the project would have no impact due to a conflict with an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.

Impact Summary

Due to the presence of minimal habitat within the project site, project implementation would not reduce regional populations of intermediate mariposa-lily to below self-sustaining numbers. Therefore, impacts to special-status plant species would be less than significant absent mitigation. The proposed project would not result in impacts to sensitive vegetation communities. Therefore, the project would result in a less-than-significant impact on sensitive vegetation communities and no mitigation is required.

Direct impacts to jurisdictional waters and wetlands would be potentially significant absent mitigation. For direct impacts to 0.03 acres of non-wetland waters under RWQCB jurisdiction and 0.16 acres under CDFW jurisdiction, permits would be required and typically entail providing compensatory mitigation to offset the impacts. Implementation of MM-BIO-2, MM-BIO-6, and MM-BIO-8 would reduce indirect impacts to jurisdictional aquatic resources to less than significant.

The project site does not contain any native wildlife nursery sites and the project site does not function as a wildlife corridor or habitat linkage between larger blocks of native habitat. Therefore, there no impact to wildlife corridors and habitat linkages and no impact to native wildlife nursery sites would occur as a result of project implementation.

The project has the potential to result in the removal of tree species subject to a tree removal permit under the City of Irvine Municipal Code, and removal of such trees would have the potential to conflict with a local ordinance, which would be a significant impact, absent mitigation. Therefore, project implementation of MM- BIO-9 would reduce potential impacts on local ordinances to less than significant with mitigation incorporated. The project is considered consistent with the NCCP/HCP; therefore, the project would have no impact on habitat conservation plans.

4.4.5 Mitigation Measures

The following mitigation measures would address potentially significant impacts to biological resources:

MM-BIO-1 Avian Nest Avoidance. Construction activities shall avoid the migratory bird nesting season (typically January 1 through October 31 for white-tailed kite, and from February 1 through August 31 for all other species), as feasible, to reduce any potential significant impact to birds that may be nesting within or adjacent to the construction area. If construction activities must occur during the migratory bird nesting season, an avian nesting survey within 500 feet of impact areas must be conducted by a qualified wildlife biologist no more than 72 hours prior to initial ground-disturbing activities, including vegetation removal. If construction activities cease for more than 3 consecutive days, avian nesting surveys must be repeated no more than 3 days prior to resumption of construction activities.

If an active bird nest is found, the nest location shall be added to construction plans and an appropriate no-disturbance buffer shall be established around the nest, the size of which shall be determined by the biologist based on the species' sensitivity to disturbance (typically 300 feet for passerines and 500 feet for raptors and special-status species). The no-disturbance buffer shall be clearly demarcated in the field with highly visible construction fencing or flagging, and construction personnel shall avoid the buffer area until the juveniles have fledged or the nest is no longer considered active, as determined by a qualified biologist. A qualified biologist shall serve as a construction monitor during those periods when construction activities will occur near active nest areas to ensure that no inadvertent impacts to active nests occur. White-tailed kite is a California Department of Fish and Wildlife fully protected species, and a permitting pathway is not available to the project for take of the species. Therefore, the 500-foot buffer cannot be reduced if a white-tailed kite nest is found within the project site.

MM-BIO-2 Demarcation of Disturbance Limits. To prevent inadvertent disturbance to sensitive vegetation and species adjacent to the proposed project area, temporary fencing and/or staking shall be installed prior to construction activities around the perimeter of the work areas, as feasible

depending on topography and large vegetation. All construction activities, including equipment staging and maintenance, shall be conducted within the marked disturbance limits to prevent inadvertent disturbance to sensitive biological resources outside the limits of work. The marked disturbance limits shall be maintained throughout vegetation removal and grading, and any windblown trash generated by the project that collects on the fence will be regularly removed. Silt fencing shall be installed at disturbance limits where aquatic resources occur within 100 feet. Temporary 6-foot-high chain-link fencing covered with dust cloth shall be installed at disturbance limits where occupied least Bell's vireo habitat occurs within 500 feet.

MM-BIO-3 Pre-Construction Burrowing Owl Survey. A qualified biologist shall conduct a pre-construction survey for burrowing owls prior to initial ground-disturbing activities, including vegetation removal, to assess whether any burrowing owls have colonized the site prior to the start of construction. The pre-construction survey shall be completed no more than 14 days before initiation of site preparation or grading activities, and a second survey shall be completed within 24 hours of the start of site preparation or grading activities. If ground-disturbing activities are delayed or suspended for more than 30 days after the pre-construction surveys, the pre-construction surveys shall be repeated to ensure burrowing owl has not colonized the site since it was last disturbed. The pre-construction survey will occur within suitable habitat for burrowing owl, as determined by the biologist, and will be conducted in accordance with methods described in the CDFW 2012 Staff Report. If burrowing owls have colonized the project site prior to the initiation of ground-disturbing activities, the applicant/developer shall immediately inform the California Department of Fish and Wildlife (CDFW). Prior to ground disturbance, the applicant/developer shall prepare a Burrowing Owl Management Plan, which shall be submitted to CDFW for review and approval at least 30 days prior to initiation of ground-disturbing activities. If burrowing owls are detected after ground-disturbing activities have been initiated, CDFW shall be notified in writing and a Burrowing Owl Management Plan shall be submitted to CDFW for review and approval within 2 weeks of detection; construction activities shall not occur within 400 feet of an active burrow until CDFW approves the Burrowing Owl Management Plan. The Burrowing Owl Management Plan shall include, at a minimum, the following.

1. An impact assessment that details the number and location of occupied burrow sites and acres of burrowing owl habitat with a qualitative description of the habitat vegetation characteristics that will be impacted.
2. Avoidance measures, including no-disturbance buffers clearly delineated at a 250-foot radius around all occupied burrows located on site or within 250 feet of the disturbance footprint, with posted signs demarcating the avoidance area and by using stakes, flags, and/or rope or cord to minimize the disturbance of burrowing owl habitat. No construction shall occur within the avoidance buffer(s) without the consent of a monitoring biologist. The buffer shall remain in place until it is determined that occupied burrows have been vacated.
3. Monitoring requirements.

No take of burrowing owl shall occur without prior authorization in the form of an Incidental Take Permit (ITP) pursuant to California Fish and Game Code Section 2081. If overwintering or nesting burrowing owls are observed during the survey and impacts to burrowing owl cannot be feasibly avoided through implementation of the Burrowing Owl Management Plan, the applicant/developer will consult with CDFW and obtain appropriate take authorization from through the California Endangered Species Act ITP process. In the event an ITP is needed, occupied habitat that is temporarily impacted shall be restored to its original construction immediately following the completion of construction and compensatory mitigation for the permanent loss of occupied burrowing owl habitat shall be fulfilled through habitat replacement of equal or better functions and values to those impacted by the project at a minimum 1:1 ratio, or as otherwise determined through the ITP process. Mitigation shall be achieved through off-site conservation of habitat and/or purchase of appropriate credits at a CDFW-approved mitigation bank. If mitigation is not purchased through a mitigation bank, and lands are conserved separately, a cost estimate shall be prepared to estimate the initial startup costs and ongoing annual costs of management activities for the management of the conservation easement area(s) in perpetuity. The funding source shall be in the form of an endowment to help the qualified natural lands management entity that is ultimately selected to hold the conservation easement(s). The endowment amount shall be established following the completion of a project-specific Property Analysis Record to calculate the costs of in-perpetuity land management. The Property Analysis Record shall take into account all management activities required in the ITP to fulfill the requirements of the conservation easement(s), which are currently in review and development.

MM-BIO-4 Least Bell's Vireo Mitigation. Prior to initial ground-disturbing activities, including vegetation removal, the applicant/developer shall prepare a mitigation plan in accordance with the requirements for conditional coverage identified in the Implementing Agreement for the Natural Community Conservation Plan & Habitat Conservation Plan, County of Orange Central and Coastal Subregion (NCCP/HCP). The mitigation plan shall be developed in coordination with the Wildlife Agencies (U.S. Fish and Wildlife Service and California Department of Fish and Wildlife) and the Natural Communities Coalition (NCC) and shall include, at a minimum, the following:

1. Compensatory mitigation requirements for impacts to occupied least Bell's vireo habitat, which shall be, at a minimum, 1:1 for low-quality habitat, 2:1 for moderate-quality habitat, and 3:1 for high-quality habitat, or as otherwise determined during coordination with the Wildlife Agencies. Compensatory mitigation shall be met through habitat restoration/enhancement activities at an appropriate location (which may include the reserve or other open space) and which may include planting of riparian trees and shrubs and/or brown-headed cowbird trapping.
2. Requirements for monitoring and adaptive management of least Bell's vireo habitat within the NCCP/HCP Reserve, including brown-headed cowbird trapping, consistent with Chapter 5 of the NCCP/HCP.
3. Design modifications and other on-site measures that are consistent with the project's purposes, and which avoid or minimize impacts and provides appropriate feasible protections for least Bell's vireo. At a minimum, the following measures shall be included:
    a. **Seasonal Avoidance.** To avoid direct impacts nesting individuals and eggs/young, vegetation-disturbing activities within suitable and occupied least Bell's vireo habitat shall occur from September 16 (or sooner if a Wildlife Agency–approved project biologist demonstrates to the satisfaction of the Wildlife Agencies that all nesting is complete) through March 14 to avoid the least Bell's vireo breeding season. For other project-related

construction that cannot be restricted to outside the least Bell's vireo breeding season, construction noise monitoring and reduction will be provided as detailed below.

b. **Noise Monitoring.** To minimize potential adverse impacts to least Bell's vireo from construction-related noise and vibration, non-vegetation clearing construction-related activities within 500 feet of occupied and suitable least Bell's vireo habitat would be timed to occur outside of the breeding season to the extent feasible. For construction-related activities within 500 feet (152.40 meters) of occupied or suitable least Bell's vireo habitat, and that must occur within the least Bell's vireo breeding season, on-site noise reduction techniques shall be implemented to limit construction-related noise within the occupied habitat areas to levels that do not exceed 60 A-weighted decibel (dBA) hourly energy equivalent level (L_{eq}) or pre-construction ambient noise levels, whichever is greater. Noise reduction techniques shall be implemented as necessary to ensure that noise thresholds are not exceeded. These techniques may include but are not limited to installation of temporary sound barriers, utilization of quieter equipment, adherence to equipment maintenance schedules, and/or shifting construction work away from occupied areas.

c. **Biological Monitoring.** All construction-related activities within 500 feet of occupied least Bell's vireo habitat shall be monitored by a Wildlife Agency–approved biologist. The biologist shall submit weekly letter reports (including photographs of impact areas) via email to the Wildlife Agencies while construction-related activities within 500 feet of occupied habitat are ongoing. The weekly reports will document that authorized impacts were not exceeded and all avoidance and protection measures were complied with. The reports will also summarize the duration of vireo monitoring, the location of construction activities, the type of construction that occurred, and equipment used. The reports will specify numbers, locations, and sex of vireos (if present); observed vireo behavior (particularly in relation to construction activities); and any remedial measures employed to avoid impacts to vireo individuals. Raw field notes should be available upon request by the Wildlife Agencies. Any unauthorized impacts to vireo or vireo habitat shall be reported to the Wildlife Agencies within 24 hours. A final report shall be submitted to the Wildlife Agencies and the NCC within 60 days of project completion that includes (1) as-built construction drawings with an overlay of occupied habitat that was impacted and avoided, (2) photographs of avoided occupied habitat areas, and (3) other relevant summary information documenting that authorized impacts were not exceeded and that all mitigation plan measures were generally complied with.

Prior to initial ground-disturbing activities, including vegetation removal, the applicant/developer shall obtain concurrence from the Wildlife Agencies that the NCCP/HCP conditions of coverage for least Bell's vireo have been satisfied and that incidental take of least Bell's vireo is authorized under the terms of the NCCP/HCP. If it is determined that incidental take of least Bell's vireo resulting from the project is not conditionally covered under the NCCP/HCP, take authorization shall be obtained authorization shall be obtained through the federal Section 7 Consultation or Section 10 processes and state 2080.1 consistency determination or 2081 Incidental Take Permit requirements.

MM-BIO-5 Crotch's Bumble Bee Pre-Construction Surveys. Pre-construction surveys for Crotch's bumble bee shall be conducted within the construction footprint prior to initial ground-disturbing activities, including vegetation removal, that would occur during the Crotch's bumble bee queen flight season through the gyne (reproductive female) flight season (February 1 through October 31). The pre-construction survey

shall be conducted by a qualified biologist familiar with the species' behavior and life history and shall include (1) a habitat assessment and (2) focused surveys, both of which shall be based on recommendations described in the Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species, released by the California Department of Fish and Wildlife (CDFW) on June 6, 2023, or the most current version at the time of construction. If suitable habitat is not completely cleared during the year of the initial habitat assessment and pre-construction surveys, additional pre-construction surveys shall be repeated within remaining suitable habitat each year ground-disturbing construction activities are scheduled to occur within suitable habitat during the queen flight season through the gyne flight season (February 1 through October 31). Additional pre-construction surveys would not be necessary once all suitable habitat is removed.

- The habitat assessment shall, at a minimum, include historical and current species occurrences; document potential habitat on site, including foraging, nesting, and/or overwintering resources; and identify which plant species are in bloom and their percent cover. Incidental observations of potential nest resources shall also be noted. For the purposes of this mitigation measure, nest resources are defined as abandoned small mammal burrows, bunch grasses with a duff layer, thatch, hollow trees, brush piles, and human-made structures that may support bumble bee colonies, such as rock walls, rubble, and furniture. Potential overwintering resources are defined as bare soil, leaf litter, pine needle duff layer, and bunch grasses.
- In each year that a habitat assessment is conducted, if nesting resources are determined to be present in the impact area, focused surveys shall be conducted. Focused surveys shall be performed by a biologist who is in possession of a valid Memorandum of Understanding with CDFW (and a valid Scientific Collecting Permit, if applicable) and include at least three survey passes spaced 2 to 4 weeks apart. The timing of these surveys shall coincide with the Colony Active Period for Crotch's bumble bee (April 1 through August 31) and shall coincide with the presence of floral resources on site. Surveys may occur between 1 hour after sunrise and 2 hours before sunset. Focused surveys shall not be conducted during wet conditions (e.g., foggy, raining, or drizzling) and surveyors shall wait at least 1 hour following cessation of rain to start or resume surveys. Focused surveys shall be conducted when conditions include sunny to partly sunny skies, a temperature greater than 60°F, and sustained wind speeds less than 8 mph, unless other bees or butterflies are flying, in which case focused surveys can be conducted outside of these weather parameters.
- A written survey report shall be submitted to the City and CDFW within 30 days of the completion of pre-construction surveys. The report shall include survey methods, weather conditions, and survey results, including a detailed habitat assessment, floral resources blooming and percent cover, bumble bee species observed, floral species that bumble bees were observed visiting, nesting and overwintering habitat surveyed, and a figure showing the locations of any Crotch's bumble bee nest sites or individuals observed. The survey report shall include the qualifications/resumes of the surveyor(s) and approved taxonomist(s) for identification of photo vouchers. If Crotch's bumble bee nests are observed, the survey report shall also include avoidance measures, and the location information shall be submitted to the California Natural Diversity Database at the time of, or prior to, submittal of the survey report.
- If Crotch's bumble bee is not detected during the focused surveys, no further action or mitigation would be required. If nest resources occupied by Crotch's bumble bee are detected, avoidance measures shall be implemented including, but not limited to, the establishment of no-disturbance zones within 50 feet of the nest, or within a distance determined by a qualified

biologist through evaluation of topographic features and/or distribution of floral resources. Construction shall not occur within the no-disturbance zone(s) until the colony is no longer active (i.e., no bees are seen flying in or out of the nest for 3 consecutive days, indicating the colony has completed its nesting season and the next season's queens have dispersed from the colony). If the avoidance of nests is not feasible, or if take of foraging individuals is anticipated, the applicant/developer shall consult with CDFW regarding the need for incidental take authorization pursuant to Section 2081 of the California Fish and Game Code.

- Mitigation for take of Crotch's bumble bee will be fulfilled through compensatory mitigation at a minimum 1:1 nesting habitat replacement of equal or better functions and values to those impacted by the project, or as otherwise determined through the Incidental Take Permit process. Mitigation shall be accomplished either through off-site conservation or through a CDFW-approved mitigation bank. If mitigation is not purchased through a mitigation bank, and lands are conserved separately, a cost estimate shall be prepared to estimate the initial start-up costs and ongoing annual costs of management activities for the management of the conservation easement area(s) in perpetuity. The funding source shall be in the form of an endowment to help the qualified natural lands management entity that is ultimately selected to hold the conservation easement(s). The endowment amount shall be established following the completion of a project-specific Property Analysis Record to calculate the costs of in-perpetuity land management. The Property Analysis Record shall take into account all management activities required in the Incidental Take Permit to fulfill the requirements of the conservation easement(s), which are currently in review and development.

MM-BIO-6 Biological Monitoring. To prevent impacts to areas outside the limits of disturbance, a qualified biologist shall be present on site to monitor during initial ground disturbance or vegetation removal activities.

Biological monitoring shall include the following tasks and responsibilities:

- **Tailgate Briefings.** Conduct a pre-construction briefing at the tailgate with construction personnel prior to vegetation removal or initial ground disturbance to outline the biological resources present at the subject work location, prohibition of littering, locations of covered trash receptacles, work location specific disturbance limits, procedures/training for minimizing harm to or harassment of wildlife encountered during construction.
- **Pre-Construction Sweeps.** Conduct pre-construction sweeps where construction work is scheduled for the day in areas with suitable habitat to support special-status wildlife or plants. Flush wildlife species from occupied areas immediately prior to vegetation-clearing and earth-moving activities during pre-construction sweeps.
- **Spot Checks.** Supervise and conduct regular spot checks during construction work, focusing on areas determined to have potential to support special-status species (as determined by a qualified biologist), to ensure against direct and indirect impacts to biological resources that are intended to be protected and preserved.
- **Relocating Wildlife.** A qualified biologist shall capture animals that are in immediate harm's way and cannot move out of the work area on their own and relocate them to nearby undisturbed areas with suitable habitat located outside of the construction area but as close to their origin as possible. All wildlife moved during project activities shall be documented by the biologist on site.

- **Dust Control Monitoring.** Periodically monitor the construction site to see that dust is minimized. If the biological monitor determines that dust is adversely affecting special-status species, the monitor will require the construction personnel to implement best available control measures to reduce dust. Examples of such best available control measures include periodic watering of work areas, application of environmentally safe soil stabilization materials, and/or roll compaction.
- **Open-Hole Inspections.** At the end of each workday, any open holes (including large/steep excavations) shall be inspected by the on-site biologist and subsequently fully covered to prevent entrapment of wildlife species. If fully covering the excavations is impractical, ramps will be used to provide a means of escape for wildlife that enter the excavations, or open holes will be securely fenced with exclusion fencing. If common wildlife species are found in a hole, the biological monitor shall immediately be informed, and the animal(s) shall be removed.

MM-BIO-7 Coastal California Gnatcatcher Monitoring. To minimize potential indirect impacts to coastal California gnatcatcher, construction-related activities within 500 feet of occupied habitat shall be timed to occur outside the coastal California gnatcatcher breeding season (February 15 through August 30). Should construction activities occur within 500 feet of coastal sage scrub habitat east of Bee Canyon Access Road during the breeding season (between February 15 and August 30), pre-construction surveys for coastal California gnatcatcher shall be conducted in all suitable habitat within 500 feet. Pre-construction surveys shall be conducted by a permitted coastal California gnatcatcher biologist and shall include three site visits, conducted 1 week apart, with the final site visit conducted no more than 7 days prior to the start of construction. If coastal California gnatcatcher is not detected, no further mitigation related to this species shall be required. If coastal California gnatcatcher is detected but breeding behaviors are not observed, work may proceed and weekly surveys shall continue until the individual(s) leave the area, breeding behaviors and/or nesting is detected, the breeding season ends, or construction ends. If breeding and/or an active nest is observed, the limits of the occupied habitat and a 500-foot avoidance buffer shall be delineated on construction plans, and all construction personnel working near the nest buffer shall be made aware of the presence of occupied gnatcatcher habitat. To the extent feasible, no construction activities shall occur within the 500-foot avoidance buffer during the breeding season. Should it be necessary for construction activities to occur within 500 feet of occupied habitat during the breeding season, noise monitoring would be required to ensure that project-related activities do not result in noise levels above 60 A-weighted decibels (dBA) equivalent continuous sound level (L_{eq}) (1 hour) or the ambient noise level, whichever is higher. If any project activities exceed 60 dBA or the designated existing ambient noise level, construction activities shall be halted until noise reduction measures (such as a sound wall) can be implemented to reduce noise levels to below 60 dBA hourly L_{eq} or ambient noise levels, whichever is higher.

MM-BIO-8 Waters and Wetland Mitigation. Prior to impacts within waters regulated by the Regional Water Quality Control Board (RWQCB), the applicant/developer shall coordinate with the Santa Ana RWQCB (Region 8) to ensure conformance with the requirements of the Porter–Cologne Water Quality Control Act, including applicable requirements to obtain an individual Wastewater Discharge Requirement. Prior to impacts within waters regulated by California Department of Fish and Wildlife (CDFW), the applicant/developer shall coordinate with CDFW (South Coast Region 5) to ensure conformance with California Fish and Game Code Section 1602, including applicable requirements to obtain a Lake and Streambed Alteration Agreement.

Permanent impacts to jurisdictional aquatic resources shall be mitigated through the completion of a restoration program at an applicant/developer-sponsored mitigation site. The total mitigation requirement will be 0.32 acres, providing a 2:1 mitigation-to-impact ratio, of which at least 0.03 acres shall be composed of establishment/re-establishment, ensuring no net loss of waters of the state. The balance of the mitigation requirement shall be met through a combination of creation, re-establishment, and/or enhancement.

A habitat mitigation and monitoring plan shall be prepared in accordance with resource agency guidelines and shall be approved by the Resource Agencies (i.e., RWQCB and CDFW). The habitat mitigation and monitoring plan shall include, but is not limited to, a conceptual planting plan including planting zones, grading, and irrigation, as applicable; a conceptual planting plant palette; a long-term maintenance and monitoring plan; annual reporting requirements; and proposed success criteria. Any applicant-sponsored mitigation shall be conserved and managed in perpetuity via a conservation easement and any entity performing long-term management of the mitigation lands shall be funded in perpetuity.

MM-BIO-9 Tree Ordinance Tree Inventory and Permit. Prior to issuance of a grading permit for the project, a tree inventory shall be conducted within the project development area to identify and map tree species subject to the City tree removal permit. If significant trees subject to a tree removal permit are identified within the project development area, a tree removal permit shall be obtained from the City prior to issuance of the grading permit and conditions of the tree removal permit shall be implemented.

4.4.6 Level of Significance After Mitigation

Potentially significant impacts to special-status species would be mitigated through implementation of MM-BIO-1 through MM-BIO-7. Potentially significant impacts to wetlands and waters regulated by the RWQCB would be mitigated through implementation of MM-BIO-8. Conflicts with local policies or ordinances protecting biological resources, which would be a potentially significant impact would be mitigated through compliance with MM-BIO-9. All impacts would be less than significant with mitigation incorporated.

4.4.7 Cumulative Impacts

This section provides an analysis of cumulative impacts from construction and operation of the project and other past, present, and reasonably foreseeable future projects, as required by Section 15130 of the CEQA Guidelines. Cumulative impacts refer to individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. The cumulative impact is the change in the environment which results from the incremental impact of the project when added to other closely related past, present and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time. For biological resources, there is the potential for cumulative impacts to result if similar resources are affected by both the project and one or more of the related projects. The past, present, and reasonably foreseeable future projects (i.e., cumulative projects) used for this analysis are presented in Section 3.3, Environmental Setting, of Chapter 3, Project Description, of this Draft EIR. As listed in Table 3-1, Cumulative Projects, the 18 cumulative projects within the City were considered in this analysis.

As discussed in Section 4.4.4, Impacts Analysis, the proposed project has the potential to impact special-status plants and wildlife, impact jurisdictional aquatic resources, and could result in a conflict with the City of Irvine Municipal Code due to the removal of City-protected trees. Cumulative impacts to these resources are analyzed in this section. The proposed project is not expected to result in impacts to sensitive vegetation communities; impacts to wildlife corridors, habitat linkages, or native wildlife nursery sites; or conflicts with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan. Because the project would not incrementally contribute to the cumulative impacts of these biological resources, they are not addressed in the cumulative impact analysis.

Most of the related cumulative projects are infill projects with minimal value to biological resources, involving the development of previously disturbed or developed lands that contain limited native vegetation and are isolated from naturalized areas by surrounding development. As such, these related projects would not be expected to support habitat that would be suitable for most special-status plant and wildlife species or contain other sensitive biological resources that could be incrementally impacted by the proposed project. Therefore, with the exception of City-regulated trees, which could occur in urban settings in the City, nearly all of the related projects would not result in incremental impacts to sensitive biological resources. Three related cumulative projects (Gateway Preserve, Orchard Hills Residential Master-Neighborhood 4, and AAA plant closure) are located in areas that may support similar habitats and present similar potential biological constraints to those present on the proposed project site. Therefore, the proposed project has the potential to incrementally contribute to the cumulative impacts of protected biological resources, including special-status plant and wildlife species and their habitat, jurisdictional aquatic resources, and City-regulated trees.

As discussed in the analysis above, implementation of MM-BIO-1 through MM-BIO-9 would reduce all potentially significant project impacts to less than significant. With implementation of the project-specific mitigation measures, the project's incremental effect on special-status species, jurisdictional aquatic resources, and City-regulated trees would be less than significant when viewed in connection with the effects of the cumulative projects. Further, all cumulative projects would be subject to existing and/or future permit restrictions that satisfy applicable regulatory requirements. Lastly, the proposed project and the cumulative projects are located within the plan boundary of the NCCP/HCP. The NCCP/HCP established an approximately 37,000-acre Reserve System that serves as a permanently protected open space managed for the benefit of biological resources, as well as almost 10,000 acres of other permanent public open space and "supplemental" non-reserve habitat areas (County of Orange 1996). Based on this analysis, the Project's incremental effect on biological resources would not be cumulatively considerable and cumulative impacts on biological resources would be less than significant with mitigation incorporated.

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SOURCE: ESRI World Imagery; Open Street Map 2023

DUDEK

0 285 570 Feet

FIGURE 4.4-1

Vegetation and Land Cover Map

Irvine Gateway Village Project EIR

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SOURCE: ESRI World Imagery; Open Street Map 2023

DUDEK

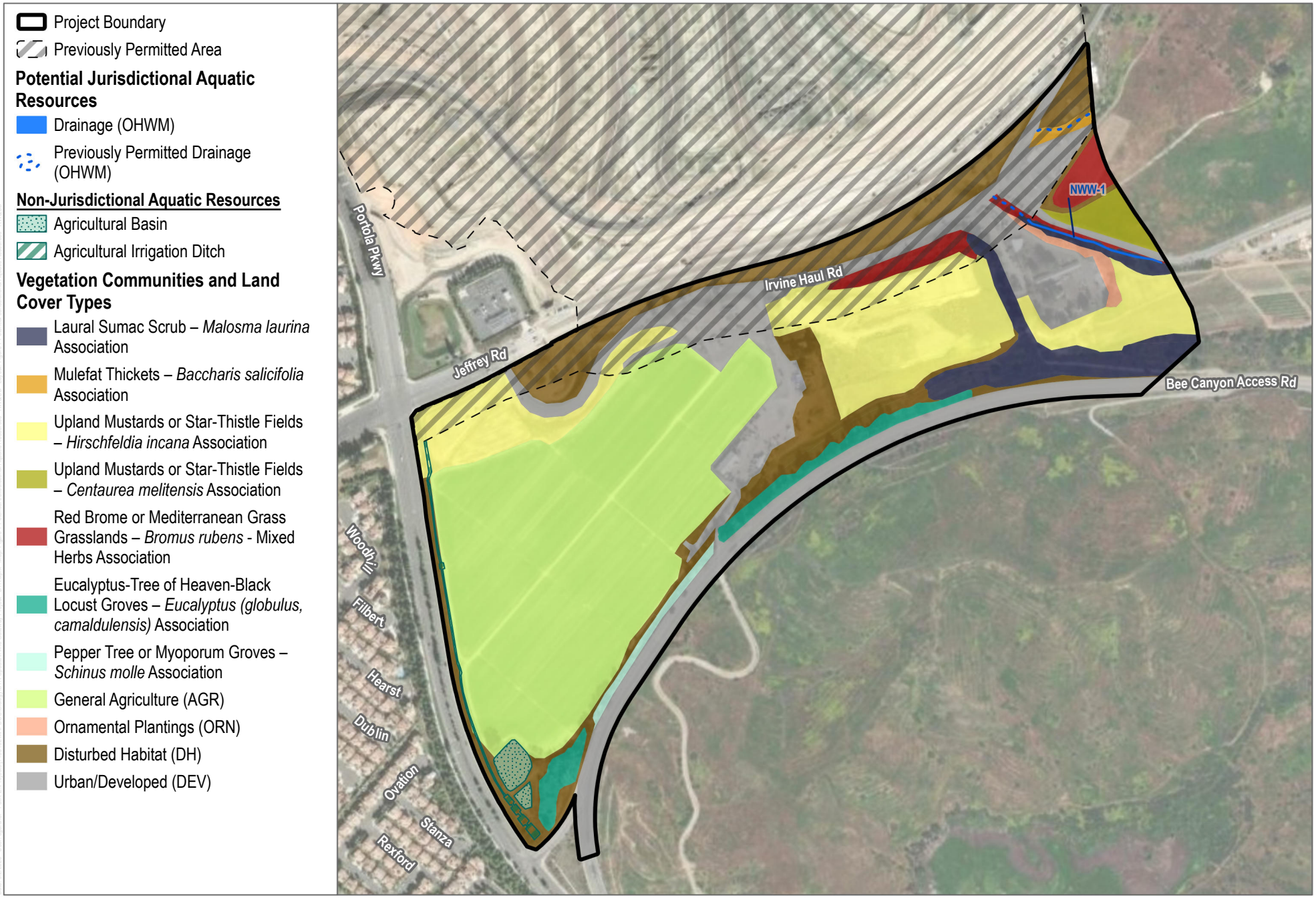
0 270 540 Feet

FIGURE 4.4-2

Special-Status Species

Irvine Gateway Village Project EIR

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SOURCE: ESRI World Imagery; Open Street Map 2023

DUDEK

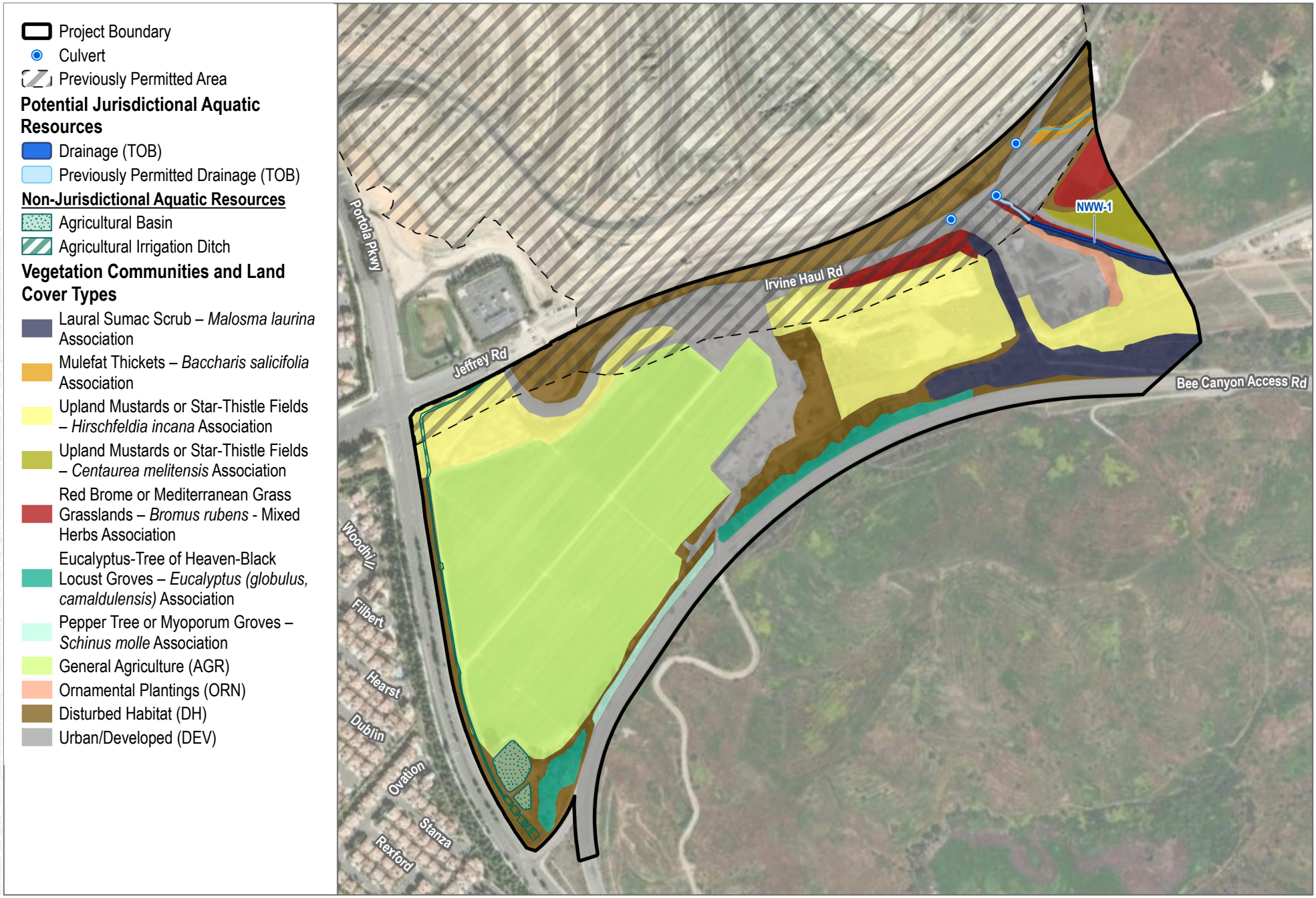
0 287.5 575 Feet

FIGURE 4.4-3

Potential Jurisdictional Aquatic Resources – RWQCB

Irvine Gateway Village Project EIR

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SOURCE: ESRI World Imagery 2023; Open Street Map 2023

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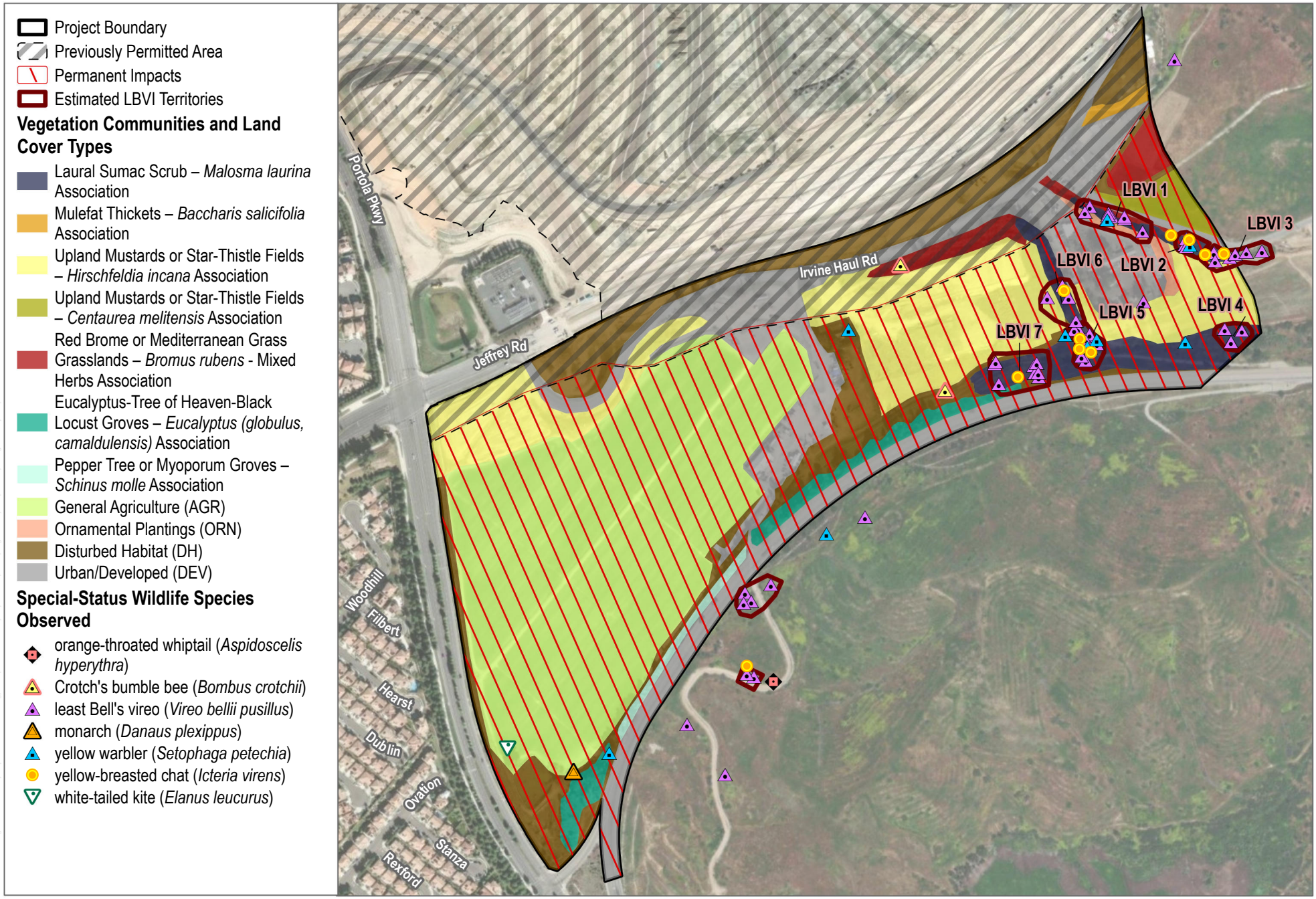
0 285 570 Feet

FIGURE 4.4-4

Potential Jurisdictional Aquatic Resources – CDFW

Irvine Gateway Village Project EIR

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SOURCE: ESRI World Imagery; Open Street Map 2023

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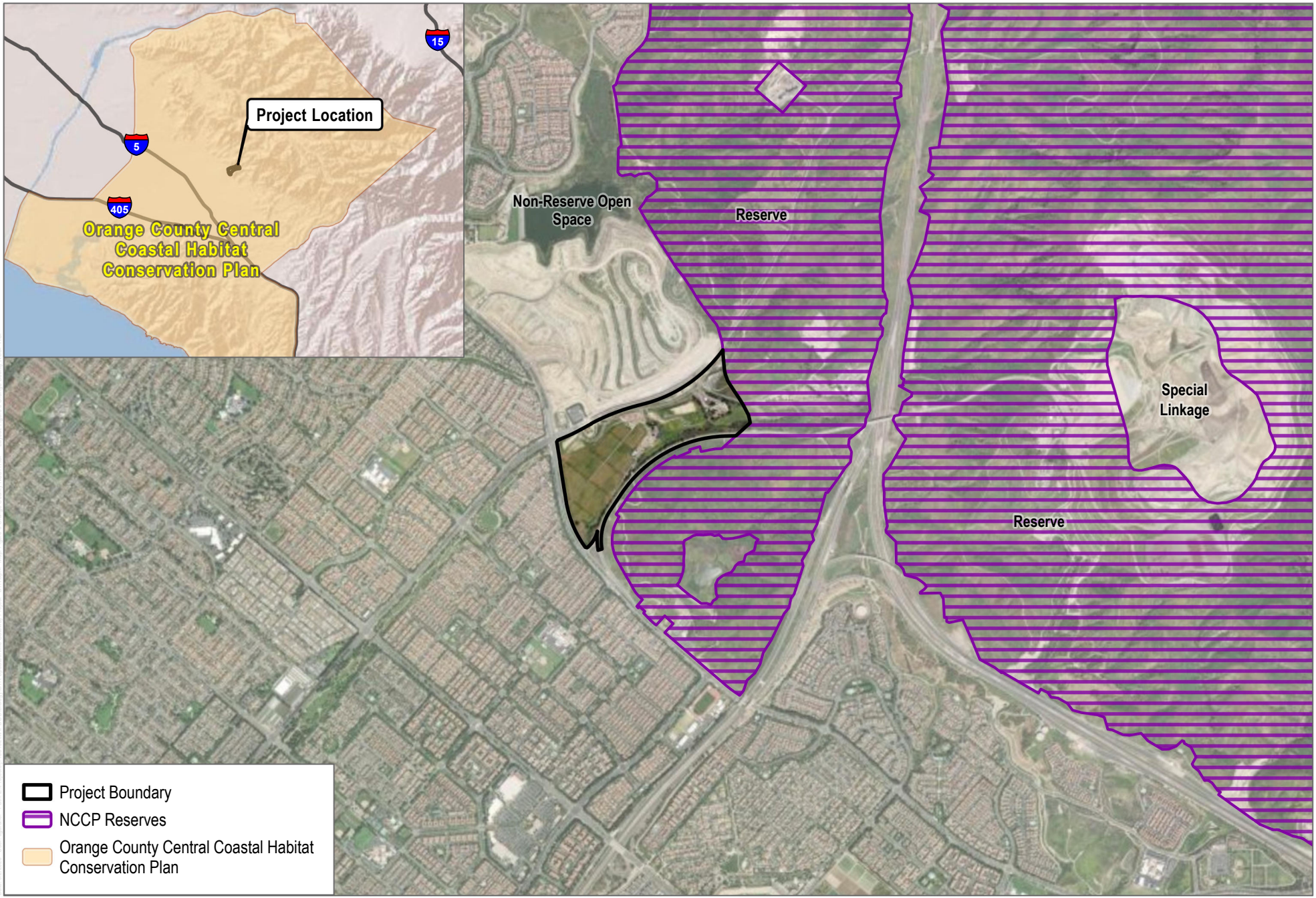
0 270 540 Feet

FIGURE 4.4-5

Project Impacts

Irvine Gateway Village Project EIR

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SOURCE: ESRI World Imagery; USDA NRCS 2023

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0 1,000 2,000 Feet

FIGURE 4.4-6

Orange County NCCP/HCP

Irvine Gateway Village Project EIR

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4.5 Cultural Resources

This section describes the existing cultural resources conditions of the project site and vicinity, identifies associated regulatory requirements, evaluates potential impacts, and identifies mitigation measures related to implementation of the proposed project. The analysis included in this section is based on the findings of the documents listed below, as well as publicly available information referenced throughout this section. Sources used for this section include the following:

- **Appendix D:** Cultural Resources Inventory and Evaluation Report Irvine Gateway Project, City of Irvine, California (Cultural Resources Report); prepared by Dudek; dated March 2025
- **Appendix E-1:** Preliminary Geotechnical Subsurface Evaluation, Proposed Residential Development, Gateway Village, Irvine, California (Geotechnical Report); prepared by LGC Geotechnical Inc.; dated November 22, 2024

4.5.1 Existing Conditions

Prehistoric Context

Evidence for continuous human occupation in the region spans the last 10,000 years. Various attempts to parse out variability in archaeological assemblages over this broad time frame have led to the development of several cultural chronologies; some of these are based on geologic time, most are based on temporal trends in archaeological assemblages, and others are interpretive reconstructions. Each of these reconstructions describes essentially similar trends in assemblage composition in greater or lesser detail. This research employs a common set of generalized terms used to describe chronological trends in assemblage composition: Paleoindian (pre-5500 BC), Archaic (8000 BC–AD 500), Late Prehistoric (AD 500–1750), and Ethnohistoric (post-AD 1750).

Paleoindian (pre-5500 BC)

Evidence for Paleoindian occupation in the region is tenuous; the knowledge of associated cultural patterns is informed by a relatively sparse body of data that has been collected from within an area extending from coastal San Diego through the Mojave Desert and beyond. One of the earliest dated archaeological assemblages in this area (excluding the Channel Islands) derives from a cultural site designated as SDI-4669/W-12, in La Jolla, San Diego County. A human burial from SDI-4669 was radiocarbon dated to 9,920–9,590 years before present (95.4% probability) (Hector 2006). The burial is part of a larger site complex that contained more than 29 human burials associated with an assemblage that fits the Archaic profile (i.e., large amounts of ground stone, battered cobbles, and expedient flake tools). In contrast, typical Paleoindian assemblages include large-stemmed projectile points, high proportions of formal lithic tools, bifacial lithic reduction strategies, and relatively small proportions of ground stone tools. Prime examples of this pattern are sites that were studied by Davis (1978) on Naval Air Weapons Station China Lake near Ridgecrest, California. These sites contained fluted and unfluted stemmed points and large numbers of formal flake tools (e.g., shaped scrapers, blades). Other typical Paleoindian sites include the Komodo site (MNO-679), a multicomponent fluted point site, and MNO-680, a single-component Great Basin stemmed point site (Basgall et al. 2002). At MNO-679 and MNO-680, ground stone tools were rare, while finely made projectile points were common.

Archaic (8000 BC–AD 500)

The Archaic pattern is relatively easy to define, with assemblages that consist primarily of processing tools: milling stones, hand stones, battered cobbles, heavy crude scrapers, incipient flake-based tools, and cobble-core reduction. These assemblages occur in all environments across the region, with little variability in tool composition. Low assemblage variability over time and space among Archaic sites has been equated with cultural conservatism (Byrd and Reddy 2002; Warren 1968; Warren et al. 2004). Despite the enormous amounts of archaeological work at Archaic sites, little change in assemblage composition is apparent until the adoption of the bow and arrow at around AD 500, as well as ceramics at approximately the same time (Griset 1996; Hale 2009). Even then, assemblage formality remains low. After the bow is adopted, small arrow points appear in large quantities, and already low amounts of formal flake tools are replaced by increasing amounts of expedient flake tools. Similarly, shaped milling stones and hand stones decrease in proportion relative to expedient, unshaped ground stone tools (Hale 2009). Thus, the terminus of the Archaic period is equally hard to define as its beginning because basic assemblage constituents and patterns of manufacturing investment remain stable, complemented only by the addition of the bow and ceramics.

Late Prehistoric (AD 500–1750)

The period following the Archaic and prior to Ethnohistoric times (AD 1750) is commonly referred to as the Late Prehistoric (Rogers 1945; Wallace 1955; Warren et al. 2004). However, several other subdivisions continue to be used to describe various shifts in assemblage composition, including the addition of ceramics and cremation practices. The post-AD 1450 period is called the San Luis Rey complex (Meighan and True 1977). Rogers (1929) also subdivided the last 1,000 years into the Yuman II and III cultures, based on the distribution of ceramics. Despite these regional complexes, each is defined by the addition of arrow points and ceramics and the widespread use of bedrock mortars. Vagaries in the appearance of the bow and arrow and ceramics make the temporal resolution of the San Luis Rey complex difficult. For this reason, the term Late Prehistoric is well-suited to describe the last 1,500 years of prehistory in the region.

Ethnohistoric (post-AD 1750)

The history of the Native American communities prior to the mid-1700s has largely been reconstructed through later mission-period and early ethnographic accounts. The first records of the Native American inhabitants of the region come predominantly from European merchants, missionaries, military personnel, and explorers. These brief, and generally peripheral, accounts were prepared with the intent of furthering respective colonial and economic aims and were combined with observations of the landscape. They were not intended to be unbiased accounts regarding the cultural structures and community practices of the newly encountered cultural groups. The establishment of the missions in the region brought more extensive documentation of Native American communities, although these groups did not become the focus of formal and in-depth ethnographic study until the early twentieth century (Bean and Shipek 1978; Boscana 1846; Fages 1937; Geiger and Meighan 1976; Harrington 1934; Laylander 2000; White 1963).

The Native American inhabitants of the region would have generally spoken Luiseño–Juaneño (Acjachemen) and Gabrieleño (or Tongva) varieties of Takic, which may be assigned to the larger Uto-Aztecan family (Golla 2007). Golla has interpreted the amount of internal diversity within these language-speaking communities to reflect a time depth of approximately 2,000 years. Other researchers have contended that Takic may have diverged from Uto-Aztecan circa 2600 BC–AD 1, which was later followed by the diversification within the Takic-speaking tribes, occurring circa 1500 BC–AD 1000 (Laylander 2010). The Luiseño–Juaneño (Acjachemen) and Gabrieleño (or

Tongva) represent the descendants of local Late Prehistoric populations. They are generally considered to have migrated into the area from the Mojave Desert, possibly displacing the prehistoric ancestors of the Yuman-speaking Kumeyaay (Ipai Tipai) that lived to the south during Ethnohistoric times. The Luiseño–Juaneño shared boundaries with the Gabrieleño and Serrano to the west and northwest, the Cahuilla to the east, the Cupeño to the southeast, and the Kumeyaay to the south (Bean and Shipek 1978; Kroeber 1925). Southern Native American tribal groups of the San Diego and southern Imperial region have traditionally spoken Yuman languages, a subgroup of the Hokan phylum.

The Uto-Aztecan inhabitants of the region were called Juaneño and Gabrieleño by Franciscan friars who established the Missions San Juan Capistrano and San Gabriel Arcángel in the traditional territories of these two respective tribes. The project area is east of Aliso Creek, which is considered by Kroeber (1925) to be the ethnographic boundary marker between the Gabrieleño (or Tongva) (west of the Aliso Creek) and Juaneño (east of the Aliso Creek). A brief description of both ethnographic groups is provided in the following text.

The Gabrieleño may have numbered as many as 5,000 people during their peak in the pre-contact period; however, population estimates are difficult due to the gradual process of missionization (Kroeber 1925). The Gabrieleño territory included the Los Angeles Basin, the coast of Aliso Creek in Orange County (the County) to the south, and Topanga Canyon in the north, the four southern Channel Islands, and watersheds of the Los Angeles, San Gabriel, and Santa Ana Rivers. At the time of European contact, the Gabrieleño were actively involved in trade using shell and beads as currency. The Gabrieleño produced pipes, ornaments, cooking implements, inlay work, and basketry. Dwellings were constructed of tule mats on a framework of poles, but size and shape have not been recorded (Kroeber 1925). Basketry and steatite vessels were used rather than ceramics until near the end of the mission period in the nineteenth century (Garcia et al. 2011).

The Juaneño, or Acjachemen, territory was bounded to the north by Aliso Creek, the east by the crest of the Santa Ana Mountains, the south by San Onofre Creek, and west by the Pacific Ocean (Kroeber 1925). Ethnographic, linguistic, and archaeological evidence indicate that Juaneño and Luiseño are one cultural/tribal group. There is no existing record of the Juaneño population during the pre-contact period. Records indicated that approximately 1,300 individuals culturally affiliated with the Juaneño resided at Mission San Juan Capistrano in the year 1800 (Engelhardt 1922). The Mission San Juan Capistrano death register shows as many as 4,000 native burials in the mission cemetery (White 1963). From this, it is clear that the arrival of the Spanish decimated Native peoples through disease and changed living conditions (Bean and Shipek 1978).

Historic Context

This section provides an overview of the relevant historic and architectural contexts that informed the evaluation of built environment resources within the project site and their potential for significance.

Irvine Ranch and the Development of Irvine

The present-day City of Irvine (City) was built entirely on the former Irvine Ranch, a 93,000-acre piece of agricultural land in Orange County. Portions of the Irvine Ranch also became parts of neighboring cities such as Newport Beach, Costa Mesa, Laguna Beach, Santa Ana, Tustin, and Orange. The Irvine Ranch stemmed from three large Spanish/ Mexican grants: Rancho Santiago de Santa Ana, Rancho San Joaquin, and Rancho Lomas de Santiago. In 1864, Jose Sepulveda, owner of Rancho San Joaquin, sold the rancho to sheep ranchers Benjamin and Thomas Flint, Llewellyn Bixby, and James Irvine. Two years later, James Irvine, Flint, and Bixby acquired Rancho Lomas de Santiago, followed by Rancho Santiago de Santa Ana in 1868. With these acquisitions, the three men's land

holdings stretched 23 miles from the Pacific Ocean inland, making up one-fifth of the total land comprising Orange County. The men rented out the land to tenant farmers, but the land was predominantly used for sheep and cattle grazing. In 1878, Irvine acquired his partners' interests, becoming the sole owner. He continued to use the land for ranching and grazing until his death in 1886 (City of Irvine 2025).

In the 1920s, various agricultural cooperatives were formed on the Irvine Ranch, including the Irvine Valenica Growers Association (1926). Beginning in 1929, the Frances Mutual Water District implemented an extensive reservoir and dam system on the ranch to support farming. This system included the Lambert Reservoir (1929); Santiago Canyon Dam (1931–1932) and Canyon Reservoir (1942); Peters Canyon Dam Number 1, Laguna Dam, and Bonita Dam (all between 1937 and 1938); Peters Canyon Dam Number 2 (1940); Sand Canyon Dam (1942); Syphon Canyon Dam (1948–1949); and Rattlesnake Canyon Dam (1960). James Irvine's son James Irvine Jr. also built canals to deliver water to the reservoirs and more than 2,500 miles of gravity-fed irrigation pipeline to move it to the fields. Although Irvine Ranch land continued to be productive through the 1920s, the nationwide effects of the Great Depression (1929–1939) impacted tenant farmers' ability to sell their crops and pay their leases. Still, the Irvine Ranch remained a central agricultural producer for the state during the 1930s and development remained sparse and scattered (IHS 2020a, 2020b; NETR 2025a, 2025b).

During World War II, many tenant farmers and ranchers enlisted in the military and left their properties at the Irvine Ranch, making cultivation difficult during the war. However, the food grown on the Irvine Ranch still fed the nearby military facilities and contributed to the County's overall war effort. After the conclusion of World War II in 1945, many former tenant and rancher farmers did not, or could not, return. In 1947, James Irvine Jr., who adamantly opposed selling Irvine Ranch land for development, died and his brother Myford took over operations (City of Irvine 2025; Jepsen 2021).

The Irvine Ranch faced development pressure in the years following World War II, commensurate with the rising population and corresponding urban and suburban sprawl developing on formerly agricultural land throughout Southern California. Residential sprawl, much of which consisted of individual housing tracts developed around freeways with no unifying plan, pushed at the borders of the Irvine Ranch.

In 1957, the University of California recognized the need to establish a new public university to serve the ever-growing population of the greater Los Angeles area. Architect and planner William Pereira proposed the Irvine Ranch as a location for the new university, noting that because the massive ranch was largely undeveloped and owned by a single entity, there was a unique possibility to design a master-planned city surrounding the university. Pereira prepared "A University Campus and Community Study," which advocated for the development of a planned "new town" associated with the intellectual and cultural impact of the university (City of Irvine 2025; Jepsen 2021; Watson 2002).

Pereira envisioned mixed-use residential, business, and commercial "villages" emanating like spokes out of the university center and connected by regional roads, bike trails, and open space corridors. In 1959, The Irvine Company donated 1,000 acres to the state for a new university campus, and the university opened its doors in October 1965 (Exhibit 2 of Appendix D). Planning and construction of elements of Pereira's master plan occurred concurrently with university development. By 1970, the villages of Turtle Rock, University Park, Culverdale, the Ranch, and Walnut were completed and the present-day Irvine Business Complex opened. Although originally tasked with planning the university campus and 10,000 acres, Pereira's master plan became the guiding goal for the entire 93,000-acre ranch. Pereira's plans included the preservation of 30,000 acres of farmland and 30,000 acres of mountainous wilderness (City of Irvine 2025; Ellison 2021; Jepsen 2021; Watson 2002).

From 1970 to 1980, the City of Irvine was California's fastest-growing city, although much of the present-day City remained agricultural land. In 1971, City residents voted to incorporate as a larger city than what was envisioned in the original Pereira master plan. The City continued to develop rapidly, with new civic, residential, and commercial structures constructed throughout the decade.

Despite the rapidly evolving City, much of the Irvine Ranch remained heavily agricultural. In 1977, for example, the Irvine Ranch was the single biggest consumer of water in the County and still maintained more than 14,000 acres of oranges, berries, and vegetable crops. The City continued to densify in the 1980s and 1990s, although aerial photographs through the 1980s continue to show large swaths of undeveloped farmland around the City's central developed core. Today, the City has a population of nearly 315,000 and comprises 66 square miles (City of Irvine 2025; NETR 2025a; Skrove 1977).

North Irvine

North Irvine is an area of recent development within the City, including the development of the residential communities of Portola Springs and Orchard Hills. The residential community of Orchard Hills, located west of the project site, is currently in its final phase of development. State Route (SR) 261 and SR-241 provide highway access to the area. The developed areas of north Irvine sit adjacent to a large swath of open space called the Northern Open Space Preserve, which includes Limestone Canyon and Blackstar Canyon and extends to the Cleveland National Forest.

Project Site Development

An aerial photograph from 1938 shows the project site as farmland with one agricultural property located adjacent to the Highline Canal segment (Map ID 2) in the project site. This orientation remained consistent until 1967, when the California Labor Camp and the El Modena Nursery were constructed (Exhibit 3 of Appendix D).

By 1986, El Modena was the 12th-largest nursery wholesaler in the country, with reported total sales of $12 million; 3 years later, the operations expanded on the project site with the addition of several greenhouses at the west end of the project site. The business continued to operate for the next two decades until it closed permanently in 2009 and its equipment and inventory were sold to Color Spot. Similarly, the Hines Nursery filed for bankruptcy in 2010. The project site remained largely unchanged until 2012, when the remaining structures associated with the El Modena Nursery were demolished. The California Labor Camp remained extant until about 2020, when its buildings (except Map ID 1) were demolished (Exhibit 4 of Appendix D) (Kieffer 1986; Milbourn 2010; NETR 2025a).

Highline Canal (P-30-176748)

An approximately 0.10-mile-long segment of the Highline Canal is located in the project site. The Highline Canal (Exhibit 5 of Appendix D) is a gravity-fed water conveyance system constructed circa 1933 through the Frances Mutual Water Company that carried water to the agricultural fields of the Irvine Ranch. The segment of the Highline Canal that transects the project site was originally an open-channel canal that became part of a system that included over 2,500 miles of gravity-fed pipelines constructed for the Irvine Ranch by the Frances Mutual Water Company. The Highline Canal is fed by the Santiago Dam (1931–1932) and Irvine Lake (completed and filled in 1933), which were constructed as a joint venture by The Irvine Company and Serrano Irrigation District for the purposes of flood control, irrigation, and municipal water use. The canal begins at the Santiago Reservoir and winds southeast to the Syphon Reservoir. During the 1940s, a large portion of the canal was demolished and other segments were undergrounded for the construction of the El Toro Marine Base on Irvine Ranch land. The remaining segments of the canal remained operational through the late 1970s, when it was replaced by an underground pipeline constructed by the Irvine Ranch Water District (Sawyer 2003; Skrove 1977).

Work Camps

Between 1848 and 1941, the diversification of California's economy resulted in the establishment of work camps throughout the state to provide housing for laborers. Work camps were linked to specific industries, most commonly agriculture, mining, logging, reclamation projects (levee construction), fishing, and railroad construction. Often intended to be temporary, labor camps were typically designed with utilitarian forms and materials. Early work camps in California became common following the Gold Rush in 1848 as functional living spaces for the influx of miners seeking their fortunes. The number and size of camps expanded in subsequent decades as industrialization prompted the construction of new infrastructure and created the need to extract raw materials for development. Work camps varied in size, with some housing only a handful of workers while others could house hundreds of workers. Some camps were privately or corporate owned while others were created by the state and federal governments. Most work camps were not intended to be complete, full-service communities and the amount of infrastructure built was often "contingent on their anticipated duration, size, and demographic composition" (Caltrans 2013).

The Great Depression (1929–1939) resulted in widespread unemployment and led to a proliferation of work camps throughout the state. The election of Franklin Delano Roosevelt in 1933 marked the beginning of the New Deal, a program of large-scale federal public-relief efforts that resulted in the construction of state and federal relief camps and the establishment of the Civilian Conservation Corps, which provided housing and employment opportunities. Between 1936 and 1941, Roosevelt's Farm Security Administration also operated 13 work camps throughout California's rural agricultural valleys. Work camps began to decline in prevalence following the United States' entry into World War II in 1941 and, due to their intentionally ephemeral nature, many have been subsequently demolished. In the decades following the conclusion of World War II, labor camps in California primarily were established to house seasonal agricultural laborers (Caltrans 2013).

Transmission Lines

Aerial transmission lines are supported by a series of vertical poles or towers. The transmission lines provide power to plants and substations, which serve individual customers in cities, towns, industrial plants, and utility districts. Transmission line structures include three main design components: the tower structure, the conductors, and the insulators. The tower is the structure that holds the insulators, and the insulators hold the conductors, which come in the form of a transmission line. The electricity transmission includes anything above the electrical voltages of 60 kilovolts (kV) or more. Transmission lines with a voltage of 500 kV are the highest voltage connected to energy grids throughout the western United States. Lines with higher voltages (230 kV and above) are primarily carried on metal towers, while lines below 230 kV are usually on wooden pole structures. Extra-high-voltage lines (500 kV and above) usually have steel lattice towers that are larger than the those constructed for lower-voltage lines and that feature a cinched waist, massing with a wide base, narrow mid-point, and extended horizontal cross-arms. With technological advances in insulator and conductor design, components are replaced and repaired regularly. Transmission lines and systems are generally categorized by their conductor positioning, construction materials, and voltage (SCE 2017).

Character-defining features are the specific physical characteristics of data requirements that an individual property must possess to retain integrity. Key character-defining features of transmission lines often include the following:

- Alignment of transmission line from the date of original construction
- Intact primary tower structures
- Connectivity and association to power-generating plants and substations and transmission lines

In addition to possessing the character-defining features outlined above, the Southern California Edison Historic-Era Electrical Infrastructure Management Program identified periods of historic significance for Southern California Edison (SCE) transmission line systems according to their voltage. For systems transmitting electrical power at 66 kV or below, the period of significance is limited to 1907 to 1930. For systems transmitting electrical power between 67 kV to 230 kV, the period of significance is limited to 1912 to 1941. For systems transmitting electrical power at 500 kV, the period of significance is limited to 1965 to 1970 (SCE 2017).

Geomorphological Context

According to the U.S. Department of Agriculture's Natural Resources Conservation Service (USDA 2025a), the project site consists primarily of Anaheim clay loam with slopes ranging from 15% to 50%, Metz loamy sand, San Emigdio fine sandy loam with slopes ranging from 0% to 2%, and Sorrento loam with slopes ranging from 0% to 2%. The official U.S. Department of Agriculture soil descriptions for these soil series are provided below.

Anaheim Series. The Anaheim series soils are characterized as well-drained, moderately deep soils over weathered fine-grained sandstone and shale that formed in material weathered from fine grained sandstone or shell (USDA 2025b). Anaheim soils are on foothills, at elevations of 100 to 2,500 feet above mean sea level (amsl), and have a series profile typically consisting of 0 to 26 inches of grayish-brown clay loam and 26 to 54 inches of weathered fractured fine-grained sandstone and shale.

Metz Series. The Metz series soils are characterized as very deep, somewhat excessively drained soils that formed in alluvial material from mixed, but dominantly sedimentary rocks (USDA 2025c). Metz soils are on floodplains and alluvial fans, at elevations of 25 to 2,500 feet amsl, and have a series profile typically consisting of 0 to 12 inches of light brownish-gray fine sandy loam; 12 to 29 inches of light brownish-gray fine sand; 29 to 38 inches of light brownish-gray sand; 38 to 52 inches of light brownish-gray very fine sandy loam; and 52 to 118 inches of light brownish-gray fine sand.

San Emigdio Series. The San Emigdio series soils are characterized as very deep, well-drained soils that formed in dominantly sedimentary alluvium (USDA 2025d). San Emigdio soils are on fans, floodplains, and in narrow valleys, at elevations of 100 to 2,000 feet amsl, and have a series profile typically consisting of 0 to 22 inches of light brownish-gray fine sandy loam and 22 to 60 inches of light gray fine sandy loam.

Sorrento Series. The Sorrento series soils are characterized as very deep, well-drained soils that formed in alluvium mostly from sedimentary rocks (USDA 2025e). Sorrento soils are on alluvial fans and stabilized floodplains, at elevations of 25 to 2,100 feet amsl, and have a series profile typically consisting of 0 to 26 inches of grayish-brown heavy loam; 26 to 37 inches of grayish-brown mixed with light brownish-gray heavy loam; 37 to 58 inches of pale brown heavy loam; and 58 to 74 inches of light yellowish-brown loamy fine sand.

A review of the USGS mineral resources (USGS 2025) online spatial data for geology indicates that approximately 75% of the project site is underlain by Quaternary alluvium and marine deposits from the Pleistocene to Holocene epochs and the remaining approximately 25% of the project site is underlain by Oligocene nonmarine rocks from the middle Eocene to early Miocene. Late Pleistocene–era alluvial formations do have the potential to support the presence of buried archaeological resources. These soils are associated with the period of prehistoric human use, as well as representing ongoing processes of development that have potential to preserve cultural material in context, depending on area-specific topographical setting.

The Geotechnical Report (Appendix E-1) was prepared for the project in November 2024 to determine the subsurface geological conditions of the project site. The report details the results of 15 hollow-stem borings (HS-1 through HS-5 and I-1 through I-10) and 17 exploratory geotechnical test pits (TP-1 through TP-17). The 15 hollow-stem borings were excavated using a truck-mounted drill rig using 8-inch-diameter hollow-stem augers and extended to a maximum depth ranging from 5 to 30 feet below ground surface. The 17 exploratory geotechnical test pits were excavated with a backhoe and extended to a maximum depth ranging from 5 to 15 feet below ground surface. According to the Geotechnical Report, the soils encountered included (1) undocumented artificial fill, characterized as older artificial fill and/or agricultural till generally consisting of brown, clayey to silty sand and sandy silt; (2) Quaternary alluvium (native soils), characterized as Holocene to Late Pleistocene Epoch deposits predominantly consisting of brown, reddish-brown, and light-yellowish-brown sandy silt to silty sand, clayey sand, and silty to sandy clay; and (3) Tertiary Vaqueros and Sespe Formations (bedrock). The Tertiary Vaqueros and Sespe Formations (bedrock) was observed along the southern boundary of the project area, north of Bee Canyon Access Road. Undocumented artificial fill soils were observed throughout the project area to varying depths. A summary of the subsurface exploratory results for the project is provided in Table 4.5-1.

Table 4.5-1. Summary of Subsurface Investigative Results

Boring/ Test Pit	Dry Vegetation/ Topsoil or Gravel Over Topsoil	Undocumented Artificial Fill Soils	Quaternary Alluvium (Native Soils)	Tertiary Vaqueros and Sespe Formation (Bedrock)	Terminated Depth
	Feet Below Ground Surface				
HS-1	N/A	N/A	0–26.5	N/A	26.5
HS-2	N/A	N/A	0–26.5	N/A	26.5
HS-3	N/A	N/A	0–26.5	N/A	26.5
HS-4	N/A	N/A	0–26.5	N/A	26.5
HS-5	N/A	N/A	0–26.5	N/A	26.5
I-1	0–2.5	N/A	2.5–30	N/A	30
I-2	0–3.5	N/A	3.5–5	N/A	5
I-3	0–5	N/A	5–30	N/A	30
I-4	N/A	N/A	0–5	N/A	5
I-5	0–5	N/A	5–30	N/A	30
I-6	0–3.5	N/A	3.5–5	N/A	5
I-7	0–5	N/A	5–30	N/A	30
I-8	0–3.5	N/A	3.5–5	N/A	5
I-9	N/A	N/A	0–30	N/A	30
I-10	N/A	N/A	0–5	N/A	5
TP-1	N/A	0–2.5	2.5–12	N/A	12
TP-2	N/A	0–2	2–12	N/A	12
TP-3	N/A	0–2.5	2.5–12	N/A	12
TP-4	N/A	0–3	3–14	N/A	14
TP-5	N/A	0–6	6–15	N/A	15
TP-6	N/A	0–4	4–15	N/A	15
TP-7	N/A	0–2.5	2.5–10	N/A	10
TP-8	N/A	0–1	1–14	N/A	14

Table 4.5-1. Summary of Subsurface Investigative Results

Boring/ Test Pit	Dry Vegetation/ Topsoil or Gravel Over Topsoil	Undocumented Artificial Fill Soils	Quaternary Alluvium (Native Soils)	Tertiary Vaqueros and Sespe Formation (Bedrock)	Terminated Depth
	Feet Below Ground Surface				
TP-9	0–2	N/A	N/A	2–5	5
TP-10	N/A	0–2	2–14	N/A	14
TP-11	N/A	N/A	0–2	4–5	5
TP-12	N/A	N/A	0–2	4–5	5
TP-13	0–2	N/A	N/A	2–6	6
TP-14	N/A	0–2.5	2.5–13	N/A	13
TP-15	N/A	0–9	N/A	N/A	9
TP-16	N/A	0–8	N/A	N/A	8
TP-17	N/A	0–2	2–11	N/A	11

Source: Appendix E-1.
Note: N/A = not applicable (not found in boring or test pit).

4.5.2 Relevant Plans, Policies, and Ordinances

Federal

National Historic Preservation Act and the National Register of Historic Places

The National Historic Preservation Act (NHPA) established the National Register of Historic Places (NRHP) and the Advisory Council on Historic Preservation. Under the NHPA, significant cultural resources are referred to as "historic properties," which include any prehistoric or historic district, site, building, structure, or object included in, or determined eligible for inclusion in, the NRHP. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to a Native American tribe or Native Hawaiian organization. Historic properties that are designated by the Secretary of the Interior to be National Historic Landmarks are nationally significant historic places that possess exceptional value or quality in illustrating or interpreting the heritage of the United States. A property is considered historically significant if it meets one of the NRHP criteria and retains sufficient historic integrity to convey its significance.

The NRHP is the United States' official list of districts, sites, buildings, structures, and objects worthy of preservation. Overseen by the National Park Service, under the U.S. Department of the Interior, the NRHP was authorized under the National Historic Preservation Act, as amended. Its listings encompass all National Historic Landmarks, as well as historic areas administered by the National Park Service.

The NRHP criteria for evaluation (36 CFR 60.4) considers the quality of significance in American history, architecture, archaeology, engineering, and culture that is present in districts, sites, buildings, structures. For a property to be listed in or determined eligible for listing, it must meet at least one of the following criteria:

A. That are associated with events that have made a significant contribution to the broad patterns of our history; or

B. That are associated with the lives of persons significant in our past; or

C. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. That have yielded, or may be likely to yield, information important in prehistory or history.

To be listed in the NRHP, a property must not only be shown to be significant under the NRHP criteria, but it also must have integrity. Integrity is the ability of a property to convey its significance. Because the concept of integrity is based on significance, the assessment of a property's integrity can only proceed after its significance has been fully established. The assessment of integrity requires consideration under the following seven aspects or qualities: location, design, materials, workmanship, setting, feeling, and association. To retain integrity, a property will always possess several, and generally most, of these aspects (NPS 1997).

Implementing Regulations for Section 106 of the National Historic Preservation Act

Section 106 of the NHPA (36 CFR 800) requires federal agencies to take into account the effects of their undertakings on historic properties. The Section 106 process consists of four principal steps: (1) initiation of the Section 106 process, which includes identifying and initiating consultation with Native American tribes, local governments, and other interested parties; (2) identification of historic properties; (3) assessment of adverse effects; and (4) delineation of stipulations to resolve adverse effects in an agreement document.

Section 106 affords the Advisory Council on Historic Preservation and the State Historic Preservation Officer, as well as other consulting parties, a reasonable opportunity to comment on any project that would adversely affect historic properties. The Advisory Council on Historic Preservation is an independent administering agency that develops procedures at the federal level to protect cultural resources included in, or eligible for inclusion in, the NRHP. The State Historic Preservation Officers administer the national historic preservation program at the state level, in addition to reviewing NRHP nominations, maintaining data on historic properties, and consulting with federal agencies during the Section 106 review.

Native American Graves Protection and Repatriation Act

The Native American Graves Protection and Repatriation Act of 1990 sets provisions for the intentional removal and inadvertent discovery of human remains and other cultural items from federal and tribal lands. The act clarifies the ownership of human remains and sets forth a process for repatriation of human remains and associated funerary objects and sacred religious objects to the Native American groups claiming to be lineal descendants of or culturally affiliated with the remains or objects. It requires any federally funded institution housing Native American remains or artifacts to compile an inventory of all cultural items within the institution or agency and to provide a summary to any Native American tribe claiming affiliation.

State

California Register of Historic Resources

California Public Resources Code (PRC) Section 5024.1 establishes the California Register of Historical Resources (CRHR), which lists all significant resources in California that are considered to be historical resources. In California, the term historical resource includes, but is not limited to, "any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering,

scientific, economic, agricultural, educational, social, political, military, or cultural annals of California" (PRC Section 5020.1[j]). The CRHR is "to be used by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change" (PRC Section 5024.1[a]). The criteria for listing resources in the CRHR were expressly developed to be in accordance with previously established criteria developed for listing in the NRHP. As such, a resource is considered historically significant if it meets at least one of the following criteria outlined under PRC Section 5024.1(c):

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

In addition to meeting one of the significance criteria described in PRC Section 5024.1(c), a resource must also possess sufficient integrity to qualify for listing in the CRHR. Integrity as defined in 14 CCR 4852(c) as "the authenticity of an historical resource's physical identity evidenced by the survival of characteristics that existed during the resource's period of significance" as evaluated with regard to the resource's retention of location, design, setting, materials, workmanship, feeling, and association. Historical resources that lack sufficient integrity to meet the criteria for listing in the NRHP may still be eligible for listing in the CRHR if they have the potential to yield significant scientific, historical information, specific data.

The CRHR includes not only listed prehistoric and historic cultural resources but also California Historical Landmarks (numbered 770 and above), California Points of Historical Interest designated by the State Historical Resources Commission, and resources that are identified through local historical resource surveys or designated under local ordinances, provided the surveys and ordinances meet the criteria in 14 CCR 4852(e)–(f).

California Environmental Quality Act

The California Environmental Quality Act (CEQA) requires that the lead agency consider the impacts of a project on historical resources. PRC Section 21084.1 defines historical resources as those listed, or eligible for listing, in the CRHR, or those officially designated or recognized as historically significant by a local government pursuant to a local county or city ordinance or jurisdiction, unless the preponderance of the evidence demonstrates that the resource is not historically or culturally significant. Historical resources also include "historic properties" in California that are listed, or determined eligible for listing, in the NRHP and CRHR. The CEQA Guidelines provide specific guidance for determining the significance of impacts on historical resources. As described in Section 15064.5 of the CEQA Guidelines:

(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.

(1) A "substantial adverse change in the significance of an historical resource" means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired (Section 15064.5[b][1]).

(2) The significance of an historical resource is materially impaired when a project:

(A) Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources; or

(B) Demolishes or materially alters in an adverse manner those physical characteristics that account for it inclusion in a local register of historical resources pursuant to section 5020.1[k] of the Public Resources Code or its identification in an historical resources survey meeting the requirements of section 5024.1[g] of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of the evidence that the resource is not historically or culturally significant; or

(C) Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historic significance and that justify its inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA.

The CEQA Guidelines also provide guidance on minimizing or avoiding significant adverse impacts on historical resources as outlined in the following provisions of Section 15064.5(b):

(3) Generally, a project that follows the Secretary of the Interior's Standards 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 (1995), Weeks and Grimmer, shall be considered as mitigated to a level of less than a significant impact on the historical resource.

(4) A lead agency shall identify potentially feasible measures to mitigate significant adverse changes in the significance of an historical resource. The lead agency shall ensure that any adopted measures to mitigate or avoid significant adverse changes are fully enforceable through permit conditions, agreements, or other measures.

(5) When a project will affect state-owned historical resources, as described in Public Resources Code Section 5024, and the lead agency is a state agency, the lead agency shall consult with the State Historic Preservation Officer as provided in Public Resources Code Section 5024.5. Consultation should be coordinated in a timely fashion with the preparation of the environmental documents.

According to the CEQA statute, if it can be demonstrated that a project will cause damage to a unique archaeological resource, the lead agency may require that reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that they cannot be left undisturbed, mitigation measures are required (PRC Section 21083.2[a], [b], and [c]).

PRC Section 21083.2(g) defines a unique archaeological resource as an archaeological artifact, object, or site about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

(1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.

(2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.

(3) Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Impacts to non-unique archaeological resources are generally not considered a significant environmental impact (PRC Section 21083.2[a]; 14 CCR 15064.5[c][4]). However, if a non-unique archaeological resource qualifies as tribal cultural resource (TCR) (PRC Sections 21074[c], 21083.2[h]), further consideration of significant impacts is required.

CEQA Guidelines Section 15064.5 assigns special importance to human remains and specifies procedures to be used when Native American remains are discovered. As described in the following subsection, these procedures are detailed in PRC Section 5097.98.

California Health and Safety Code Section 7050.5 and PRC Section 5097.98

CEQA Guidelines Section 15064.5 assigns special importance to human remains and specifies procedures to be used when Native American remains are discovered. As described below, the procedures are detailed in California Health and Safety Code (HSC) Section 7050.5 and PRC Section 5097.98.

California law protects Native American burials, skeletal remains, and associated grave goods, regardless of their antiquity, and provides for the sensitive treatment and disposition of those remains. HSC Section 7050.5 requires that if human remains are discovered in any place other than a dedicated cemetery, no further disturbance or excavation of the site or nearby area reasonably suspected to contain human remains shall occur until the county coroner has examined the remains (HSC Section 7050.5[b]). PRC Section 5097.98 also outlines the process to be followed in the event that remains are discovered. If the coroner determines or has reason to believe the remains are those of a Native American, the coroner must contact the California Native American Heritage Commission (NAHC) within 24 hours (HSC Section 7050.5[c]). In accordance with PRC Section 5097.98(a), the NAHC will notify the Most Likely Descendant (MLD). With the permission of the landowner, the MLD may inspect the site of discovery. Within 48 hours of being granted access to the site, the MLD may recommend means of treatment or disposition, with appropriate dignity, of the human remains and associated grave goods.

Native American Historical Cultural Sites (PRC Section 5097 et seq.)

State law addresses the disposition of Native American burials in archaeological sites and protects such remains from disturbance, vandalism, or inadvertent destruction; establishes procedures to be implemented if Native American skeletal remains are discovered during construction of a project; and establishes the NAHC to resolve disputes regarding the disposition of such remains. In addition, the Native American Historic Resource Protection Act makes it a misdemeanor punishable by up to 1 year in jail to deface or destroy a Native American historic or cultural site that is listed or may be eligible for listing in the CRHR.

California Native American Graves Protection Repatriation Act

The California Native American Graves Protection and Repatriation Act (California Repatriation Act), enacted in 2001, required all state agencies and museums that receive state funding and that have possession or control over collections of human remains or cultural items, as defined, to complete an inventory and summary of these remains and items on or before January 1, 2003, with certain exceptions. The California Repatriation Act also provides a process for the identification and repatriation of these items to the appropriate tribes.

California State Assembly Bill 52

California Assembly Bill (AB) 52, which took effect July 1, 2015, establishes a consultation process between California Native American tribes and lead agencies in order to address tribal concerns regarding project impacts and mitigation to "tribal cultural resources" (TCRs). PRC Section 21074(a) defines TCRs and states that a project that has the potential to cause a substantial adverse change to a TCR is a project that may have an adverse effect on the environment. TCRs are defined as follows (PRC Section 21074[a]):

1. Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:
   a. Included or determined to be eligible for inclusion in the California Register of Historical Resources.
   b. Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.
2. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

California State Senate Bill 18

California Senate Bill 18, which took effect on March 1, 2005, requires local (city and county) governments to consult with California Native American tribes identified by NAHC for the purpose of protecting, and/or mitigating impacts to cultural places in creating or amending general plans, including specific plans (California Government Code Section 65352.3).

Local

City of Irvine General Plan

The Cultural Resources Element of the City of Irvine's General Plan, adopted in 1973, contains the following goal, objectives, and policies relating to protection of cultural resources (City of Irvine 1973):

Goal. Ensure the proper disposition of historical, archaeological, and paleontological resources to minimize adverse impacts, and to develop an increased understanding and appreciation for the community's historic and prehistoric heritage, and that of the region.

Objective E-1: Historical, Archaeological, Paleontological Surveys. Identify and obtain information on the existence and significance of historical, archaeological, and paleontological sites and encourage land use planning which incorporates this information.

Policy (a): Require appropriate surveys and necessary site investigations in conjunction with the earliest environmental document prepared for a project, in accordance with California Environmental Quality Act (CEQA) and the City's CEQA procedures.

Policy (b): Require surveys, prior to discretionary approval, for areas where the possibility of encountering sites exists. Additional specific site investigations may also be required in order to obtain sufficient information to determine the site's significance. The project sponsor shall fund this level of investigation.

Policy (c): Require a written report [to] be submitted to the City following a survey or investigation describing the findings and making recommendations as to the site's significance, future disposition, and the amount of further investigation which should be undertaken. Copies of site survey records and reports shall be filed with the appropriate clearinghouse.

Policy (d): Encourage, if appropriate, removal of all materials collected during the survey/ investigation to local museums, universities, or other depositories providing access for public review or scientific research.

Policy (e): Funding of Archaeological Excavations: Use the following in the case of archaeological salvage excavations: 75 percent project sponsor; 25 percent City or other public or quasi-public agency or organization. The costs of other mitigation measures may also be shared by the landowner or developer, the City, and other agencies or organizations.

Policy (f): Maintain information on areas surveyed, numbers of sites located, their status and the names and addresses of individuals or organizations knowledgeable of the sites.

Policy (g): Maintain specific locations of unprotected sites as confidential information to avoid vandalism and the resultant irretrievable loss of the historic and prehistoric record of the community.

Policy (h): Determine the proper disposition of each historical site prior to approval of zoning or discretionary development applications. Disposition determinations shall be based upon a detailed historical report, including an inventory form, a written evaluation, and slides documenting the building and its location. This information shall be reviewed by staff and the approval authority for discretionary development cases. Each historical report shall be filed at the Irvine Historical Museum and the City of Irvine Community Development Department.

Policy (i): Buffer and protect the integrity of an historic site and/or resources contained therein, if the Planning Commission, during review of a discretionary development case, determines preservation is required.

Objective E-2: Hazard Occurrence. Evaluate surveyed sites for their present and potential cultural, educational, recreational, and scientific value to the community and the region, and determine their proper disposition prior to the approval of any project which could adversely affect them.

Policy (a): Ensure that sites determined to be significant are protected through the City's planning policies, ordinances, approval conditions, and mitigation measures.

Policy (b): Encourage the nomination of significant historical sites to the National Registry [sic] of Historic Places.

Policy (c): Include sites which are appropriate for educational or recreational purposes as an integral part of either public or community facilities or as part of the Citywide bikeway, pedestrian, and equestrian trail systems. Encourage agencies, organizations, and individuals to develop interpretive and educational programs in order to properly utilize the site for the benefit of the entire community.

Policy (d): Ensure that appropriate staff is available to act in matters relating to the implementation of this element to include identification of costs, and to coordinate the investigation and disposition of sites between City departments and Commissions, The Irvine Company, and other agencies, institutions, organizations, and individuals.

Policy (e): Determine the methods and means of preservation on a case-by-case basis according to a site's importance and disposition methods available. These may include public or private acquisition or one of the following, provided extreme care is exercised not to adversely affect the site:

- Including the site within greenbelts, parks, open space spines, preservation areas or other open space.
- Covering surface or sub-surface sites by adequate fill, pavement, or buildings.
- Using the site for nondestructive public interest or educational purposes, such as museums, interpretive centers, or outdoor classrooms.
- Moving buildings for preservation as part of a consolidated historic site.
- Using significant historic buildings in a preserved state as a part of their functional capacity (e.g., a building preserved and used as an office, restaurant, or home).

Policy (f): Encourage site preservation through economic incentives such as increased building densities, reduced taxes, credit toward park dedication, or reduction of other amenity requirements. Where incentives are not sufficient, the land owner shall be directly compensated by the City or other public or quasi-public agencies or organizations for land preserved as an archaeological, paleontological, or historical site. The costs of site preservation may be the principal responsibility of the City, other public or quasi-public agencies, or other organizations.

Policy (g): Ensure that adverse impacts of a proposed project on cultural resources are mitigated in accordance with CEQA, as well as other appropriate City policies and procedures, where preservation of a significant site is not practical.

Policy (h): Assign the Community Services Commission the responsibility to oversee implementation programs for sites or buildings which have been acquired by the City.

Policy (i): Identify and implement revenue sources which can be expended in support of this objective.

Policy (j): Undertake a comprehensive survey to inventory the remaining historical resources within the City of Irvine incorporated territory and adopted Sphere of Influence, including the location and significance of all remaining tenant farm homes over 50 years of age. This survey shall be used to determine the appropriate disposition of the resources located within any area not designated for preservation as a historical resource.

4.5.3 Thresholds of Significance

The significance criteria used to evaluate the project impacts to cultural resources are based on Appendix G of the CEQA Guidelines. According to Appendix G, a significant impact related to cultural resources would occur if the project would:

1. Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5.
2. Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5.
3. Disturb any human remains, including those interred outside of dedicated cemeteries.

4.5.4 Impacts Analysis

1. Would the project cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?

Cultural Resources Field Survey

Dudek cultural resources specialists Roshanne Bakhtiary and David Alexander conducted an intensive-level pedestrian survey of the project site on January 21, 2025. The project site totals approximately 105 acres. The topography is a mixture of flat landscape along the western portion of the project site, a flat terrace in the central portion of the project site, and hilly terrain throughout the eastern and southern portions of the project site. Nearly the entire western half of the project site is currently used for agricultural operations, while the northwestern and central portions of the project site are in use as construction laydown and haul-out yards. While the majority (65%) of the project site appears to have been disturbed by development and grading, the eastern, southeastern, and southern portions of the project site remain heavily vegetated.

Built Environment

Five built environment properties were recorded on the project site during the intensive-level pedestrian survey. These properties are summarized in Table 4.5-2. Each resource is described and evaluated following the table. California Department of Parks and Recreation (DPR) Series 523 forms (DPR site records) are provided in Appendix D of the Cultural Resources Report (Appendix D to this Draft EIR).

Table 4.5-2. Built Environment Properties Recorded and Evaluated on the Project Site

Map ID	Property Type	Name or Address	Year Built	Primary Numbers
Previously Recorded on the Project Site				
2	Canal	Highline Canal	ca. 1933	P-30-176748
Newly Recorded on the Project Site				
1	Labor Camp Barracks	11405 Jeffrey Road	ca. 1967	N/A
3	Well	Decommissioned well	ca. 1972	N/A
4	Culvert	Road culvert	ca. 1967	N/A
5	Transmission line	Transmission line	ca. 1980	N/A

Notes: ca. = circa (approximately); N/A = not applicable.

Map ID 1: 11405 Jeffrey Road

Description

Map ID 1 is a one-story rectangular plan former labor camp barracks. The eastern half of the building has been renovated and is clad with replacement vertical plank siding (Photograph 3 of Appendix D). The western half of the building has not been renovated and is clad in corrugated metal siding (Photograph 4 of Appendix D). The building has a medium-pitch side-gable roof clad in corrugated metal. Fenestration includes single- and multi-light, original wood and replacement vinyl-frame slider windows arranged in long rows. Some windows on the north and south elevations are missing window frames and glass and were covered at the time of the survey. Entrances include a half-light metal door with metal security bars at the west end of both the north and the south elevation, a single metal door on the west elevation, and two single wooden doors on the east elevation. The building is in overall fair physical condition. At the time of this property's recordation, the property did not have a legal Assessor's Parcel Number because it was in the process of being consolidated with adjacent parcels; however, the property is bounded by Irvine Haul Access Road to the north, an unnamed access road to the east, Bee Canyon Access Road to the south, and a line of trees located approximately 15 feet west of the subject property.

Statement of Significance

Under NRHP and CRHR Criteria A/1, the California Labor Camp barracks building (Map ID 1) lacks a direct and important association with any event significant in local, state, or national history. Map ID 1 is associated with the California Labor Camp, which was originally composed of four buildings constructed in 1967 to provide housing for agricultural laborers and used for this purpose until 2005. Many workers who inhabited the camp worked at the El Modena Nursey, located adjacent to the camp, or the Hines Nursery, headquartered approximately 1.5 miles to the west. Although they were successful during their years in operation, neither nursery is known to have made a particularly significant contribution to the development of local agriculture. As a barracks building purposely constructed for agricultural laborers who worked on land owned by the Irvine Ranch, Map ID 1 is associated with the general pattern of agricultural development in Orange County. Map ID 1 did not, however, play a significant role in this trend. It is also not known to be directly associated with any event(s) significant in the history of Irvine, Orange County, California, or the nation. Therefore, the property does not meet NRHP Criterion A or CRHR Criterion 1 and is recommended not eligible.

Under NRHP and CRHR Criteria B/2, the California Labor Camp building lacks a significant association with the productive life of any person important in local, state, or national history. Research identified one former owner of the California Labor Camp, Arturo Espinoza, who owned the camp in the 1980s; however, research did not identify Espinoza as an individual important to our past. Although the workers who inhabited the labor camp barracks contributed to the development of the agricultural industry in Irvine, Orange County, and California, research did not uncover information to indicate that any of the workers who occupied the labor camp building made a singular and specific significant contribution to this development. Due to a lack of identified significant associations with any persons important in our past, the property is recommended not eligible under NRHP Criterion B or CRHR Criterion 2.

Under NRHP and CRHR Criteria C/3, the California Labor Camp barracks building does not fully embody the distinctive characteristics of a particular architectural style, nor is it known to represent the work of a master, possess high artistic value, or be a component of a potential or existing historic district. With its

one-story height, horizontal massing, rambling footprint, and low-pitched roof, the subject building displays some of the characteristics of the Ranch-style aesthetic, but it does not represent a fully developed articulation of the style. Additionally, alterations such as the replacement of the original windows and wall cladding have diminished architectural features that would otherwise be considered a distinctive characteristic of the style. Overall, the property lacks sufficient design and construction value to meet NRHP Criterion C or CRHR Criterion 3.

Under NRHP and CRHR Criteria D/4, Map ID 1 is not significant as a source, or likely source, of important historical information, nor does it appear likely to yield important information about historic construction methods, materials, or technologies. This technology is well understood through contemporary trade journals and scientific monographs. As such, the property lacks significance under NRHP Criterion D and CRHR Criterion 4.

Because the California Labor Camp building lacks the necessary significance to meet any of the NRHP or CRHR listing criteria, an analysis of the property's physical integrity was considered unwarranted and immaterial to the overall finding that Map ID 1 is ineligible for listing in either the NRHP or the CRHR. As such, this evaluation concludes that the California Labor Camp building is not a historical resource for the purposes of CEQA as defined under Title 14 of the California Code of Regulations, Section 15064.5(a) (14 CCR 15064.5[a]), nor is it considered a historic property under Section 106 of the NHPA because it does not meet any of the NRHP evaluation criteria as described under Title 36 of the Code of Federal Regulations, Section 60.4 (36 CFR 60.4).

Map ID 2: Highline Canal (P-30-176748)

Description

The approximately 0.10-mile segment of the Highline Canal located on the project site is concrete lined with an earthen base. It is approximately 3 feet deep and 4 feet wide and undergrounds at a concrete culvert. There is one concrete pipe positioned vertically on the west bank of the canal and one corrugated metal pipe, also positioned vertically, on the east bank at approximately latitude 33.716057, longitude −117.734778 (Photograph 5 of Appendix D). It is unclear whether these features are original to the canal segment. The Highline Canal winds southeast from the project site for approximately 0.40 miles to the Syphon Reservoir. The canal is in poor condition because it has been decommissioned since the late 1970s.

Statement of Significance

Under NRHP and CRHR Criteria A/1, the Highline Canal lacks a direct and important association with any event significant in local, state, or national history. The Highline Canal, constructed in 1933, is associated with the agricultural development of the Irvine Ranch and the local economy. As a private water supply system, it provided irrigation water to farming operations on the ranch. Although the Highline Canal is representative of the agricultural development of the Orange County area, it was not the first such local irrigation system and did not contribute in any significant way to this development pattern. The Highline Canal was one of many water infrastructure features constructed on the Irvine Ranch by The Irvine Company and Frances Mutual Water Company in the 1920s and 1930s. By the mid-1930s, for example, the Highline Canal was part of a water conveyance system that included more than 2,500 miles of gravity-fed irrigation pipeline designed to deliver water from the various reservoirs on the Irvine Ranch to agricultural fields. Because the Highline Canal represents a later expansion of the water conveyance systems in the Orange County area and is not known to be directly associated with any event(s) important in history, it therefore does not meet NRHP Criterion A or CRHR Criterion 1 and is recommended not eligible.

Under NRHP and CRHR Criteria B/2, the Highline Canal lacks a significant association with the productive life of any person important in local, state, or national history. The Highline Canal was commissioned as a joint venture by The Irvine Company and the Serrano Irrigation District and was constructed by the Frances Mutual Water Company. The canal was therefore constructed through the combined efforts of both public and private entities and is not attributable to any single individual. Due to a lack of identified significant associations with any persons important in our past, the property is recommended not eligible under NRHP Criterion B or CRHR Criterion 2.

Under NRHP and CRHR Criteria C/3, the Highline Canal is not a particularly distinctive example of an irrigation canal, nor is it known to represent the work of a master engineer, possess high artistic value, or be a component of a potential or existing historic district. The Highline Canal is a standard gravity-fed water conveyance system that supplied water to the agricultural and ranching enterprises on the Irvine Ranch. It was constructed in 1933 and remained in use through the 1970s, although its alignment was altered and substantial portions piped underground in 1940 for the construction of the El Toro Marine Base. Gravity-fed water conveyance systems have been utilized for hundreds of years and research did not indicate that the Highline Canal was constructed using methods that were technologically or materially innovative. The Highline Canal was constructed by the Frances Mutual Water Company, a local construction company established by James Irvine Jr. to construct reservoirs and water conveyance systems throughout the Irvine Ranch. Research did not indicate that the design or the construction of the canal by the Frances Mutual Water Company was the work of a master engineer or builder. Overall, the property lacks sufficient design and construction value to meet NRHP Criterion C or CRHR Criterion 3.

Under NRHP and CRHR Criteria D/4, Map ID 2 is not significant as a source, or likely source, of important historical information, nor does it appear likely to yield important information about historic construction methods, materials, or technologies. This technology is well understood through contemporary trade journals and scientific monographs. As such, the property lacks significance under NRHP Criterion D and CRHR Criterion 4.

Because the Highline Canal lacks the necessary significance to meet any of the NRHP or CRHR listing criteria, an analysis of the property's physical integrity was considered unwarranted and immaterial to the overall finding that Map ID 2 is ineligible for listing in either the NRHP or the CRHR. As such, this evaluation concludes that the Highline Canal is not a historical resource for the purposes of CEQA as defined under 14 CCR 15064.5(a), nor is it considered a historic property under Section 106 of the NHPA because it does not meet any of the NRHP evaluation criteria as described under 36 CFR 60.4.

Map ID 3: Decommissioned Well

Description

Map ID 3 consists of a decommissioned well that was associated with the former agricultural functions of the El Modena Nursery. It has a footprint measuring approximately 4 feet by 5 feet, with uneven concrete walls clad in stucco extending approximately 1 to 2 feet aboveground (Photograph 6 of Appendix D). Its opening was covered with a wooden chipping pallet and debris during the field survey. The well is in fair condition.

Statement of Significance

Under NRHP and CRHR Criteria A/1, the subject irrigation well (Map ID 3) lacks a direct and important association with any event significant in local, state, or national history. Map ID 3 is a decommissioned well constructed circa 1972. The well supported the El Modena Nursery that opened on the project site in 1967. The El Modena Nursery was one of five large nurseries in operation around Jeffrey Road and Irvine Boulevard when it opened. El Modena Nursery remained in operation until 2009, at which point it permanently closed and its greenhouses were demolished. Although associated with the general pattern of agricultural development in the County, El Modena Nursery and the related well did not play a singularly important role in that overall trend. Map ID 3 is a standard piece of commonly installed agricultural infrastructure and is one of many irrigation wells established throughout the region. Because it is not known to have made a significant contribution to the history of Orange County, California, or the nation, the property does not meet NRHP Criterion A or CRHR Criterion 1 and is recommended not eligible.

Under NRHP and CRHR Criteria B/2, the subject well lacks a significant association with the productive life of any person important in local, state, or national history. Research did not identify any information relating to individuals associated with the development or use of Map ID 3. Due to a lack of identified significant associations with any persons important in our past, the property is recommended not eligible under NRHP Criterion B or CRHR Criterion 2.

Under NRHP and CRHR Criteria C/3, the subject well is not a particularly distinctive example of a late 1960s agricultural well, nor is it known to represent the work of a master engineer, possess high artistic value, or be a component of a potential or existing historic district. Map ID 3 is a common water infrastructure feature constructed to support agricultural endeavors. Similar wells are used for agricultural uses throughout Orange County, California, and the nation. Map ID 3 does not represent a new or innovative technology in the field of agricultural water infrastructure. As such, the property is recommended not eligible under NRHP Criterion C or CRHR Criterion 3.

Under NRHP and CRHR Criteria D/4, Map ID 3 is not significant as a source, or likely source, of important historical information, nor does it appear likely to yield important information about historic construction methods, materials, or technologies. This technology is well understood through contemporary trade journals and scientific monographs. As such, the property lacks significance under NRHP Criterion D and CRHR Criterion 4.

Because the subject well lacks the necessary significance to meet any of the NRHP or CRHR listing criteria, an analysis of the property's physical integrity was considered unwarranted and immaterial to the overall finding that Map ID 3 is ineligible for listing in either the NRHP or the CRHR. As such, this evaluation concludes that the subject well is not a historical resource for the purposes of CEQA as defined under 14 CCR 15064.5(a), nor is it considered a historic property under Section 106 of the NHPA because it does not meet any of the NRHP evaluation criteria as described under 36 CFR 60.4.

Map ID 4: Road Culvert

Description

The road culvert located at latitude 33.719809, longitude −117.731310 runs north–south underneath Irvine Haul Road, an asphaltic concrete road that runs parallel to Jeffrey Road to the north. The road

culvert has an inlet made of stacked flat concrete fragments atop a corrugated steel pipe (Photograph 7 of Appendix D) that outlets on the north side of the road (Photograph 8 of Appendix D). The culvert is in fair condition.

Statement of Significance

Under NRHP and CRHR Criteria A/1, the subject culvert (Map ID 4) lacks a direct and important association with any event significant in local, state, or national history. Map ID 4 is a road culvert constructed circa 1967 to provide drainage to the surrounding area, likely to support the El Modena Nursery that opened on the project site in 1967. The El Modena Nursery was one of five large nurseries in operation around Jeffrey Road and Irvine Boulevard when it opened. Although associated with the general pattern of agricultural and roadway development of the Orange County area, neither the El Modena Nursery nor the road culvert played a particularly important role in that overall trend. Map ID 4 is a standard piece of commonly installed water conveyance and roadway infrastructure, and it is not known to be directly associated with any event(s) significant in the history of the Orange County area, California, or the nation. Therefore, the property does not meet NRHP Criterion A or CRHR Criterion 1 and is recommended not eligible.

Under NRHP and CRHR Criteria B/2, the subject culvert lacks a significant association with the productive life of any person important in local, state, or national history. Research did not identify any information relating to individuals associated with the development or use of Map ID 4. Due to a lack of identified significant associations with any persons important in our past, the property is recommended not eligible under NRHP Criterion B or CRHR Criterion 2.

Under NRHP and CRHR Criteria C/3, the subject culvert is not a particularly distinctive example of a late 1960s road culvert, nor is it known to represent the work of a master engineer, possess high artistic value, or be a component of a potential or existing historic district. Map ID 4 is a common concrete and metal road culvert constructed to provide drainage to the El Modena Nursery. Similar culverts are used throughout Irvine, Orange County, California, and the nation. Map ID 4 does not represent any new design approaches or innovative technologies or construction methods in roadway infrastructure. As such, the property is recommended not eligible under NRHP Criterion C or CRHR Criterion 3.

Under NRHP and CRHR Criteria D/4, Map ID 4 is not significant as a source, or likely source, of important historical information, nor does it appear likely to yield important information about historic construction methods, materials, or technologies. This technology is well understood through contemporary trade journals and scientific monographs. As such, the property lacks significance under NRHP Criterion D and CRHR Criterion 4.

Because the subject culvert lacks the necessary significance to meet any of the NRHP or CRHR listing criteria, an analysis of the property's physical integrity was considered unwarranted and immaterial to the overall finding that Map ID 4 is ineligible for listing in either the NRHP or the CRHR. As such, this evaluation concludes that the subject culvert is not a historical resource for the purposes of CEQA as defined under 14 CCR 15064.5(a), nor is it considered a historic property under Section 106 of the NHPA because it does not meet any of the NRHP evaluation criteria as described under 36 CFR 60.4.

Map ID 5: Transmission Line

Description

Map ID 5 consists of an approximately 0.20-mile-long segment of an SCE 120 kV transmission line with five wooden utility poles that are approximately 35 feet tall and spaced approximately 125 feet apart, constructed circa 1980 (Photograph 9 of Appendix D). The power transmission lines and associated equipment are mounted at the top of each utility pole. Wires supported by insulators are located on each pole's cross-arm. The transmission line's terminus is in the northeastern portion of the project site at Irvine Haul Road and extends outside the project site to the southeast. Many of the poles appear to have been recently replaced and the overall line is in good condition.

Statement of Significance

Under NRHP and CRHR Criteria A/1, the segment of the SCE transmission line along Jeffrey Road evaluated for this study lacks a direct and important association with any event significant in local, state, or national history. The 120 kV transmission line was built in circa 1980, substantially after the 1912–1941 period that the SCE Historic-Era Electrical Infrastructure Management Program identified as a significant period in the development of transmission line systems designed to transmit electrical power within the 67 kV to 230 kV range. Although the Jeffrey Road transmission line is representative of power infrastructure in the City of Irvine, it is not associated with any event(s) or period(s) important in SCE or electrical engineering history. As such, the SCE transmission line along Jeffrey Road is recommended not eligible under NRHP Criterion A and CRHR Criterion 1.

Under NRHP and CRHR Criteria B/2, the SCE transmission line along Jeffrey Road lacks a significant association with the productive life of any person important in local, state, or national history. Archival research indicates that the transmission line system is associated with SCE. Although the power company played an important role in the development of electrical infrastructure in Irvine, Orange County, and Southern California, the transmission line segment represents the collective work of many individuals rather than the single work of any single individual. Because research did not identify any individuals who made a singular and specific significant contribution to the development of electrical transmission line systems in Orange County, the transmission line along Jeffrey Road lacks the necessary associative significance to meet NRHP Criterion B and CRHR Criterion 2.

Under NRHP and CRHR Criteria C/3, the SCE transmission line along Jeffrey Road is not distinctive in terms of a particular type of transmission line system, a period, or a method of transmission line construction, nor does it represent the work of a master engineer, possess high artistic value, or contribute to the significance of a potential or existing historic district. The subject system is representative of a standardized transmission system consisting of wooden T-frame transmission poles, transmission lines, and hardware, and it lacks innovation regarding its overall design, form, and function. Additionally, research did not indicate that the subject system is associated with the work of a master engineer or builder, nor did it reveal that the subject line segment represents an important variation, evolution, or transition of transmission line development. Lacking sufficient design and construction value, the SCE transmission line along Jeffrey Road is recommended not eligible under NRHP Criterion C and CRHR Criterion 3.

Under NRHP and CRHR Criteria D/4, the SCE transmission line along Jeffrey Road is not significant as a source, or likely source, of important historical information, nor does it appear likely to yield important information about historic construction methods, materials, or technologies. Therefore, the SCE transmission line along Jeffrey Road is recommended not eligible under NRHP Criterion D and CRHR Criterion 4.

Because the SCE transmission line system along Jeffrey Road lacks the necessary significance to meet any of the NRHP or CRHR listing criteria, an analysis of its physical integrity was considered unwarranted and immaterial to the overall finding that the system is ineligible for listing in either the NRHP or the CRHR. As such, this evaluation concludes that the subject transmission line system is not a historical resource for the purposes of CEQA as defined under 14 CCR 15064.5(a), nor is it considered a historic property under Section 106 of the NHPA because it does not meet any of the NRHP evaluation criteria as described under 36 CFR 60.4.

Impacts Discussion

No Impact. As defined by the CEQA Guidelines (14 CCR 15000 et seq.), a "historical resource" is a resource that is listed in or eligible for listing in the NRHP or CRHR, has been identified as significant in a historical resource survey, or is listed on a local register of historical resources. Under CEQA, a project may have a significant effect on the environment if it may cause "a substantial adverse change in the significance of a historical resource" (PRC Section 21084.1; 14 CCR 15064.5[b]). If a site is listed or eligible for listing in the CRHR, or included in a local register of historic resources, or identified as significant in a historical resources survey (meeting the requirements of PRC Section 5024.1[q]), it is a historical resource and is presumed to be historically or culturally significant for the purposes of CEQA (PRC Section 21084.1; 14 CCR 15064.5[a]).

No historical resources or historic properties were identified within the project site as a result of archival research, a records search, a field survey, and significance evaluations. Map IDs 1, 2, 3, 4, and 5, discussed in the Cultural Resources Field Survey subsection in Section 4.5.4(1), are not currently listed in any national, state, or local registers, nor have they been previously identified in any local historical resources surveys.

Resources on the project site were evaluated in accordance with Sections 15064.5(a)(2) and 15064.5(a)(3) of the CEQA Guidelines using the criteria outlined in PRC Section 5024.1 and it was determined that none of the resources on the project site are considered historical resources for the purposes of CEQA. The recommended status code for Map IDs 1, 2, 3, 4, and 5 is 6Z (found ineligible for the NRHP, CRHR, or local designation through survey evaluation). No further cultural considerations are required for these resources and no other resources were identified on the project site as a result of this investigation. Therefore, the project would not cause a substantial adverse change in the significance of a known historical resource pursuant to Section 15064.5, and no impacts would occur.

2. Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?

Background Research

Cultural Resources Records Search

On December 9, 2024, Dudek conducted a search of the California Historical Resources Information System at the South Central Coastal Information Center (SCCIC), located on the campus of California State University, Fullerton. The search included a review of their collection of mapped prehistoric, historical, and built-environment resources; DPR site records; technical reports; historical maps; and local inventories. Additional consulted sources included the NRHP; CRHR; and listed Office of Historic Preservation Archaeological Determinations of Eligibility, California Points of Historical Interest, and California Historical Landmarks. The confidential records search results are provided in Confidential Appendix A of Appendix D to this Draft EIR.

Previously Conducted Cultural Resources Studies

Results of the California Historical Resources Information System records search indicate that 28 previous cultural resources technical studies have been conducted within a 0.5-mile radius of the project site, 11 of which address portions of the project site (Table 4.5-3). See Confidential Appendix A of Appendix D to this Draft EIR for the complete SCCIC records search results and associated documentation. Summaries of the reports relevant to the currently proposed project are provided following Table 4.5-3.

Table 4.5-3. Previous Cultural Resource Studies Overlapping the Project Site

Report ID	Year	Title	Authors
Studies Overlapping the Project Site			
OR-00252	1978	Cultural Resources Report – Preliminary Assessment on the Proposed San Diego Creek Watershed Erosion and Sedimentary Control System in Hicks Canyon, Hicks Canyon Wash, Rattlesnake Creek Wash, San Diego Creek, and the San Joaquin Marsh Located in Orange County	Desautels, R.J.
OR-00305	1979	The History of Archaeological Research on Irvine Ranch Property: The Evolution of a Company Tradition	Schroth, A.
OR-00648	1982	Cultural Resource Survey: Archaeological Resources: Foothill Transportation Corridor, Phase II	Breece, B., and B. Padon
OR-00847	1985	Archaeological Resource Inventory City of Irvine and Its Sphere of Influence	Padon, B.
OR-01428	1994	First Supplemental Archaeological Survey Report for the Eastern Transportation Corridor (SR 231): Siphon Ridge Revegetation Area Orange County, California	Daey, D., and J. McKeehan
OR-02106	1994	Supplemental Historic Property Survey Report for Siphon Ridge Revegetation Area, Orange County, California, 12-ORA-231, 12830-111000	Huey, G.
OR-02225	1978	The Irvine Company Planning Process and California Archaeology – A Review and Critique	Strozier, H.
OR-02342	2001	Peer Review of "A Phase I Cultural Resources Inventory for Planning Area 9, Irvine, California," dated April 12, 2001; author, C. Drover, PhD; prepared by The Keith Companies, Incorporated, for the Irvine Community Development Company	Bissell, R.M.
OR-02845	2001	A Phase I Cultural Resources Inventory for Planning Area 9 Irvine, California	Drover, C.E.
OR-03600	2007	Results of Archaeological Survey and Monitoring for Southern California Edison's Pole Replacements After Santiago Fire Along Santiago Canyon Road, Modjeska Canyon Road, and Hicks Canyon Road; Orange County, California; JO:6259-0468	Garcia, K.H., and M. Rockman
OR-03824	2000	A Cultural Resources Inventory of Planning Areas 1 & 2, Irvine, California	Drover, C.

OR-00252

Cultural Resources Report – Preliminary Assessment on the Proposed San Diego Creek Watershed Erosion and Sedimentary Control System in Hicks Canyon, Hicks Canyon Wash, Rattlesnake Creek Wash, San Diego Creek, and the San Joaquin Marsh Located in Orange County (Desautels 1978) documents the results of an archaeological assessment to determine if the construction of two dams within Hicks Canyon would impact archaeological resources. The area of study overlaps approximately 70% of the project site. The assessment included a literature search and a pedestrian survey. No archaeological resources were discovered within the project site. At the time the study was performed, the final project plans, including the location of staging and borrow areas, were not available; however, it was determined that no archaeological resources would be impacted at the location of the two dams.

OR-00648

Cultural Resource Survey: Archaeological Resources: Foothill Transportation Corridor, Phase II (Breece and Padon 1982) documents the results of an archaeological investigation for proposed freeway alignments. The study area covers 23 miles and overlaps approximately 50% of the project site. The investigation included archival research and a pedestrian survey; however, the project site was not surveyed due to the presence of a nursery and the disturbed nature of the ground surface. No archaeological resources were discovered within the project site as a result of the literature review.

OR-00847

Archaeological Resource Inventory City of Irvine and Its Sphere of Influence (Padon 1985) documents the results of an archaeological study performed to provide the City of Irvine with a comprehensive database of existing archaeological resources. The area of study overlaps the entire project site. The study included a literature review and a pedestrian survey; however, the project site was not able to be surveyed due to the presence of an active agricultural operation. No archaeological resources were discovered within the project site as a result of the literature review. It was recommended that the unsurveyed portions be surveyed as soon as field conditions permit.

OR-01428

First Supplemental Archaeological Survey Report for the Eastern Transportation Corridor (SR 231): Siphon Ridge Revegetation Area, Orange County, California (Daey and McKeehan 1994) documents the results of a supplemental archaeological investigation for the revegetation of an area associated with the Eastern Transportation Corridor project. The area of study overlaps approximately 10% of the project site along the site's southern boundary. The investigation included a literature review, a pedestrian survey, Native American outreach, and the excavation of a 1-meter by 1-meter (3.3-foot by 3.3-foot) test unit. The investigation identified one prehistoric site, currently identified as P-30-001400, that is located approximately 80 meters (262 feet) south of the project site. P-30-001400 was determined to be entirely disturbed by terracing, planting, and road construction; had no subsurface deposits; and contained no diagnostic datable carbon or obsidian. Further scientific study of P-30-001400 was not recommended.

OR-02845

A Phase I Cultural Resources Inventory for Planning Area 9, Irvine, California (Drover 2001) documents the results of an archaeological investigation conducted to determine whether development would impact cultural resources. The area of study overlaps approximately 25% of the project site. The investigation included a records search, an archival review, and a pedestrian survey; however, the project site was not surveyed. No archaeological resources were discovered within the project site as a result of the records search and archival review. It was suggested that due to its proximity to intermittent drainages, such as Hicks Canyon Wash, the study area could contain prehistoric sites that could have been either destroyed or buried by alluvial soils. It was recommended that a qualified monitor be present during all grading activities to inspect soils for previously unknown archaeological resources.

OR-03600

Results of Archaeological Survey and Monitoring for Southern California Edison's Pole Replacements After Santiago Fire Along Santiago Canyon Road, Modjeska Canyon Road, and Hicks Canyon Road; Orange County, California; J0:6259-0468 (Garcia and Rockman 2007) documents the results of pedestrian surveys and cultural monitoring for the replacement of SCE distribution poles that were destroyed as a result of the Santiago Fire. A pedestrian survey of a 15-meter radius around each pole that is located along Hicks Canyon Road was performed after the power pole replacements had already taken place. No cultural monitoring was performed within the project site and no archaeological resources were identified on or directly adjacent to the project site as a result of the survey. Further, there was no evidence to suggest that subsurface cultural deposits were impacted by the distribution pole replacements.

OR-03824

A Cultural Resources Inventory of Planning Areas 1 & 2, Irvine, California (Drover 2000) documents the results of an archaeological investigation conducted to determine whether commercial and residential development would impact cultural resources. The area of study overlaps approximately 10% of the project site along the site's northeastern boundary. The investigation included a records search and a pedestrian survey. No cultural resources were identified within the project site as a result of the investigation.

Previously Identified Cultural Resources

The SCCIC records search indicates that seven previously recorded cultural resources are located within a 0.5-mile radius of the project site, one of which intersects the project site. The overlapping resource, P- 30- 176748, or the Highline Canal, is characterized as a historic-era built environment resource and is addressed in this report as Map ID 2. Of the seven resources within the 0.5-mile radius, four are prehistoric sites, two are historic-era built environment resources, and one is a multicomponent site containing both prehistoric and historic-era components. All previously recorded cultural resources identified within 0.5 miles of the project site are listed in Table 4.5-4. See Confidential Appendix A of EIR Appendix D for the complete SCCIC records search results, documentation, and DPR site records.

Table 4.5-4. Previously Identified Cultural Resources Within 0.5 Miles of Project Site

Primary Number	Trinomial	Age	Description	Eligibility for NRHP	Recording Event
Resources on the Project Site					
P-30-176748	N/A	Historic-era	Highline Canal	6Z	2003 (W.A. Sawyer)
Resources Within 0.5 Miles of the Project Site					
P-30-000601	CA-ORA-000601	Prehistoric	Flake scatter	Not evaluated	1974 (N. Farrell); 1982 (W.H. Breece)
P-30-001237	CA-ORA-001237	Prehistoric	Lithic scatter consisting of flakes, flaked stone tools, and hammer stones	Not evaluated	1990 (J. Sorensen, G. Brown, P. Fulton, and B. Texier)
P-30-001246	CA-ORA-001246	Prehistoric	Lithic scatter consisting of manos and a possible core	Not evaluated	1990 (J.M. Foster)
P-30-001371	CA-ORA-001371/H	Prehistoric; Historic-era	Prehistoric component: a lithic scatter consisting of flakes, a flaked stone tool, and ground stone; Historic-era component: a dilapidated wooden building, household debris, building materials, and fragments of farm equipment	Found ineligible through subsurface testing	1994 (D. McLean and D. Taylor); 1995 (G. Calvano)
P-30-001400	CA-ORA-001400	Prehistoric	Lithic scatter consisting of ground stone, flakes, cores, and a core tool	Not evaluated	1994 (D. Davy and J. McKeehan)
P-30-161867	N/A	Historic-era	Building, South Coast Gun Club; OHP Property Number 070071	Appears ineligible	1990 (R. Hatheway)

Notes: NRHP = National Register of Historic Places; N/A = not applicable; 6Z = found ineligible for NRHP, California Register of Historical Resources, or local designation through survey evaluation.

Historical Maps and Aerial Photographs Review

Dudek consulted historical topographic maps and aerial photographs through the Nationwide Environmental Title Research LLC to better understand any natural or human-made changes to the project site and surrounding properties over time.

Topographic Maps

Topographic maps depict the elevation of the study area as well as the areas surrounding it and illustrate the location of roads and some buildings. Although topographic maps are not comprehensive, they are another tool in determining whether a study area has been disturbed and at times to what approximate depth. Dudek examined historic topographic maps from 1935, 1944, 1950, 1958, 1960, 1963, 1970, 1978, 1982, 1984, 2000, 2012, 2015, 2018, and 2022 to determine the growth in the area and how the properties developed over time (Table 4.5-5) (NETR 2025b).

Table 4.5-5. Review of Historical Topographic Maps

Year	Description
1935	Only the western half of the project site is illustrated on the 1935 topographic map. There is an informal road along the southern boundary of the project site, where Bee Canyon Access Road is currently located. The road turns north toward the Hicks Canyon Wash, then turns west along the project site's northern boundary, and then continues north. There is a structure in the center of the project site, south of the informal road. Hicks Canyon Wash is depicted as stopping at the northern boundary of the project site, at the edge of the illustrated area. Map ID 2 (the Highline Canal) is not depicted.
1944	Depicts the same information as the 1935 topographic map.
1950	The entire project site is illustrated on the 1950 topographic map. Hicks Canyon Wash borders the northern boundary of the project site, intersecting the site at various points, including the approximate location of Map ID 4 (road culvert). The Highline Canal is present, connecting to the Hicks Canyon Wash and intersecting the center of the project site. The area where the Highline Canal intersects the project site is labeled "Siphon." The informal road depicted in the 1935 topographic map is still present; however, it follows a slightly different layout. The informal road intersects the center of the project site but the northern and southern ends of the road fork into different directions. The southern end forks with one portion of the road following the Highline Canal south, and the other portion intersecting the southwestern portion of the project site. The northern end of the informal road forks with one portion following Hicks Canyon Wash to the northwest, and the other portion continuing north. There are two additional structures on the project site, one small square structure and one long rectangular structure. Both are located directly north of the northern fork of the informal road.
1958	Depicts the same information as the 1950 topographic map.
1960	The informal road is depicted extending along the northern section of the project site, following Hicks Canyon Wash. There is an additional square structure in the center of the project site, directly west of where the informal road intersects the center of the project site. Hicks Canyon Wash intersects the project site at three locations: the northern border, the eastern portion, and the center of the project site; however, it no longer intersects the center of the project site from north to south, instead running east to southwest. This is not consistent with the layout of the Highline Canal.
1963	Depicts the same information as the 1960 topographic map.
1970	Hicks Canyon Wash and the Highline Canal follow the same paths depicted on the 1950 topographic map. The southern portion of the informal road follows the same layout as it did in the 1950 topographic map. The northern portion of the informal road connects to a formal road that borders approximately two-thirds of the project site's northern boundary and appears to follow the same path as Jeffrey Road. This formal road intersects Hicks Canyon Wash in the approximate location of the road culvert. Two roads break off to the south from the formal road, intersecting the northeastern portion of the project site. One of the roads that breaks off to the south stops at four structures that represent the California Labor Camp (11405 Jeffrey Road, including Map ID 1). Only one other structure, the square structure in the center of the project site, is depicted on the map.
1978	There are three additional structures in the center of the project site: one large rectangular structure and two small square structures.
1982	There is an additional rectangular structure along the northern boundary of the project site.
1984	There are eight additional large rectangular structures in the western portion of the project site, lined up along the informal road.

Table 4.5-5. Review of Historical Topographic Maps

Year	Description
2000	The informal road is now depicted as a formal road and forks in the center of the project site. There is now a formal road along the western boundary of the project site, where Portola Parkway is currently located. Bee Canyon Access Road is now present. There is an additional large rectangular structure in the western portion of the project site, as well as two small square structures in the southwestern portion of the project site, and two small square structures in the center of the project site. The small square structure depicted south of the informal road, in the center of the project site, on the 1970 topographic map is no longer present.
2012	No structures are depicted on the topographic map. Portola Parkway, Jeffrey Road, and Bee Canyon Access Road appear as they do today.
2015, 2018, and 2022	There is an increase in development in the area west of Portola Parkway. There are no changes to the project site to suggest ground disturbance has occurred.

Source: NETR 2025b.

Although topographic maps are informative, they do not illustrate the minute changes that can occur to a landscape over time, and at times are inconsistent with what is depicted on the maps year to year. Most often, structures depicted in topographic maps are limited to those with community or social significance (e.g., fire stations or hospitals), including additions or changes to roads and/or waterways. Therefore, the information gathered contributes to the overall understanding of the chronological development of a study area but must be considered with these limitations in mind.

Aerial Photographs

A review of historic aerial photographs for the years 1938, 1946, 1952, 1963, 1967, 1972, 1980, 1981, 1985, 1987, 1988, 1992–2000, 2002–2005, 2009, 2010, 2012, 2014, 2016, 2018, 2020, and 2022 was conducted as part of the archival research effort for the proposed project. The aerial photographs provided a general idea of the growth on the project site and its surroundings and changes over time (Table 4.5-6) (NETR 2025a; UCSB 2025).

Table 4.5-6. Review of Historical Aerial Photographs

Year	Description
1938	The project site is intersected by an informal road and the Highline Canal. A structure and a small number of trees are in the center of the project site, adjacent to the informal road and the Highline Canal. Consistent with what is depicted on the 1950 topographic map, there are two roads leading away from the structure. The roads are parallel to one another at first, trending southwest, and then one road curves to the south, following the Highline Canal, and the other continues southwest.
1946	The western half of the project site appears to have been disked. The eastern border of the disked area appears consistent with the informal road depicted on the 1935 topographic map. Hicks Canyon Wash appears unchanneled, bordering the northern boundary of the project site and intersecting the northeastern portion of the project site. There is a group of small structures south of the road that is trending to the southwest, five of which appear to overlap the project site. The area surrounding the project site is undeveloped, with the area to the west being used for agricultural purposes.

Table 4.5-6. Review of Historical Aerial Photographs

Year	Description
1952	The majority of the project site appears to have been disked, with the exception of the hill that is currently located south of Bee Canyon Access Road and the hills in the eastern portion of the project site. The trees located at the center of the project site have been removed. Only two of the small structures in the southwestern portion of the project site remain. The northern end of the road intersecting the project site now forks to the north and northwest. This is consistent with the informal road depicted on the 1950 topographic map. Directly north of the fork in the road, inside the northern boundary of the project site, there are three rectangular structures. Syphon Reservoir is present south of the project site.
1963	The western portion of the project site is being used for agricultural purposes. The portion of Hicks Canyon Wash located north and outside of the project site appears to have been channelized. There is a road along the northern boundary of the project site. The road curves to the south, stopping at the center of the eastern portion of the project site, where the California Labor Camp is to be constructed. There are various roads along the hill located in the northeast corner of the project site. There appears to be a small object where Map ID 3 (decommissioned well) is located; however, it is not discernible due to the quality of the image.
1967	The California Labor Camp (11405 Jeffrey Road, including Map ID 1) is now present in the eastern portion of the project site. The decommissioned well is now visible in its present location.
1972	As it does in the present day, the road along the northern boundary of the project site now follows the hillside within the northeastern portion of the project site. Hicks Canyon Wash now appears channelized directly north of the project site and turns south, overlapping the northeastern portion of the project site. The road crosses Hicks Canyon Wash in the same location as the road culvert. Approximately 90% of the project site is being used for agricultural operations that include fields, greenhouses, and parking.
1980	The hillside currently located south of Bee Canyon Access Road appears to have been disked. There are various small structures along the southwestern boundary of the project site. Map ID 5 (transmission line) is visible in its present location.
1985	The hillside currently located south of Bee Canyon Access Road appears to be in use as an orchard.
1987	Bee Canyon Access Road is under development. The various small structures along the southwestern boundary of the project site are no longer present.
1988	Bee Canyon Access Road is present.
1992	There are no significant changes to the project site.
1993	Portola Parkway is under development directly west of the project site.
1994	Portola Parkway now connects to Jeffrey Road. Most of the trees in the orchard south of Bee Canyon Access Road have been removed.
1995	The remaining trees south of Bee Canyon Access Road have been removed.
1996–1999	There is an increase in development west of the project site, although there are no significant changes to the project site.
2000	The parking lot in the northeastern corner of the project site is present.
2002	There are no significant changes to the project site.
2003	There are no significant changes to the project site.
2004 and 2005	There are no significant changes to the project site.
2009	The rectangular structure along the northern border of the project site has been removed.

Table 4.5-6. Review of Historical Aerial Photographs

Year	Description
2010 and 2012	Greenhouses on the project site (associated with El Modena Nursery) have been removed but the project site is still being used for agriculture.
2014	There are no significant changes to the project site.
2018	The agriculture fields in the center of the project site have been graded.
2020	All the structures associated with the California Labor Camp except Map ID 1 have been demolished.
2022	There are no significant changes to the project site and the project site appears as it does in the present day.

Sources: NETR 2025a; UCSB 2025.

Native American Coordination

NAHC Sacred Lands File Search

Dudek requested a NAHC Sacred Lands File search for the project site on August 9, 2024. The NAHC replied via email on August 21, 2024, stating that the Sacred Lands File search was completed with negative results. Additionally, the NAHC provided a list of Native American tribes and individuals/organizations with traditional geographic associations to the project site that might have knowledge of cultural resources in the area. See Appendix B of the Cultural Resources Report (Appendix D to this Draft EIR) for complete documentation of Sacred Lands File search results. For more detail regarding Native American coordination efforts, refer to Section 4.17, Tribal Cultural Resources, of this Draft EIR.

Cultural Resources Field Survey

Dudek cultural resources specialists Roshanne Bakhtiary and David Alexander conducted an intensive-level pedestrian survey of the project site on January 21, 2025. The project site totals approximately 105 acres. The topography is a mixture of flat landscape along the western portion of the project site, a flat terrace in the central portion of the project site, and hilly terrain throughout the eastern and southern portions of the project site. Nearly the entire western half of the project site is currently used for agricultural operations, while the northwestern and central portions of the project site are in use as construction laydown and haul-out yards. While the majority (65%) of the project site appears to have been disturbed by development and grading, the eastern, southeastern, and southern portions of the project site remain heavily vegetated and undeveloped.

Archaeology

Ground surface visibility on the project site ranged from poor to excellent (0%–90%). Poor ground surface visibility (0%–25%) was observed in areas covered in dense vegetation, hardscape, and fill (Photograph 1 of Appendix D, Cultural Resources Report). This accounted for approximately 40% of the total and encompassed the majority of the eastern, southeastern, and southern portions of the project site. Fair to good ground surface visibility (25%–75%) was observed in the central portion of the project site (accounting for 10% of the total project site), and excellent (75%–90%) ground surface visibility was observed in the fallow agricultural fields in the western half of the project site (Photograph 2 of Appendix D). Excellent ground surface visibility accounted for the remaining 50% of the project site. Vegetation included various species of invasive grasses, black mustard (*Brassica nigra*), eucalyptus (*Eucalyptus* sp.), Italian plumeless

thistle (*Carduus pycnocephalus*), wild tobacco (*Nicotiana* sp.), coyote brush (*Baccharis pilularis*), and various agricultural grasses (alfalfa, etc.). Disturbances included modern debris, various informal roadways, laydown yards, borrow piles, ongoing construction activity, and agricultural fields. Additionally, there was evidence of vegetation clearing and overland vehicle travel (tire ruts, etc.) throughout the entire project site. Overall, no prehistoric or historic-era archaeological resources were identified on the project site during the intensive-level pedestrian survey.

Impacts Discussion

Less-Than-Significant Impact with Mitigation Incorporated. The cultural resources inventory and evaluation of the project site indicates that there is a moderate potential for the inadvertent discovery of archaeological resources during project implementation. Although the SCCIC records search did not identify any archaeological resources within the project site, several are located within the 0.5-mile radius. An NAHC Sacred Lands File search was also conducted for the proposed project, and results were negative for Native American cultural resources within the search area. Although the archival review indicates that the project site has been subject to past disturbances associated with the development of agricultural fields, the California Labor Camp, and El Modena Nursery throughout the mid and late twentieth century, alluvial soils are present throughout the project site, which generally have a moderate potential to contain intact archaeological deposits. Although no archaeological resources were identified on the project site during the pedestrian survey, approximately 40% of the ground surface was heavily obscured by dense vegetation, hardscape, and fill.

Although the project would not have any impacts on known significant or unique archaeological resources, there is a moderate potential for the inadvertent discovery of subsurface archaeological resources during project implementation. The records search, NAHC Sacred Lands File search, and pedestrian survey did not identify any archaeological resources within the project site; however, the project site likely would have been used by indigenous Native American inhabitants prior to Euromerican contact, and there is ample evidence to indicate the project site's historical use as an agricultural operation and labor camp.

The potential for intact cultural deposits to exist within native soils to the depths of assumed ground disturbance is unknown. In the event that unanticipated cultural resources are encountered during project implementation, an assessment and evaluation of the resource would be conducted, potentially resulting in the determination that the resource is historical in accordance with the definition outlined in CEQA Guidelines Section 15064.5. As a result, the project has the potential to impact and thus cause a substantial adverse change in the significance of a yet unknown archaeological resource. Therefore, mitigation is required to address impacts related to the inadvertent discovery of yet unknown archaeological resources, as outlined in Mitigation Measure (MM) CUL-1 (Cultural Resources Sensitivity Training) and MM-CUL-2 (Cultural Resources Monitoring and Inadvertent Discovery Protocols; refer to Section 4.5.5 for the text of all Cultural Resources mitigation measures). MM-CUL-1 requires that all project construction personnel participate in cultural resources sensitivity training for the proper identification and treatment of inadvertent discoveries. MM-CUL-2 requires the retention of an on-call qualified archaeologist to address inadvertent discoveries and requires that construction work occurring within 50 feet of a cultural resource discovery be immediately halted until the qualified archaeologist can assess and evaluate the discovery pursuant to CEQA. With implementation of MM-CUL-1 and MM-CUL-2, significant impacts to archaeological resources would be reduced to less than significant with mitigation incorporated.

3. Would the project disturb any human remains, including those interred outside of dedicated cemeteries?

Less-Than-Significant Impact with Mitigation Incorporated. The project site is not used as a cemetery and is not otherwise known to contain human remains. The pedestrian field survey conducted for the project did not identify any human remains or find any indications that they would be expected to be found at the project site. However, although it is unlikely, there is the possibility of human remains being discovered during ground-disturbing activities on the project site. If remains are discovered during project construction activities, mitigation is proposed that would require that work in the vicinity of the discovery be halted and that procedures set forth in PRC Section 5097.98 and HSC Section 7050.5 be followed. The project would be required to comply with Section 7050.5 of the HSC and the project applicant would implement MM-CUL-3 (Unanticipated Discovery of Human Remains). Implementation of MM-CUL-3 would ensure that potential impacts to human remains would be less than significant with mitigation incorporated.

Summary of Impacts

Although the project would not have any impacts on known significant or unique archaeological resources, there is a moderate potential for the inadvertent discovery of subsurface archaeological resources or human remains during project implementation. These impacts would be potentially significant, absent mitigation.

No impact would occur related to causing an adverse change in the significance of a historical resource.

4.5.5 Mitigation Measures

Implementation of the following mitigation measures would address the project's potentially significant impacts relating to discovery of yet unknown archaeological resources and the discovery of human remains:

MM-CUL-1 Cultural Resources Sensitivity Training. Prior to the initiation of ground-disturbing activities, construction crews shall be made aware of the potential to encounter cultural resources and the requirement for cultural monitors to be present during these activities. Topics addressed should include definitions and characteristics of cultural resources and tribal cultural resources, regulatory requirements and penalties for intentionally disturbing cultural resources, and protocols to be taken in the event of an inadvertent discovery.

MM-CUL-2 Cultural Resources Monitoring and Inadvertent Discovery Protocols. A Cultural Resources Monitoring and Inadvertent Discovery Plan (Plan) shall be prepared by an archaeological principal investigator meeting the Secretary of the Interior's Professional Qualification Standards for Archaeology, and subject to City of Irvine (City) review prior to initiation of construction. The Plan shall detail, at a minimum, requirements for archaeological monitoring (as applicable); roles and responsibilities; inadvertent discovery, management, and communication protocols; and daily and post-construction reporting.

An archaeological monitor shall be present during all initial ground-disturbing activities for the project in areas with the highest perceived archaeological sensitivity. This includes areas along Hicks Canyon Wash and throughout the northeastern portion of the project area, which has not been subject to past mass-grading efforts. Areas of lower sensitivity, including areas previously graded for agricultural use shall be subject to weekly spot checks. Archaeological monitoring may be adjusted (increased, decreased, or discontinued) at the recommendation of the archaeological

principal investigator based on inspection of exposed cultural material and the observed potential for soils to contain intact cultural deposits or otherwise significant archaeological material. The archaeological monitor shall have the authority to temporarily halt work to inspect areas for potential cultural material or deposits.

In the event that unanticipated archaeological deposits or features are exposed during construction activities, all construction work occurring within 50 feet of the find shall immediately stop until the archaeological principal investigator is provided access to the project site and can assess the significance of the find and determine whether additional study is warranted. The work exclusion buffer may be adjusted as appropriate to allow work to feasibly continue at the recommendation of the archaeological principal investigator. Should it be required, temporary flagging shall be installed around the resource to avoid any disturbance from construction equipment. The potential for avoidance and preservation in place should be the primary consideration of this initial process. The significance of the find shall be assessed as outlined in the California Environmental Quality Act (CEQA) Guidelines and statute (14 CCR 15064.5[f]; California Public Resources Code Section 21082). If the archaeological principal investigator observes the discovery to be potentially significant under CEQA, additional efforts, such as the preparation of an archaeological treatment plan, testing, and/or data recovery, are warranted prior to allowing construction to proceed in this area.

Daily monitoring logs shall be completed by the on-site archaeological monitor. Within 60 days following completion of construction, the archaeological principal investigator shall provide an archaeological monitoring report to the City. This report shall include the results of the cultural monitoring program (even if negative), including a summary of any findings or evaluation/data recovery efforts, and supporting documentation that demonstrates that all mitigation measures defined in this environmental impact report were appropriately met. Appendices shall include archaeological monitoring logs and documentation relating to any newly identified or updated cultural resources. This report shall be submitted to the South Central Coastal Information Center once considered final.

MM-CUL-3 Unanticipated Discovery of Human Remains. In accordance with Section 7050.5 of the California Health and Safety Code and the requirements of the California Environmental Quality Act (CEQA) Guidelines Section 15064.5(e), if human remains are found, the Orange County Coroner (County Coroner) shall be immediately notified of the discovery. No further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains shall occur until the County Coroner has determined the appropriate treatment and disposition of the human remains. If the County Coroner determines that the remains are, or are believed to be, Native American, the County Coroner shall notify the Native American Heritage Commission (NAHC) within 24 hours. In accordance with California Public Resources Code Section 5097.98, NAHC must immediately notify the person or persons it believes to be the Most Likely Descendant of the deceased Native American. The Most Likely Descendant shall complete inspection after being granted access to the site and make recommendations for the treatment and disposition, in consultation with the landowner, of the human remains and associated grave goods.

4.5.6 Level of Significance After Mitigation

Impacts relating to inadvertent discovery of archaeological resources would be addressed by implementation of MM-CUL-1 and MM-CUL-2, which would reduce impacts to a less-than-significant level. Impacts from potential discovery of human remains would be addressed by implementation of MM-CUL-3, which would reduce impacts to a less-than-significant level.

No impacts would occur relating to historical resources; therefore, no mitigation is required.

4.5.7 Cumulative Impacts

Cultural cumulative impacts include the project's impacts and those likely to occur as a result of other existing, proposed, and reasonably foreseeable projects (refer to Table 3-1 in Chapter 3). These projects have all involved or will involve grading or other excavation activities that have potential to impact cultural resources. The geographic scope for cumulative project was selected because the archaeological and historical resources within this area are expected to be similar to those that occur on the project site due to their proximity and because similar environments, landforms, and hydrology would result in similar land use and thus similar site types.

The project would not cause a substantial adverse change in significance of a known historic site, either directly or indirectly. This is because there are no known significant historical built environment resources in the project area. Additionally, as needed, projects would incorporate individual mitigation for site-specific historical resources present on each individual project site. Therefore, the project's impacts combined with those of nearby projects would not result in a cumulatively considerable or significant impact on historic sites. Therefore, the project would not result in a cumulatively considerable contribution to this impact.

The project would have the potential to cause a substantial adverse change in the significance of a known archaeological resource, directly or indirectly. There are no known significant archaeological resources in the project area. However, the potential for intact cultural deposits to exist within native soils to the depths of assumed ground disturbance is unknown. Cumulative projects would be required to assess impacts to archaeological resources through the environmental review (CEQA) process. Additionally, as needed, projects would incorporate individual mitigation for site-specific archaeological resources present on each individual project site. Furthermore, the proposed project does not include construction (including grading/excavation) or design features that could directly or indirectly contribute to an increase in a cumulative impact to archaeological resources, because the implementation of MM-CUL-1 (Cultural Resources Sensitivity Training) and MM-CUL-2 (Cultural Resources Monitoring and Inadvertent Discovery Protocols) would ensure that any significant archaeological resources uncovered during project excavations would be properly analyzed and salvaged by the archaeological monitor, reducing any potentially significant impacts to less-than-significant levels. Therefore, the project would not result in cumulatively considerable impacts to archaeological resources.

The project would have the potential to disturb human remains, including those interred outside of dedicated cemeteries. The pedestrian field survey conducted for the project did not identify any human remains or find any indications that they would be expected to be found at the project site. However, although it is unlikely, there is the possibility of human remains being discovered during ground-disturbing activities on the project site, which would represent a potentially significant impact. If remains are discovered during project construction activities, mitigation is proposed (MM-CUL-3, Unanticipated Discovery of Human Remains) that would require that work in the vicinity of the discovery be halted and that procedures set forth in PRC Section 5097.98 and HSC

Section 7050.5 be followed, reducing potential impacts to less-than-significant levels. Cumulative projects would also be required to assess impacts through the environmental review (CEQA) process. Additionally, as needed, projects would incorporate individual mitigation for site-specific potential to disturb human remains on each individual project site. Therefore, the project's impacts combined with those of nearby projects would not result in a cumulatively considerable or significant impact regarding the disturbance of human remains, including those interred outside of dedicated cemeteries.

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4.6 Energy

This section describes the existing energy conditions of the project site and vicinity, identifies associated regulatory requirements, identifies project design features for the project, evaluates potential impacts, and includes mitigation measures related to implementation of the project. The analysis included in this section is based on the findings of the documents listed below, as well as publicly available information referenced throughout this section. Sources used for this section include the following:

- **Appendix B-1:** Air Quality and Greenhouse Gas Emissions Modeling and Emissions Estimates (AQ/GHG Modeling); prepared by Dudek; dated March 2025
- **Appendix I:** Traffic Study; prepared by LSA Associates; dated February 2025

4.6.1 Existing Conditions

Electricity

According to the U.S. Energy Information Administration, California used approximately 239,480 gigawatt hours of electricity in 2023 (EIA 2024a). Electricity usage in California for different land uses varies substantially by the types of uses in a building, the type of construction materials used in a building, and the efficiency of all electricity-consuming devices within a building. In 2023, California was the fourth-largest electricity producer in the nation, but the state was also the nation's third-largest consumer of electricity (EIA 2024b).

Southern California Edison (SCE) provides electricity to many areas in Southern California. SCE, a subsidiary of Edison International, serves approximately 180 cities in 11 counties across Central and Southern California. SCE administers various energy efficiency and conservation programs that may be available to residents, businesses, and other organizations in Orange County (County).

SCE receives electric power from a variety of sources. According to the 2023 SCE Power Content Label, eligible renewable energy accounts for 37.6% of SCE's overall energy resources, with geothermal resources at 5.2%, wind power at 11.7%, eligible hydroelectric sources at 0.7%, and solar energy at 19.8% (SCE 2023). Within the County, annual non-residential electricity use in 2022 was approximately 12.4 billion kilowatt-hours (kWh) per year, while residential electricity use is approximately 7.8 billion kWh per year (CEC 2022a).

Natural Gas

California used approximately 2,087 billion cubic feet of natural gas in 2023 (EIA 2025a). The majority (by number) of California's natural gas customers are residential and small commercial customers (core customers). These customers account for approximately 35% of the natural gas delivered by California utilities (CPUC 2019). Large consumers, such as electric generators and industrial customers (noncore customers), account for approximately 65% of the natural gas delivered by California utilities (CPUC 2021). The California Public Utilities Commission (CPUC) regulates California natural gas rates and natural gas services, including in-state transportation over transmission and distribution pipeline systems, storage, procurement, metering, and billing. Most of the natural gas used in California comes from out-of-state natural gas basins. California gas utilities may soon also begin receiving biogas into their pipeline systems (CPUC 2021).

The Southern California Gas Company (SoCalGas) provides Orange County with natural gas service. SoCalGas's service territory encompasses approximately 20,000 square miles and more than 500 communities. In the California Energy Demand mid-energy demand scenario from the 2019 Integrated Energy Policy Report, natural gas demand is projected to have an annual growth rate of 0.03% in SoCalGas's service territory (CEC 2018a). In 2022, SoCalGas delivered approximately 572 million therms (57.2 billion kilo–British thermal units [kBTU]) to the County (CEC 2022b).

Petroleum

According to the U.S. Energy Information Administration, California used approximately 628 million barrels of petroleum in 2022, with the majority (534 million barrels) used for the transportation sector (EIA 2025b). This total annual consumption equates to a daily use of approximately 1.7 million barrels of petroleum. In California, petroleum fuels refined from crude oil are the dominant source of energy for transportation sources. Petroleum usage in California includes petroleum products such as motor gasoline, distillate fuel, liquefied petroleum gases, and jet fuel. California has implemented policies to improve vehicle efficiency and to support use of alternative transportation, as described in Section 4.6.2.

4.6.2 Relevant Plans, Policies, and Ordinances

Federal

Federal Energy Policy and Conservation Act

In 1975, Congress enacted the Federal Energy Policy and Conservation Act, which established the first fuel economy standards for on-road motor vehicles in the United States. Pursuant to the act, the National Highway Traffic Safety Administration (NHTSA) is responsible for establishing additional vehicle standards. In 2012, new fuel economy standards for passenger cars and light trucks were approved for model years 2017 through 2021 (77 FR 62624–63200). Fuel economy is determined based on each manufacturer's average fuel economy for the fleet of vehicles available for sale in the United States.

Energy Independence and Security Act of 2007

On December 19, 2007, the Energy Independence and Security Act of 2007 (EISA) was signed into law. In addition to setting increased Corporate Average Fuel Economy (CAFE) standards for motor vehicles, the EISA includes the following other provisions related to energy efficiency:

- Renewable Fuel Standard (RFS) (Section 202)
- Appliance and Lighting Efficiency Standards (Sections 301–325)
- Building Energy Efficiency (Sections 411–441)

The RFS, a federal law, requires ever-increasing levels of renewable fuels to replace petroleum (EPA 2017). The U.S. Environmental Protection Agency (EPA) is responsible for developing and implementing regulations to ensure that transportation fuel sold in the United States contains a minimum volume of renewable fuel. The RFS program regulations were developed in collaboration with refiners, renewable fuel producers, and many other stakeholders.

The RFS program was created under the Energy Policy Act of 2005 and established the first renewable fuel volume mandate in the United States. As required under the act, the original RFS program (RFS1) required 7.5 billion gallons of renewable fuel to be blended into gasoline by 2012. Under the EISA, the RFS program was expanded in key ways that laid the foundation for achieving significant reductions of greenhouse gas (GHG) emissions through the use of renewable fuels, for reducing imported petroleum, and for encouraging the development and expansion of our nation's renewable fuels sector. The updated program ("RFS2") includes the following:

- EISA expanded the RFS program to include diesel, in addition to gasoline.
- EISA increased the volume of renewable fuel required to be blended into transportation fuel from 9 billion gallons in 2008 to 36 billion gallons by 2022.
- EISA established new categories of renewable fuel and set separate volume requirements for each one.
- EISA required EPA to apply lifecycle GHG performance threshold standards to ensure that each category of renewable fuel emits fewer GHGs than the petroleum fuel it replaces.

Additional provisions of the EISA address energy savings in government and public institutions, promoting research for alternative energy, additional research in carbon capture, international energy programs, and the creation of "green jobs."

State

California Environmental Quality Act

In accordance with the California Environmental Quality Act (CEQA) Guidelines and Appendix F, Energy Conservation, of the CEQA Guidelines, in order to ensure that energy implications are considered in project decisions, environmental impact reports (EIRs) must include a discussion of the potential significant energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy. Appendix F of the CEQA Guidelines provides a list of energy-related topics that should be analyzed in an EIR. In addition, while not described as significance thresholds for determining the significance of impacts related to energy, Appendix F provides the following topics that the lead agency may consider in the energy analysis in an EIR, where topics are applicable or relevant to the project:

- The project's energy requirements and its energy use efficiencies by amount and fuel type for each stage of the project's life cycle including construction, operation, maintenance, and/or removal. If appropriate, the energy intensiveness of materials may be discussed;
- The effects of the project on local and regional energy supplies and on requirements for additional capacity;
- The effects of the project on peak and base period demands for electricity and other forms of energy;
- The degree to which the project complies with existing energy standards;
- The effects of the project on energy resources; and
- The project's projected transportation energy use requirements and its overall use of efficient transportation alternatives.

Warren–Alquist Act

The California Legislature passed the Warren–Alquist Act in 1974, which created the California Energy Commission (CEC). The legislation also incorporated the following three key provisions designed to address the demand side of the energy equation:

- It directed CEC to formulate and adopt the nation's first energy conservation standards for both buildings constructed and appliances sold in California.
- The act removed the responsibility of electricity demand forecasting from the utilities, which had a financial interest in high-demand projections, and transferred it to a more impartial CEC.
- CEC was directed to embark on an ambitious research and development program, with a particular focus on fostering what were characterized as non-conventional energy sources.

State of California Energy Action Plan

CEC and CPUC approved the first State of California Energy Action Plan in 2003. The plan established shared goals and specific actions to ensure the provision of adequate, reliable, and reasonably priced electrical power and natural gas supplies; it also identified cost-effective and environmentally sound energy policies, strategies, and actions for California's consumers and taxpayers. In 2005, CEC and CPUC adopted a second Energy Action Plan to reflect various policy changes and actions of the prior 2 years.

At the beginning of 2008, CEC and CPUC determined that it was not necessary or productive to prepare a new energy action plan (CPUC 2008). This determination was based, in part, on a finding that the state's energy policies had been significantly influenced by the passage of Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006 (discussed below). Rather than producing a new energy action plan, CEC and CPUC prepared an "update" that examines the state's ongoing actions in the context of global climate change.

Assembly Bill 32, Senate Bill 32, and Assembly Bill 1279

In 2006, the State Legislature enacted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires California to reduce its GHG emissions to 1990 levels by 2020. In 2016, the Legislature enacted Senate Bill (SB) 32, which extended the horizon year of the state's codified GHG reduction planning targets from 2020 to 2030, requiring California to reduce its GHG emissions to 40% below 1990 levels by 2030. In 2022, the Legislature enacted AB 1279, which established the policy of the state to achieve carbon neutrality as soon as possible, but no later than 2045 and maintain net negative GHG emissions thereafter, and to ensure that GHG emissions are reduced at least 85% below 1990 levels by 2045. In accordance with AB 32 and SB 32, the California Air Resources Board (CARB) prepares scoping plans to guide the development of statewide policies and regulations for the reduction of GHG emissions. Many of the policy and regulatory concepts identified in the scoping plans focused on increasing energy efficiencies, using renewable resources, and reducing the consumption of petroleum-based fuels (such as gasoline and diesel). As such, the state's GHG emissions reduction planning framework creates co-benefits for energy-related resources.

California Building Standards

Title 24 of the California Code of Regulations was established in 1978 and serves to enhance and regulate California's building standards. While not initially promulgated to reduce GHG emissions, Part 6 of Title 24 specifically establishes Building Energy Efficiency Standards that are designed to ensure new and existing buildings

in California achieve energy efficiency and preserve outdoor and indoor environmental quality (CEC 2018b). These energy efficiency standards are reviewed every few years by the Building Standards Commission and the California Energy Commission (CEC) (and revised if necessary) (PRC Section 25402[b][1]). The regulations receive input from members of industry, as well as the public, with the goal of "reducing of wasteful, uneconomic, inefficient, or unnecessary consumption of energy" (PRC Section 25402). These regulations are carefully scrutinized and analyzed for technological and economic feasibility (PRC Section 25402[d]), and cost effectiveness (PRC Sections 25402[b][2] and [b][3]). These standards are updated to consider and incorporate new energy efficient technologies and construction methods. As a result, these standards save energy, increase electricity supply reliability, increase indoor comfort, avoid the need to construct new power plants, and help preserve the environment. The 2022 standards went into effect on January 1, 2023. The 2025 Title 24 building energy efficiency standards were adopted in September 2024 and the non-residential portion of the code will become effective January 1, 2026. With the passage of AB 306, which prohibits the California Building Standards Commission and other state and local agencies from adopting new building standards for residential units from October 1, 2025, to June 1, 2031, the residential portion of the 2025 Title 24 code will not be enacted as originally planned by CEC.

In addition to CEC's efforts, in 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (24 CCR 11) is commonly referred to as CALGreen and establishes minimum mandatory standards and voluntary standards pertaining to the planning and design of sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and interior air quality. The CALGreen standards took effect in January 2011 and instituted mandatory minimum environmental performance standards for all ground-up, new construction of commercial, low-rise residential, and state-owned buildings, schools, and hospitals. The CALGreen 2022 standards went into effect on January 1, 2023. The 2025 CALGreen proposed standards, adopted in September 2024, will go into effect on January 1, 2026.

Senate Bill 1368

On September 29, 2006, Governor Arnold Schwarzenegger signed into law SB 1368 (Perata, Chapter 598, Statutes of 2006). The law limits long-term investments in baseload generation (minimum level of demand on an electrical grid over a span of time) by the state's utilities to those power plants that meet an emissions performance standard jointly established by CEC and CPUC.

CEC has designed regulations (Perata, Chapter 598, Statutes of 2006) that:

- Establish a standard for baseload generation owned by, or under long-term contract to publicly owned utilities, of 1,100 pounds carbon dioxide (CO_2) per megawatt-hour. This would encourage the development of power plants that meet California's growing energy needs while minimizing their emissions of GHGs;
- Require posting of notices of public deliberations by publicly owned utilities on long-term investments on the CEC website. This would facilitate public awareness of utility efforts to meet customer needs for energy over the long-term while meeting the state's standards for environmental impact; and
- Establish a public process for determining the compliance of proposed investments with the emissions performance standard (EPS).

Assembly Bill 1493

Adopted in 2002 by the state legislature, AB 1493 (Pavley regulations) required that CARB develop and adopt, no later than January 1, 2005, regulations to achieve the maximum feasible and cost-effective reduction of GHG emissions from motor vehicles.

The first California request to implement GHG standards for passenger vehicles, known as a waiver request, was made in December 2005 and was denied by EPA in March 2008. That decision was based on a finding that California's request to reduce GHG emissions from passenger vehicles did not meet the Clean Air Act requirement of showing that the waiver was needed to meet "compelling and extraordinary conditions."

EPA granted California the authority to implement GHG emission reduction standards for new passenger cars, pickup trucks, and sport utility vehicles on June 30, 2009. On September 24, 2009, CARB adopted amendments to the Pavley regulations that reduced GHG emissions in new passenger vehicles from 2009 through 2016. These amendments were part of California's commitment to a nationwide program to reduce new passenger vehicle GHGs from 2012 through 2016. CARB's September 2009 amendments would allow for California's enforcement of the Pavley rule while providing vehicle manufacturers with new compliance flexibility. The amendments also prepared California to harmonize its rules with the federal rules for passenger vehicles.

It was expected that the Pavley regulations would reduce GHG emissions from California passenger vehicles by about 22% in 2012 and about 30% in 2016, all while improving fuel efficiency and reducing motorists' costs.

Executive Order S-1-07

Issued on January 18, 2007, Executive Order (EO) S-1-07 set a declining Low Carbon Fuel Standard for GHG emissions measured in CO_2-equivalent (CO_2e) grams per unit of fuel energy sold in California. The target of the Low Carbon Fuel Standard was to reduce the carbon intensity of California passenger vehicle fuels by at least 10% by 2020. The carbon intensity measures the amount of GHG emissions in the lifecycle of a fuel, including extraction/feedstock production, processing, transportation, and final consumption, per unit of energy delivered. CARB adopted the implementing regulation in April 2009. The regulation was expected to increase the production of biofuels, including those from alternative sources, such as algae, wood, and agricultural waste. In addition, the Low Carbon Fuel Standard would drive the availability of plug-in hybrid, battery electric, and fuel-cell power motor vehicles. The Low Carbon Fuel Standard was anticipated to lead to the replacement of 20% of the fuel used in motor vehicles with alternative fuels by 2020. In 2018, this goal was revised to reduce the carbon intensity of fuels by 20% compared to 2011 by 2030. In 2020, the LCFS met 7.42% of the 7.5% target reduction for the year (CARB 2021a).

Senate Bill 375

In August 2008, the legislature passed, and on September 30, 2008, Governor Schwarzenegger signed, SB 375 (Steinberg), which addresses GHG emissions associated with the transportation sector through regional transportation and sustainability plans. Regional GHG reduction targets for the automobile and light-truck sector for 2020 and 2035, as determined by CARB, are required to consider the emission reductions associated with vehicle emission standards (see SB 1493), the composition of fuels (see EO S-1-07), and other CARB-approved measures to reduce GHG emissions. Regional metropolitan planning organizations are responsible for preparing a Sustainable Communities Strategy (SCS) within their Regional Transportation Plan (RTP). The goal of the SCS is to establish a development plan for the region, which, after considering transportation measures and policies, will

achieve, if feasible, the GHG reduction targets. If an SCS is unable to achieve the GHG reduction target, a metropolitan planning organization must prepare an alternative planning strategy demonstrating how the GHG reduction target would be achieved through alternative development patterns, infrastructure, or additional transportation measures or policies. SB 375 provides incentives for streamlining CEQA requirements by substantially reducing the requirements for "transit priority projects," as specified in SB 375, and eliminating the analysis of the impacts of certain residential projects on global warming and the growth-inducing impacts of those projects when the projects would not conflict with the SCS or alternative planning strategy.

In September 2010, CARB adopted the SB 375 targets for the regional metropolitan planning organizations. The targets for the Southern California Association of Governments (SCAG) were an 8% reduction in emissions per capita by 2020 and a 13% reduction by 2035. Achieving these goals through adoption of a SCS is the responsibility of the metropolitan planning organizations. SCAG prepared its RTP/SCS, which was adopted by the SCAG Regional Council on April 4, 2012. The plan quantified a 9% reduction by 2020 and a 16% reduction by 2035. On June 4, 2012, the CARB executive officer issued an EO accepting SCAG's quantification of GHG reductions and the determination that the SCS would achieve the GHG emission reduction targets established by CARB. On April 7, 2016, SCAG adopted the 2016–2040 RTP/SCS, which looks to build on the success of the 2012–2035 RTP/SCS. Targets for SCAG region in the updated plan includes an 8% per capita reduction in GHG emissions from automobiles and light trucks by 2020, an 19% reduction by 2035, and a 21% reduction by 2040 compared with 2005 levels (SCAG 2020).

SCAG has developed Connect SoCal, the 2020–2045 RTP/SCS, which is a long-range visioning plan that balances future mobility and housing needs with economic, environmental, and public health goals. Connect SoCal charts a path toward a more mobile, sustainable, and prosperous region by making connections between transportation networks, planning strategies, and the people whose collaboration can improve the quality of life for Southern Californians. Connect SoCal embodies a collective vision for the region's future and is developed with input from local governments, county transportation commissions, tribal governments, non-profit organizations, businesses, and local stakeholders within the Counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. The SCAG 2020–2045 RTP/SCS was adopted on September 3, 2020.

Truck and Bus Regulation, On-Road Heavy-Duty Diesel Vehicles (In-Use) Regulation

On December 12, 2008, CARB approved the Truck and Bus Regulation to significantly reduce particulate matter (PM) and oxides of nitrogen (NO_x) emissions from existing diesel vehicles operating in California. Amendments to this regulation were approved by CARB on April 25, 2014.

The regulation applies to nearly all diesel fueled, dual-fueled, or alternative diesel-fueled trucks and buses with a gross vehicle weight rating greater than 14,000 pounds that are privately or federally owned and for privately and publicly owned school buses. The purpose of this regulation is to reduce emissions of diesel PM, NO_x, and other criteria pollutants from in-use diesel-fueled vehicles.

Heavier trucks and buses with a gross vehicle weight rating greater than 26,000 pounds must comply with a schedule by engine model year or owners can report to show compliance with more flexible options. Starting January 1, 2012, heavier trucks were required to meet the engine model year schedule. Fleets that comply with the schedule were required to install the best available PM filter on 1996 model year and newer engines and replace the vehicle 8 years later. Trucks with 1995 model year and older engines were required to be replaced starting in 2015. Replacements with a 2010 model year or newer engines meet the final requirements, but owners can also replace older trucks with newer used trucks that have a future compliance date on the schedule. For example, a replacement with a 2007 model year engine would comply until 2023. By 2023, all trucks and buses were required to have 2010 model year engines, with few exceptions. No reporting is required if this schedule is being met (CARB 2014).

Advanced Clean Cars Program

The Advanced Clean Cars (ACC) I program (January 2012) is an emissions-control program for model years 2015 through 2025. The program combines the control of smog- and soot-causing pollutants and GHG emissions into a single coordinated package of regulations: the low-emission vehicle regulation for criteria air pollutant and GHG emissions and a technology forcing regulation for zero-emission vehicles (ZEVs) that contributes to both types of emission reductions (CARB 2021b). The package includes elements to reduce smog-forming pollution, reduce GHG emissions, promote clean cars, and provide fuels for clean cars. To improve air quality, CARB implemented new emission standards to reduce smog-forming emissions beginning with 2015 model year vehicles. It was estimated that in 2025 cars would emit 75% less smog-forming pollution than the average new car sold in 2015. The ZEV program acted as the focused technology of the ACC I program by requiring manufacturers to produce increasing numbers of ZEVs and plug-in hybrid electric vehicles (EVs) in the 2018 to 2025 model years.

The ACC II program (August 2022) established the next set of low-emission vehicle and zero-emission vehicle requirements for model years after 2025 to contribute to meeting federal ambient air quality ozone (O_3) standards and California's carbon neutrality standards (CARB 2021b). The main objectives of ACC II are as follows:

- Maximize criteria and GHG emission reductions through increased stringency and real-world reductions.
- Accelerate the transition to ZEVs through both increased stringency of requirements and associated actions to support wide-scale adoption and use.

The ACC II rulemaking package also considers technological feasibility, environmental impacts, equity, economic impacts, and consumer impacts.

Advanced Clean Trucks Program

The purpose of the ACT Regulation (June 2020) is to accelerate the market for zero-emission vehicles in the medium- and heavy-duty truck sector and to reduce emissions NO_x, fine particulate matter ($PM_{2.5}$), toxic air contaminants, GHGs, and other criteria pollutants generated from on-road mobile sources (CARB 2021c). Requiring medium- and heavy-duty vehicles to transition to zero-emissions technology will reduce health risks to people living in and visiting California and is needed to help California meet established near- and long-term air quality and climate mitigation targets. The regulation has two components, including (1) a manufacturer sales requirement and (2) a reporting requirement:

1. **Zero-Emission Truck Sales:** Manufacturers who certify Class 2b–8 chassis or complete vehicles with combustion engines will be required to sell zero-emission trucks as an increasing percentage of their annual California sales from 2024 to 2035. By 2035, zero-emission truck/chassis sales would need to be 55% of Class 2b–3 truck sales, 75% of Class 4–8 straight truck sales, and 40% of truck tractor sales.
2. **Company and Fleet Reporting:** Large employers including retailers, manufacturers, brokers, and others will be required to report information about shipments and shuttle services. Fleet owners, with 50 or more trucks, will be required to report about their existing fleet operations. This information will help identify future strategies to ensure that fleets purchase available zero-emission trucks and place them in service where suitable to meet their needs.

Executive Order B-16-12

EO B-16-12 (March 2012) requires state entities under the governor's direction and control to support and facilitate the rapid commercialization of ZEVs. It ordered CARB, CEC, CPUC, and other relevant agencies work with the Plug-in Electric Vehicle Collaborative and the California Fuel Cell Partnership to establish benchmarks to help achieve the following by 2015:

- The state's major metropolitan areas will be able to accommodate ZEVs, each with infrastructure plans and streamlined permitting.
- The state's manufacturing sector will be expanding ZEV and component manufacturing.
- The private sector's investment in ZEV infrastructure will be growing.
- The state's academic and research institutions will be contributing to ZEV research, innovation and education.

CARB, CEC, and CPUC were also directed to establish benchmarks to help achieve the following goals by 2020:

- The state's ZEV infrastructure will be able to support up to one million vehicles.
- The costs of ZEV will be competitive with conventional combustion vehicles.
- ZEVs will be accessible to mainstream consumers.
- There will be widespread use of ZEVs for public transportation and freight transport.
- Transportation sector GHG emissions will be falling as a result of the switch to ZEVs.
- Electric vehicle charging will be integrated into the electricity grid.
- The private sector's role in the supply chain for ZEV component development and manufacturing will be expanding.

Benchmarks were also to be established to help achieve the following goals by 2025:

- Over 1.5 million ZEVs will be on California roads and their market share will be expanding.
- Californians will have easy access to ZEV infrastructure.
- The ZEV industry will be a strong and sustainable part of California's economy.
- California's clean, efficient vehicles will annually displace at least 1.5 billion gallons of petroleum fuels.

On a statewide basis, the EO establishes a target reduction of GHG emissions from the transportation sector equaling 80% less than 1990 levels by 2050.

Renewable Energy Sources

SB 1078 established the California Renewables Portfolio Standard (RPS) Program and required that a retail seller of electricity purchase a specified minimum percentage of electricity generated by eligible renewable energy resources as defined in any given year, culminating in a 20% standard by December 31, 2017. These retail sellers include electrical corporations, community choice aggregators, and electric service providers. The bill relatedly required the CEC to certify eligible renewable energy resources, design and implement an accounting system to verify compliance with the RPS by retail sellers, and allocate and award supplemental energy payments to cover above-market costs of renewable energy.

SB 107 (2006) accelerated the RPS established by SB 1078 by requiring that 20% of electricity retail sales be served by renewable energy resources by 2010 (not 2017). Additionally, SB X1-2 (2011) required all California utilities to generate 33% of their electricity from eligible renewable energy resources by 2020. Specifically, SB X1-2 sets a three-stage compliance period: by December 31, 2013, 20% had to come from renewables; by December 31, 2016, 25% had to come from renewables; and by December 31, 2020, 33% had to come from renewables.

SB 350 (2015) expanded the RPS because it requires retail seller and publicly owned utilities to procure 50% of their electricity from eligible renewable energy resources by 2030, with interim goals of 40% by 2024 and 45% by 2027.

SB 100 (2018) accelerated and expanded the standards set forth in SB 350 by establishing that 44% of the total electricity sold to retail customers in California per year by December 31, 2024, 52% by December 31, 2027, and 60% by December 31, 2030, be secured from qualifying renewable energy sources. SB 100 also states that it is the policy of the state that eligible renewable energy resources and zero-carbon resources supply 100% of the retail sales of electricity to California. This bill requires that the achievement of 100% zero-carbon electricity resources not increase the carbon emissions elsewhere in the western grid and that the achievement not be achieved through resource shuffling.

SB 1020 (September 2022) revises the standards from SB 100, requiring the following percentage of retail sales of electricity to California end-use customers to come from eligible renewable energy resources and zero-carbon resources: 90% by December 31, 2035; 95% by December 31, 2040; and 100% by December 31, 2045 (California Government Code Section 7921.505; California Health and Safety Code Section 38561; California Public Utilities Code Sections 454.53, 583, 454.59, 739.13).

Assembly Bill 1007

AB 1007 (2005) required CEC to prepare a statewide plan to increase the use of alternative fuels in California (State Alternative Fuels Plan). CEC prepared the plan in partnership with the CARB and in consultation with other state agencies, plus federal and local agencies. The State Alternative Fuels Plan assessed various alternative fuels and developed fuel portfolios to meet California's goals to reduce petroleum consumption, increase alternative fuels use, reduce GHG emissions, and increase in-state production of biofuels without causing a significant degradation of public health and environmental quality.

Local

City of Irvine General Plan

The City of Irvine (City) General Plan (City of Irvine 2024) includes various policies related to energy conservation (both directly and indirectly). Applicable goals, objectives, and policies from the Environmental Protection and Climate Action Element include the following, which are detailed in Table 4.11-1, General Plan Consistency, in Section 4.11, Land Use and Planning, of this Draft EIR:

Goal 3: Reduce greenhouse gas emissions and mitigate climate change impacts in Irvine to create a more sustainable and resilient community.

Objective EPCA-3: Achieve significant reductions in greenhouse gas emissions across all sectors within Irvine by implementing targeted policies and initiatives.

Policy (a): Promote the transition to renewable energy sources, such as solar, wind, and geothermal, for electricity generation within Irvine.

Policy (b): Encourage the adoption of energy-efficient technologies and practices in buildings, transportation, and industries to reduce reliance on fossil fuels.

Goal 4: Improve air quality and protect public health in Irvine by reducing air pollution and minimizing harmful emissions from various sources.

Objective EPCA-4: Achieve and maintain compliance with air quality standards set by regulatory agencies, such as the Environmental Protection Agency (EPA) and the California Air Resources Board (CARB), to ensure a healthy and sustainable environment for residents.

Policy (c): Encourage the use of clean and renewable energy sources, such as solar, wind, and geothermal, to reduce emissions from energy generation and promote a transition away from fossil fuels.

Goal 6: Reduce energy consumption and promote energy efficiency in Irvine.

Objective EPCA-6: Achieve significant reductions in per capita energy consumption across residential, commercial, and municipal sectors while promoting the adoption of renewable energy sources and energy-efficient technologies.

Policy (a): Continue, through the efforts of CALGreen (California Green Building Standards Code), to enforce energy efficiency standards and building codes for new construction and major renovations to improve the energy performance of buildings and reduce energy demand.

Policy (b): Continue to require energy-efficient building design, insulation, HVAC systems, lighting, and appliances to minimize energy consumption and lower utility costs for residents and businesses.

Policy (c): Continue to promote the adoption of renewable energy systems, such as solar photovoltaic (PV) panels, wind turbines, and geothermal heat pumps, to generate clean and sustainable electricity for onsite consumption or grid injection.

Goal 10: Continue to promote sustainable land use practices in Irvine.

Objective EPCA-10: Implement policies and initiatives that prioritize sustainable land management, smart growth principles, and equitable development strategies to ensure the efficient use of land while protecting environmental quality and promoting community well-being.

Policy (g): Explore the adoption of green building standards, energy-efficient design guidelines, and sustainable construction practices to reduce greenhouse gas emissions, promote energy conservation, and minimize environmental impacts associated with new development and redevelopment projects.

City of Irvine Strategic Energy Plan

The City's Strategic Energy Plan is a proactive plan that analyzes the City's energy sustainability, assesses the feasibility of reductions to energy use and related emissions, and provides recommendations for the community to promote energy conservation and the use of renewable energy sources throughout the City in a cost-effective way (City of Irvine 2020a). The Strategic Energy Plan's recommendations include actions for three main categories—energy supply, buildings, and transportation and land use—and are designed to help the City align itself with the state's reduction targets. The recommendations listed in the Strategic Energy Plan are as follows:

Energy Supply

ES-1: Join a CCE Electricity Supplier

ES-2: Portfolio-wide Procurement for City Facilities

Buildings

B-1: Develop a Community-Facing Energy Upgrade Program

B-2: Reduce or Remove Administrative Obstacles to Energy Storage, Electric Vehicles, and Building Electrification

B-3: Decarbonize City Facilities

B-4: Develop Decarbonization Roadmap

Transportation and Land Use

TLU-1: Reduce emissions from City Fleet Vehicles and Employee Commute

TLU-2: Incentivize Sustainable Transportation Modes for Residents and Businesses

TLU-3: Develop a Comprehensive Electric Vehicle Action Plan

4.6.3 Thresholds of Significance

The City has adopted the following significance criteria used to evaluate the project impacts to energy based on Appendix G of the CEQA Guidelines (City of Irvine 2020b). According to the City's CEQA Manual, a significant impact related to energy would occur if the project would:

1. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.
2. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

In addition to addressing the City's adopted CEQA Guidelines, which incorporate Appendix G thresholds, the energy analysis includes factors and considerations from Appendix F of the CEQA guidelines, as appropriate, to assist in answering the Appendix G questions. The factors to evaluate energy impacts in response to Threshold 1 include the project's energy requirements and effects of the project on local and regional energy supplies. The factor to evaluate energy impacts in response to Threshold 2 includes the degree to which the project complies with existing energy standards, as applicable.

Methodology

Construction

The California Emissions Estimator Model (CalEEMod) Version 2022.1.1.29 (CAPCOA 2022) was used to estimate the potential project-energy consumption during construction and operation. Construction of the project would result in petroleum consumption primarily associated with use of off-road construction equipment, on-road hauling and vendor (material delivery) trucks, and worker vehicles. All details specific to construction and operation that are discussed in Section 4.2, Air Quality, of this Draft EIR—specifically under the "Construction Emissions" heading in Section 4.2.3, Thresholds of Significance—are also applicable for the estimation of construction-related energy consumption. Potential energy consumption from project operations were estimated for area sources (landscape maintenance), energy sources (natural gas and electricity), mobile sources, solid waste, and water supply and wastewater treatment.

Potential impacts were assessed through projected traffic trip generation during construction and operation, as detailed in the CalEEMod outputs that were prepared for the project (Appendix B-1, Air Quality Modeling). Information regarding mobile trip generation was provided by the Transportation Impact Assessment prepared for the project (Appendix I, Traffic Study). Fuel consumption from construction equipment was estimated by converting the total CO_2 emissions from each construction phase to gallons using conversion factors for CO_2 to gallons of gasoline or diesel. The conversion factor for gasoline is 8.78 kilograms per metric ton (kg/MT) CO_2 per gallon, and the conversion factor for diesel is 10.21 kg/MT CO_2 per gallon (The Climate Registry 2023). Heavy-duty construction equipment associated with construction activities and haul trucks involved in importing or exporting material to and from the site, such as export of soil from earthwork and grading, are assumed to use diesel fuel. It is assumed that construction workers would travel in the project area in gasoline-powered vehicles. Fuel consumption from worker and vendor trips was estimated by converting the total CO_2 emissions from the construction phase to gallons using the conversion factors for CO_2 to gallons of gasoline or diesel. Worker vehicles are assumed to be gasoline fueled, while vendor and hauling vehicles are assumed to be diesel fueled. The fuel consumption resulting from the project's operational phase would be attributable to vehicle travel within the project area. Similar to construction worker and vendor trips, fuel consumption for operation was estimated by converting the total CO_2 emissions from the project to gallons using the conversion factors for CO_2 to gallons of gasoline or diesel.

Operation

Electricity

The project's operational phase would require electricity for multiple purposes including, but not limited to, building heating and cooling; lighting; appliances, including refrigeration; electronics; equipment; and machinery. Energy would also be consumed during operation of the project related to landscaping equipment, water usage, solid waste disposal, and electric vehicle trips. CalEEMod was used to analyze electrical usage during operation; the default value for electricity consumption for the proposed land uses was updated for the project-based CalEEMod default values from SCE. CalEEMod default values for all land uses were applied, with the exception of the swimming pools and spa, which are assumed to consume natural gas, not electricity.

As discussed in Section 4.6.4, Project Design Features, the project would incorporate project design features (PDFs) to reduce the energy consumption associated with project operations. PDF-AQ/GHG-1 (All-Electric Residential Development), PDF-AQ/GHG-2 (Energy-Efficient Appliances), and PDF-AQ/GHG-3 (Exceedance of Title 24, Part 6 Standards) would prohibit the use of natural gas, require installation of Energy Star appliances within the residential

buildings, and otherwise exceed the requirements of Title 24 by 10% respectively. Because natural gas would not be used within residential buildings at the site, CalEEMod default values of natural gas consumption for residential land uses were converted to electrical demand and accounted for in Appendix B-1. The details of how the project would exceed Part 6 of the Title 24 standards are not currently known. Therefore, to provide a conservative analysis, PDF-AQ/GHG-3 is not quantified. The electricity use from residential land uses is calculated in CalEEMod based on the Residential Appliance Saturation Study. For nonresidential buildings (i.e. the amenity building/clubhouse and pools), CalEEMod energy intensity value (electricity or natural gas usage per square foot per year) assumptions were based on the California Commercial End-Use Survey database.

Solar power generation would be incorporated into the project site via solar panels, which would be located on top of all residential buildings based on available roof space and in accordance with the requirements of Title 24, Part 6.[1] Incorporated on-site solar power generation would effectively reduce the energy demand of the project. However, because solar power generation specifics are unknown at this time, the annual electricity generated by the project was not calculated or analyzed herein. Per CEQA Guidelines Appendix F, this analysis quantifies the project's energy consumption from operations and evaluates the associated impacts on energy resources and requirements, peak and base period demand, and effects on the local and regional energy supplies, and analyzes the project's compliance with existing energy standards.

Natural Gas

Project natural gas consumption is based on the estimated total annual building load summaries from CalEEMod. With the project's incorporation of PDF-AQ/GHG-1 (All-Electric Residential Development), natural gas was not modeled within the residential uses. The energy use from nonresidential land uses (natural gas usage per square foot per year) is calculated in CalEEMod based on the California Commercial End-Use Survey database. Per CEQA Guidelines Appendix F, this analysis quantifies the project's energy consumption from operations and evaluates the associated impacts on energy resources and requirements, peak and base period demand, and effects on the local and regional energy supplies, and analyzes the project's compliance with existing energy standards.

Petroleum

Petroleum would be consumed by project-generated vehicle trips. Such consumption is a function of total vehicle miles traveled (VMT) and estimated vehicle fuel economies for the vehicles accessing the project site. The project would generate an estimated 28,778,411 annual VMT. Similar to construction worker and vendor trips, fuel consumption was estimated by converting the total CO_2 emissions from project mobile sources to gallons using the conversion factors for CO_2 to gallons of gasoline or diesel. Based on the annual fleet mix provided in EMFAC2021, for buildout of the project, approximately 96% of the fleet mix using fossil fuels (with the exception of natural gas) was assumed to run on gasoline and approximately 4% of the fleet mix was assumed to use diesel (CARB 2025). Per CEQA Guidelines Appendix F, this analysis considers these factors and provides the estimated maximum construction energy consumption for the purposes of evaluating the associated impacts on energy resources and requirements.

[1] Title 24 requires both new single-family and low-rise multifamily residential construction to install solar PV based either on the size of the buildings' solar access roof area (SARA) or based on an equation of three factors: the climate zone of the building, the conditioned floor area of the buildings, and the number of dwelling units. Further, Title 24 requires new single-family residences to be energy storage ready to facilitate future installation of battery storage systems.

4.6.4 Project Design Features

PDFs detailed in Section 4.3, Air Quality, and 4.8, Greenhouse Gas Emissions, of this Draft EIR would be implemented as part of the proposed project. These PDFs include the following:

- PDF-AQ/GHG-1: All-Electric Residential Development
- PDF-AQ/GHG-2: Energy Efficient Appliances
- PDF-AQ/GHG-3: Exceedance of Title 24, Part 6 Standards

4.6.5 Impacts Analysis

1. Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Less-Than-Significant Impact. Implementation of the project would increase the demand for electricity and natural gas in the City, as well as petroleum consumption during construction and operation.

Construction

Electricity

Temporary electric power for as-needed lighting and electronic equipment, such as computers inside temporary construction trailers, would be required during short-term construction activities. The electricity demand at any given time would vary throughout the construction period based on the construction activities being performed and would cease upon completion of construction. When not in use, electric equipment would be powered off so as to avoid unnecessary energy consumption. There is nothing unusual about construction of the project that would result in a wasteful, inefficient, or unnecessary use of electrical energy. The electricity used for such activities would be temporary, would be substantially less than that required for project operation, would have a negligible contribution to the project's overall energy consumption, and would not be wasteful, inefficient, or unnecessary.

Natural Gas

Natural gas is not anticipated to be required during construction of the project. Fuels used for construction would primarily consist of diesel and gasoline, which are discussed under the subsection "Petroleum," below. Any minor amounts of natural gas that may be consumed as a result of project construction would be temporary and negligible and would not have an adverse effect.[2]

Petroleum

The estimated diesel fuel usage from construction equipment and vendor trucks, as well as estimated gasoline fuel usage from worker vehicles, is shown in Table 4.6-1.

[2] Although no natural gas is anticipated to be used during construction because construction equipment is typically diesel fueled, the possibility of natural gas use is acknowledged in the event a natural gas–fueled piece of equipment is used or a natural gas–fueled hot water boiler is used for pipe relining. However, as noted previously, all equipment was assumed to be diesel fueled in CalEEMod.

Table 4.6-1. Total Project Construction Petroleum Demand – Unmitigated (Gallons)

Construction Phase	Off-Road Equipment (Diesel)	Haul Trucks (Diesel)	Vendor Trucks (Diesel)	Worker Vehicles (Gasoline)
2026	84,842	5,908	872	5,969
2027	139,501	738	4,429	117,875
2028	223,940	367	6,975	157,528
2029	173,775	294	4,999	133,693
2030	179,540	303	5,450	136,606
2031	79,536	0	2,171	85,278
2032	16,617	0	453	17,745
Total[a]	**897,750**	**7,610**	**25,347**	**654,694**

Source: Appendix B-1.
Note:
[a] Totals may not sum precisely due to rounding.

In summary, construction associated with the development of the project is estimated to consume a total of approximately 654,694 gallons of gasoline from worker vehicles and 930,707 gallons of diesel for off-road equipment, haul trucks, and vendor trucks, for a total of 1,585,400 gallons of petroleum.

The project would be subject to CARB's In-Use Off-Road Diesel Vehicle Regulation, which applies to certain off-road diesel engines, vehicles, or equipment greater than 25 horsepower. The regulation (1) imposes limits on idling, requires a written idling policy, and requires a disclosure when selling vehicles; (2) requires all vehicles to be reported to CARB (using the Diesel Off-Road Online Reporting System) and labeled; (3) restricts adding older vehicles into fleets starting on January 1, 2014; and (4) requires fleets to reduce their emissions by retiring, replacing, or repowering older engines or installing Verified Diesel Emission Control Strategies (i.e., exhaust retrofits). The fleet must show that either its fleet average index was less than or equal to the calculated fleet average target rate, or the fleet has met the Best Achievable Control Technology requirements. Overall, the project demand would not be unusual compared to overall local and regional demand for energy resources and would not involve characteristics that require equipment that would be less energy efficient than that found at comparable construction sites in the region or state. Although it would not be required to reduce energy impacts to less than significant, the project would include Mitigation Measure (MM) AQ-2 (Additional Construction Equipment Emission Reductions) and MM-AQ-4 (Limits on Truck and Equipment Idling During Construction) (see Section 4.3.6 for full text of these mitigation measures) that would reduce petroleum use during construction activities through use of electric equipment, use of cleaner fueled equipment, and minimizing idling.

Additionally, any future development facilitated by the project would be required to adhere to all federal, state, and local requirements. Considering these requirements, the project would not result in the inefficient, wasteful, or unnecessary consumption of energy during construction.

Operation

Electricity

The operational phase would require electricity for multiple purposes, including building heating and cooling, lighting, appliances, electronics, landscape equipment within the homeowner's association–operated areas, and water and wastewater conveyance. CalEEMod default values for electricity

consumption for the project's land uses were used. The project site is currently used for agriculture and as such would generate minimal emissions from any electrical equipment used. Existing electricity demand was assumed to be negligible and was not calculated for a net analysis. Table 4.6-2 presents the anticipated electricity demand for the project.

Table 4.6-2. Project Annual Operational Electricity Demand

Land Use[a]	Demand (kWh/Year)
Single-family housing	2,813,219
Other asphalt surfaces	0
Parks and open spaces	0
Market rate multifamily housing	2,810,405
Clubhouse/amenity building	64,079
Affordable housing	1,303,915
Swimming pools and spa	0
Total electrical demand for project	**6,991,619**

Source: Appendix B-1.
Notes: kWh = kilowatt-hours.
Table 4.6-2 incorporates PDF-AQ/GHG-1 and PDF-AQ/GHG-2.
[a] The land uses represent surrogate uses from CalEEMod.

As shown in Table 4.6-2, buildout of the project is estimated to have a total electrical demand of 6,991,619 kWh per year (or 1.24 million kWh per year) for project operational usage. As previously discussed, Orange County's annual electricity use was approximately 68 billion kWh in 2022. Therefore, the project's electrical consumption would be a small percentage (0.01%) of the County's current annual use.

In addition, the project would be built in accordance with the current Building Energy Efficiency Standards (Title 24, Part 6) at the time of construction, which include robust requirements for energy efficiency and on-site PV solar infrastructure. Further, the provisions of CALGreen (Title 24, Part 11) apply to the planning, design, operation, construction, use, and occupancy of every newly constructed building or structure. In mixed-occupancy buildings, such as the project, each portion of a building must comply with the specific green building measures applicable to each specific occupancy. Therefore, because of the inherent increase in efficiency mandated by building code regulations, the project would not result in a wasteful, inefficient, or unnecessary use of energy.

For the 2024 fiscal year, SCE had annual electric sales to customers of approximately 81,841,000 MWh (SCE 2024). The project represents approximately 0.008% of the SCE network sales for 2024. Based on CEC estimates in 2022, the peak demand for the SCE planning area was 24,659 MW (CEC 2022a). Under peak conditions, the project would have a daily peak load of 798 kilowatts. In comparison to the SCE planning area peak load in 2022, the project would represent approximately 0.003% of the SCE planning area peak load conditions.

Thus, as per CEQA Guidelines Appendix F, the impacts related to electrical supply and infrastructure capacity and the project's effect on peak and base period demands would be less than significant.

As mentioned in Section 4.6.3, under "Methodology," and discussed in Section 4.3, Air Quality, and Section 4.8, Greenhouse Gas Emissions, the project would implement PDFs that would impact electricity use during operation. PDF-AQ/GHG-1 (All-Electric Residential Development) would reduce

natural gas demand by ensuring that no natural gas or other fossil fuels are consumed as a part of the residential development, and PDF-AQ/GHG-2 (Energy-Efficient Appliances) and PDF-AQ/GHG-3 (Exceedance of Title 24, Part 6 Standards) would reduce energy demand by ensuring building energy efficiency and reducing energy consumption. These PDFs are provided in full in Sections 4.3.4 and 4.8.4, Project Design Features.

Further, as discussed in full in Section 4.8.6, Mitigation Measures, the project would require implementation of mitigation measures that would impact electricity use during operation. MM-GHG-1 (Electrical Vehicle Charging Infrastructure) would facilitate greater adoption and use of EVs by providing EV charging infrastructure that meets or exceeds 2022 California Green Building Standards. MM-GHG-2 (Energy Conservation) would further reduce energy demand by ensuring building energy efficiency. MM-GHG-3 (Water Use Efficiency and Water Conservation) would reduce indirect electricity use by reducing water consumption.

Natural Gas

With the incorporation of PDF-AQ/GHG-1 (All-Electric Residential Development), the project would consume natural gas only for non-residential building operation and swimming pool and spa heating. The estimated natural gas consumption from project operations is shown in Table 4.6-3.

Table 4.6-3. Project Annual Operational Natural Gas Demand

Land Use	Demand (kBTU/Year)
Single-family housing	0
Other asphalt surfaces	0
Parks and open spaces	0
Market rate multifamily housing	0
Clubhouse/amenity building	143,965
Affordable housing	0
Swimming pools and spa	3,071,263
Total natural gas demand for project	**3,215,228**

Source: Appendix B-1.
Note: kBTU = kilo–British thermal units.

As shown in Table 4.6-3, the project would result in consumption of approximately 3,215,228 kBTU of natural gas per year at buildout in 2032. According to SoCalGas data, natural gas demand for the residential sector was less than 220 billion cubic feet (approximately 228 billion British thermal units [BTU]) in 2023 and is forecasted to decline to 188 billion cubic feet (approximately 195 billion kBTU) by 2040 (SoCalGas 2024). Based on the project's estimated natural gas consumption, the project would account for approximately 0.002% of SoCalGas's 2040 residential sector demand by the project's buildout year. Therefore, it is anticipated that SoCalGas's existing and planned natural gas supplies would be sufficient to support the project's demand for natural gas; therefore, per CEQA Guidelines Appendix F, the project would not have a significant effect on local and regional natural gas supplies or require additional capacity.

Petroleum

The fuel consumption resulting from the project's operational phase would be attributable to various vehicles associated with each land use. Petroleum fuel consumption associated with motor vehicles traveling within the City during operation is a function of VMT. Trip generation rates for the project's operational uses were based on the Traffic Study (Appendix I). The estimated fuel use from the project's operational mobile sources is shown in Table 4.6-4.

Table 4.6-4. Annual Mobile Source Petroleum Demand

Fuel	Vehicle MT CO_2	kg CO_2/Gallon	Gallons
Gasoline	8,387.78	8.78	955,328
Diesel	362.84	10.21	35,538
		Total	990,866

Source: Trips and vehicle CO_2 (Appendix B-1); kg CO_2/Gallon (The Climate Registry 2023).
Note: MT = metric ton; CO_2 = carbon dioxide; kg = kilogram.

As shown in Appendix B-1 (CalEEMod outputs are discussed in Section 4.3, Air Quality, and Section 4.8, Greenhouse Gas Emissions, of this Draft EIR), the annual VMT attributable to the project is expected to be 28,778,411 VMT. Countywide, the annual VMT is estimated to be 35,248,964,007 per year in 2032 (CARB 2025). Similar to construction worker and vendor trips, fuel consumption from worker and vendor trips is estimated by converting the total CO_2 emissions from operation of the project to gallons using the conversion factors for CO_2 to gallons of gasoline or diesel. Based on the annual fleet mix for 2032 in EMFAC, 95.85% of the fleet range from light-duty to medium-duty vehicles and motorcycles are assumed to be fueled by gasoline. The remaining 4.15% of vehicles represent medium-heavy-duty to heavy-duty vehicles and buses and are assumed to run on diesel. The calculated annual mobile source fuel consumption is provided in Table 4.6-4.

As depicted in Table 4.6-4, mobile sources (including from landscaping equipment) from buildout of the project would result in approximately 990,866 gallons of petroleum fuel usage per year. For disclosure, by comparison, California's transportation sector as a whole used approximately 534 million barrels, or approximately 22.4 billion gallons of petroleum in 2022 (EIA 2025b). Based on the EMFAC VMT forecast, in 2032, the County is itself anticipated to consume 1.2 billion gallons of petroleum from mobile sources (CARB 2025). Using this figure, the proposed project mobile sources would comprise approximately 0.08% of the County's forecasted total petroleum consumption in 2032, the year of buildout.

Over the lifetime of the project, the fuel efficiency of vehicles is expected to increase. As such, the amount of petroleum consumed as a result of vehicle trips to and from the project site during operation would decrease over time. As detailed in Section 4.6.2, numerous regulations are in place that require and encourage increased fuel efficiency. For example, CARB has adopted an approach to passenger vehicles that combines the control of smog-causing pollutants and GHG emissions into a single, coordinated package of standards. The approach also includes efforts to support and accelerate the number of plug-in hybrid EVs and ZEVs in California, and the ACC II regulation that by 2035, all new passenger cars, trucks, and SUVs sold in California will be zero emissions (CARB 2022). As such, operation of the project is expected to use decreasing amounts of petroleum over time due to advances in vehicle fuel economy standards.

In addition, the project would implement sidewalks, expand the trail system of the Jeffrey Open Space Trail, and facilitate and encourage pedestrian access. In compliance with CALGreen, the project would promote the use of bicycles as an alternative means of transportation by providing short-term and/or long-term bicycle parking accommodations. Facilitating pedestrian and alternative transportation would reduce VMT and associated energy consumption.

In summary, the project would increase petroleum use during operation, but due to efficiency increases the amount of petroleum consumed would diminish over time. As supported by the preceding discussions, project transportation energy consumption would not be considered inefficient, wasteful, or otherwise unnecessary, and impacts would be less than significant.

Renewable Energy Potential

As part of the project's design process, the City considered how the project could increase its reliance on renewable energy sources to meet its energy demand. Renewable energy sources that were considered for their potential to be used to power the project, consistent with CEC's definition of eligible renewables, include biomass, geothermal, solar, wind, and small hydroelectric facilities.

Given the project's location, considerable site constraints are anticipated at a parcel level, including incompatibility with on-site and surrounding land uses for large-scale power generation facilities, unknown interconnection feasibility, potential lack of compatibility with utility provider systems, and no known water or geothermal resources to harness, that would eliminate the potential for biomass, geothermal, and hydroelectric renewable energy to be installed in the project area. Regarding wind power, due to the nature of the project area parcels and surrounding land uses, wind turbines are generally anticipated not to be feasible because they represent an incompatible use due to the height of the wind turbine blades and the need to avoid nearby obstacles.[3]

The project would incorporate on-site PV solar power generation, which at a minimum will be provided for newly built residential buildings pursuant to Title 24, Part 6; further, non-residential buildings are anticipated to be solar ready to comply with Title 24 building energy efficiency standards. Additionally, MM-GHG-2 (Energy Conservation) includes energy conservation measures, including installation of solar PV on the proposed on-site amenity building and other energy-reducing measures. As solar power technology improves in the future and regulations require additional solar power generating facilities, it is reasonable to assume that additional solar power infrastructure may be provided to the project site. In addition, the potential for installation of battery storage in future developments, if determined to be a feasible and compatible with the land use of the site, could also be provided, but the scale and level of adoption is unknown at this time. However, at a minimum, new single-family residential construction would be energy storage ready, pursuant to Title 24, Part 6.

As detailed above, mitigation measures required in Section 4.8, Greenhouse Gas Emissions, would change the energy demand profile of the project. Project petroleum consumption is also anticipated to be reduced as a result of implementation of MM-GHG-1, which requires installation of EV charging infrastructure that meets or exceeds CALGreen standards, which is intended to encourage and facilitate transition from fossil-fueled vehicles to EVs. Greater use of EVs would result in a greater consumption of electricity; however, electricity would be provided through on-site solar, thereby reducing the use of fossil fuels for residential or recreational uses on site.

[3] General guidelines for installing a wind turbine are that it should be on a tower with the bottom of the rotor blades at least 30 feet above anything within a 500-foot horizontal radius and it should be sited upwind of buildings and trees (APA 2011; NREL 2015).

Summary

The project would use renewable energy on site as determined to be feasible and would not result in wasteful, inefficient, or unnecessary consumption of energy resources, including electricity or petroleum, during project construction or operation; therefore, impacts would be less than significant.

2. Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Less-Than-Significant Impact. As detailed in this section, the construction and operation of the project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

Construction

The project would use construction contractors that demonstrate compliance with applicable regulations. Construction equipment would be required to comply with federal, state, and regional requirements where applicable. With respect to truck fleet operators, EPA and NHTSA have adopted fuel-efficiency standards for medium- and heavy-duty trucks that will be phased in over time. Phase 1 heavy-duty truck standards apply to combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles for model years 2014 through 2018 and result in a reduction in fuel consumption from 6% to 23% over the 2010 baseline, depending on the vehicle type (76 FR 57106–57513). EPA and NHTSA also adopted the Phase 2 heavy-duty truck standards, which cover model years 2021 through 2027 and require the phase-in of a 5% to 25% reduction in fuel consumption over the 2017 baseline depending on the compliance year and vehicle type (81 FR 73478–74274). The energy modeling for trucks does not take into account specific fuel reductions from these regulations because they would apply to fleets as they incorporate newer trucks meeting the regulatory standards; however, these regulations would have an overall beneficial effect on reducing fuel consumption from trucks over time as older trucks are replaced with newer models that meet the standards.

In addition, construction equipment and trucks are required to comply with CARB regulations regarding heavy-duty truck idling limits of 5 minutes per occurrence. Off-road emissions standards would increase equipment efficiencies as they are phased in and less-efficient equipment is phased out of construction fleets. These limitations would result in an increase in energy savings in the form of reduced fuel consumption from more fuel-efficient engines. Although these requirements are intended to reduce criteria pollutant emissions, compliance with the anti-idling and emissions regulations would also result in the efficient use of construction-related energy. Thus, based on the information above, construction of the project would comply with state or local plans for renewable energy or energy efficiency.

Per CEQA Guidelines Appendix F, construction equipment used for the project would not conflict with the energy standards applicable to construction equipment, including limiting idling fuel consumption and using contractors that comply with applicable CARB regulatory standards that affect energy efficiency. Therefore, the project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency regarding during construction, and impacts would be less than significant.

Operation

With implementation of PDF-AQ/GHG-3 (Exceedance of Title 24, Part 6 Standards), the project would exceed the California Building Energy Efficiency Standards (Title 24 CCR Part 6) by 10%. Part 6 of Title 24 specifically establishes energy efficiency standards for residential and non-residential buildings

constructed in the State of California to reduce energy demand and consumption. To achieve a 10% exceedance of the standards in Title 24 Part 6, the project would incorporate strategies that may include, but are not limited to the following (described in more detail below):

1. Sensor-based lighting controls
2. Efficient process equipment
3. Mandatory inspections of energy systems
4. A 20% reduction in indoor water use

These strategies include (1) sensor-based lighting controls—for fixtures located near windows, the lighting would be adjusted by taking advantage of available natural light—and (2) efficient process equipment—improved technology offers significant savings through more efficient processing equipment. Title 24, Part 11, contains voluntary and mandatory energy measures that are applicable to the project under CALGreen. As discussed in Section 4.6.5(1), the project would result in an increased demand for electricity, natural gas, and petroleum. In accordance with Title 24, Part 11, mandatory compliance, the applicant would implement (3) mandatory inspections of energy systems to ensure optimal working efficiency and (4) a 20% reduction in indoor water use. Compliance with all of these mandatory measures would decrease the consumption of electricity, natural gas, and petroleum.

The City of Irvine General Plan features measures related to energy efficiency and construction energy use, such as energy conservation; use of renewable energy; and water conservation (which indirectly effects electricity consumption), as detailed in Section 4.11, Land Use and Planning. Specific General Plan measures applicable to the proposed project are listed in Section 4.6.2. The project would not conflict with any of these applicable policies by promoting the transition to and encouraging the use of clean and renewable energy sources through its implementation of rooftop solar generation and encouraging the adoption of energy-efficient technologies within buildings by meeting and exceeding CALGreen standards by 10%, as detailed in PDF-AQ/GHG-3. Therefore, the project would not conflict with the General Plan measures related to energy efficiency.

Further, as discussed in Section 4.6.2, the City's Strategic Energy Plan provides recommendations for the community to promote energy conservation and the use of renewable energy sources throughout the City (City of Irvine 2020a). The Strategic Energy Plan's recommendations include actions to help the City reduce emissions to meet state reduction targets. The applicable recommended actions are included in Table 4.6-5.

Table 4.6-5. Project Potential to Conflict with the City of Irvine Strategic Energy Plan

Subject Area	Recommended Actions	Potential to Conflict Prior to Mitigation
Energy Supply	ES-1: Join a CCE Electricity Supplier	***No conflict.*** This recommended action would need to be implemented at the municipal, not the project, level. Nonetheless, the underlying goal to transition the City toward using more renewably sourced electricity is supported by the project's incorporation of solar PV power generation on the rooftops of residential buildings, as required by Title 24 standards for residences. By generating electricity to the extent feasible, the project would reduce reliance on the fossil fuel electricity grid.

Table 4.6-5. Project Potential to Conflict with the City of Irvine Strategic Energy Plan

Subject Area	Recommended Actions	Potential to Conflict Prior to Mitigation
Buildings	B-1: Develop a Community-Facing Energy Upgrade Program	***No conflict.*** This recommended action would need to be implemented at the municipal, not the project, level. Nonetheless, the underlying goal to improve the energy efficiency of buildings is supported by the project's incorporation of all-electric residential building designs and installing efficient appliances within residences per PDF-AQ/GHG-1.
	B-2: Reduce or Remove Administrative Obstacles to Energy Storage, Electric Vehicles, and Building Electrification	***No conflict.*** This recommended action would need to be implemented at the municipal, not the project, level. Nonetheless, the underlying goal to electrify the community is supported by the project's incorporation of solar PV power generation on the rooftops of residential buildings per Title 24, Part 6, regulations for residential buildings, and the inclusion of all-electric buildings for residential buildings per PDF-AQ/GHG-1. By generating electricity to the extent feasible, the project intends to reduce reliance on the fossil fuel electricity grid.
Transportation and Land Use	TLU-2: Incentivize Sustainable Transportation Modes for Residents and Businesses	***No conflict.*** The project would not conflict with this recommended action by through compliance with Title 24, Part 6, of the California Code of Regulations, which requires that all single-family residences are EV-ready to support transition towards EV infrastructure.

Source: City of Irvine 2020a.
Note: PV = photovoltaic; EV = electric vehicle.

Therefore, based on the analysis provided in Table 4.6-5, the project would not conflict with the City's Strategic Energy Plan.

On this basis, the project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. This impact would be less than significant.

Impact Summary

All impacts relating to consumption of energy resources during project construction or operation and potential conflict with or obstruction of state or local plans for renewable energy or energy efficiency would be less than significant.

4.6.6 Mitigation Measures

No mitigation measures are required. However, the project would include implementation of the following mitigation measures from Section 4.3, Air Quality, and Section 4.8, Greenhouse Gas Emissions, to reduce or eliminate impacts related to air quality and GHG emissions, which would result in co-benefits related to energy reductions:

- MM-AQ-2: Additional Construction Equipment Emission Reductions
- MM-AQ-4: Limit Truck and Equipment Idling During Construction
- MM-GHG-1: Electrical Vehicle Charging Infrastructure

- MM-GHG-2: Energy Conservation
- MM-GHG-3: Water Use Efficiency and Water Conservation

4.6.7 Level of Significance After Mitigation

The project would result in less-than-significant impacts related to the potential to result in wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation.

The project would result in less-than-significant impacts related to the potential to conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

Because energy-related impacts would be less than significant, no mitigation measures are required. However, as noted in Section 4.6.6, the project would include implementation of MM-AQ-2 and MM-AQ-4, and MM-GHG-1 through MM-GHG-3, which would result in co-benefits related to energy reductions. Impacts would be reduced by these mitigation measures and would remain less than significant.

4.6.8 Cumulative Impacts

This section provides an analysis of cumulative impacts from construction and operation of the proposed project and other past, present, and reasonably foreseeable future projects, as required by Section 15130 of the CEQA Guidelines. Where a lead agency concludes that the cumulative effects of a project, taken together with the impacts of other closely related past, present, and reasonably foreseeable future projects, are significant, the lead agency then must determine whether the project's incremental contribution to such significant cumulative impact is "cumulatively considerable" (and thus significant in and of itself).

Cumulative projects that could exacerbate the proposed project's impacts include any projects that could result in wasteful, inefficient, or unnecessary use of energy. However, cumulative projects would be required, as applicable, to conform to current federal, state, and local energy conservation standards, including those identified in earlier portions of this section. For example, future development would be subject to the Title 24 standards in place at the time of construction.

As a result, the proposed project, in combination with other reasonably foreseeable projects, would not cause a wasteful use of energy or other nonrenewable natural resources. Therefore, the energy demand and use associated with the project and cumulative projects would not substantially contribute to a cumulative impact on existing or proposed energy supplies or resources and would not cause a significant cumulative impact on energy resources.

Similarly, the proposed project would not conflict with applicable plans for renewable energy or energy efficiency, because it would be required to include solar power infrastructure and adhere to other building efficiency standards pursuant to Title 24. As such, the project, in combination with other reasonably foreseeable projects, would not conflict with a state or local plan for renewable energy or energy efficiency.

Cumulative energy impacts would be less than significant.

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4.7 Geology and Soils

This section describes the existing geological conditions of the project site and vicinity, identifies associated regulatory requirements, evaluates potential impacts, and identifies mitigation measures related to implementation of the proposed project. The analysis included in this section is based on the findings of the documents listed below, as well as publicly available information referenced throughout this section and provided in full in Section 4.8.8, References. Sources used for this section include the following:

- **Appendix E-1:** Preliminary Geotechnical Subsurface Evaluation, Residential Development, Gateway Village, Irvine, California; prepared by LGC Geotechnical Inc.; dated November 22, 2024
- **Appendix E-2:** Paleontological Resources Assessment, Irvine Gateway Village; prepared by Dudek; dated January 21, 2025

4.7.1 Existing Conditions

4.7.1.1 Geologic Setting

The project site is located along the southeastern margin of the Los Angeles Basin, a large structural depression within the Peninsular Ranges geomorphic province of California. The project site is specifically located in the easternmost portion of the Tustin Plain and is within the mouth of a tributary drainage of the San Diego Creek Watershed that reaches the ocean at Newport Bay (Appendix E-1, Preliminary Geotechnical Evaluation).

Locally, the project site is within the relatively narrow Hicks Canyon at the base of the foothills that support the Santa Ana Mountain Range to the northeast of the site. Bedrock hills to the north and south of the site generally consist of the bedrock units that form the foothills, the Tertiary Vaqueros and Sespe Formations. The project site is underlain by interfingered alluvial fan and alluvial deposits that thicken to the west where the neighborhoods located west of Portola Parkway were constructed on relatively low-relief terrain. To the east of the site, there are branches of smaller tributary drainages from the foothills, and a localized stream channel crosses the project site (Appendix E-1).

4.7.1.2 Soils and Geologic Formation

Generalized subsurface conditions at the project site are summarized in the sections below, from youngest to oldest, and are based on project-specific geotechnical soil borings, test pits, and surface geology observations (Appendix E-1). It should be noted that borings and exploratory test pits completed during the geotechnical study are only representative of the location and time where/when they were completed, and varying subsurface conditions may exist outside of the performed location. In addition, subsurface conditions can change over time. The soil descriptions provided should not be construed to mean that the subsurface profile is uniform, and that soil is homogeneous within the project area (Appendix E-1).

Artificial Fill

Undocumented Artificial Fill

Native on-site alluvial deposits are generally overlain by a thin veneer of older artificial fill and/or agricultural fill, which was found to range from approximately 1 to 7 feet below the existing grade (Figure 4.7-1, Geologic Map). Material was observed to be similar to the alluvium, generally consisting of brown, clayey to silty sand and sandy

silt. Areas of deeper undocumented artificial fills and possible refuse may be present due to previous filling of drainages for leveling the agricultural fields, such as for a reported buried high-line canal tunnel (not encountered during site investigations).

A stockpile located on the center-northern portion of the site consists of two lobes with irregular topography (Figure 4.7-1). Stockpiled soils were reportedly imported since 2018, from various locations in the Irvine Ranch. Material in the stockpile was observed to be a varied mix of soils, including loosely layered dark-brown, light reddish-brown, and orangish-brown sandy silt, silty sand, and clayey silt, with scattered fragments of construction debris and organics.

Documented Artificial Fill

Approximate limits of older artificial fills placed under observation and testing by others were not encountered during the recent site investigation. However, approximate limits of older artificial fills related to the cut-and-fill grading of the Bee Canyon Access Road along the eastern boundary of the project site and Portola Parkway along the southern boundary of the project site; fills placed in preparation for the future Jeffrey Open Space Trail and Jeffrey Road; and the ascending slope in support of the large residential development to the north of Jeffrey Road are illustrated on Figure 4.7-1.

Slopewash

Limited areas of material identified as slopewash were mapped by others as a relatively thin mantle of eroded material built up at the toe of bedrock slope areas around the eastern and northern perimeter of the project site (Figure 4.7-1). The slopewash has been described by others as a layer (or layers) of material similar to topsoil or colluvium that interfingers with the alluvium and is considered potentially compressible.

Quaternary Alluvium

Based on regional mapping and observations of the project site, the site is generally underlain by Quaternary alluvial deposits (Figure 4.7-1). The alluvial deposits are described as Holocene to Late Pleistocene Epoch deposits predominantly consisting of brown, reddish-brown, and light-yellowish-brown sandy silt to silty sand, clayey sand, and silty to sandy clay, slightly moist to moist and loose to medium dense. Quaternary alluvium was observed by others in borings extending up to approximately 90 feet below the ground surface of the project site.

Bedrock

A narrow zone of bedrock, partially covered with variable thicknesses of slopewash, is present along the eastern boundary of the site, along a relatively small slope ascending to the Bee Canyon Access Road that runs parallel to the eastern side of the project site (Figure 4.7-1). The large slope at the northernmost portion of the site is also a bedrock ridge with variable slopewash around the toe of slope. The Tertiary Vaqueros and Sespe Formation bedrock units, undifferentiated in some areas, are present on the slopes noted above and underlie the alluvial deposits at depth throughout the site.

The Vaqueros bedrock unit is described as a massive to thickly bedded marine sandstone and sandy siltstone unit, while the Sespe Formation is described as massive to thickly bedded, marine and non-marine, conglomeratic sandstone, clayey to silty sandstone of various colors. Areas of bedrock indicated to be Tertiary Vaqueros and Sespe, Undifferentiated, are labeled as both formations due to similarities and localized interfingering of the units. Geologic

bedding and structure of the bedrock formations were observed to be massive to thickly bedded, steeply north-dipping, gently folded, and tectonically sheared where observed in off-site borings by others. Where observed during a previous site investigation, the material was fractured and highly weathered clayey sandstone to sandy claystone, and was generally observed to be dipping moderately steeply to the northwest

4.7.1.3 Groundwater

Groundwater was not encountered within the maximum explored depth of 30 feet below the existing grade in the recent geotechnical investigation (Appendix E-1). During a previous geotechnical evaluation, groundwater was encountered at depths ranging from approximately 64 to 99 feet below the existing grade. Regional mapping indicates the historic high groundwater table at a depth ranging from 20 to 40 feet below the existing grade. Based on previous investigations by others and eventual removal of the crops and irrigation from the area, groundwater may currently be present at a deeper depth than previously described. In general, groundwater levels fluctuate with the seasons and local zones of perched groundwater may be present within the near-surface deposits due to local seepage or during rainy seasons. Groundwater conditions below the site may be variable, depending on numerous factors including seasonal rainfall, local irrigation, and groundwater pumping, among others (Appendix E-1).

4.7.1.4 Seismicity

Fault Rupture

Surface fault rupture is the displacement of ground surface that occurs along a fault line during an earthquake event. Based on criteria established by the California Geological Survey (CGS), faults are classified as either Holocene-active, pre-Holocene, or age-undetermined. Faults are considered active when they have shown evidence of movement within the past 11,700 years (i.e., Holocene epoch). Pre-Holocene faults, or potentially active faults, are those that have shown evidence of movement more than 11,700 years ago and generally before 1.6 million years ago (Quaternary age). Faults whose age of most recent movement is not known or is unconstrained by dating methods or by limitations in stratigraphic resolution are designated as age-undetermined and are considered inactive.

California's Alquist–Priolo Earthquake Fault Zoning Act of 1972 (formerly known as the Alquist–Priolo Special Studies Zones Act) established state policy to identify active faults and determine a boundary zone on either side of a known fault trace, called the Alquist–Priolo Earthquake Fault Zone. The delineated width of an Alquist–Priolo Earthquake Fault is based on the location, precision, complexity, or regional significance of the fault and can be between 200 and 500 feet in width on either side of the fault trace. If a site lies within a designated Alquist–Priolo Earthquake Fault Zone, before development permits may be issued a geologic fault rupture investigation must be performed to demonstrate that a proposed building site is not threatened by surface displacement from the fault.

No Holocene-active or pre-Holocene faults are known to exist within the project site or in the near vicinity, and the site is not located within an Alquist–Priolo Earthquake Fault Zone (CGS 2025). The possibility of fault rupture is considered low because no active faults are known to cross the project site (Appendix E-1). Holocene-active and pre-Holocene faults in the project site region are shown on Figure 4.7-2, Fault Map. Prominent faults in the vicinity of the site include the Whittier Fault, 12 miles to the north; the Elsinore Fault, approximately 13 miles to the northeast; and the Newport–Inglewood Fault, 15 miles to the southwest. The San Jacinto and San Andreas Faults are located approximately 38 miles and 46 miles northeast of the site, respectively (CGS 2025). In addition, the potentially active San Joaquin Hills Fault is a blind thrust fault that underlies the City of Irvine just north of the San Joaquin Hills and generally below the City Civic Center (City of Irvine 2024).

Ground Shaking

Geologic conditions refer to the stability of the soil during an earthquake. For example, loose, unconsolidated, saturated soil is more prone to liquefaction during an earthquake than compacted soil or rock. Because the City is located within proximity to faults, the project site could be subject to significant ground shaking. Ground shaking is the effect of surface motion generated by an earthquake that results in the majority of damage during seismic events (City of Irvine 2020). Several factors control how ground motion interacts with structures, making the hazard of ground shaking difficult to predict. Seismic waves propagating through the Earth's crust are responsible for the ground vibrations normally felt during an earthquake. Structures throughout the City could be affected by ground shaking during a seismic event. The City's Local Hazard Mitigation Plan (LHMP) (City of Irvine 2020) includes a summary of the Uniform California Earthquake Rupture Forecast, Version 3 (USGS 2015), which includes an assessment of the probability of a major earthquake on various faults between 2014 to 2044. The San Joaquin Hills Fault, which underlies a portion of the City, has a 0.40% probability of a major earthquake (moment magnitude [M_W] 6.7+) occurring, while the Newport–Inglewood Fault, approximately 15 miles southwest of the project site, has a 0.95% probability of a large earthquake occurring. The San Jacinto and San Andreas Faults, 38 and 46 miles from the project site, respectively, have probabilities of M_W 6.7+ earthquakes of 5% and 19%, respectively.

4.7.1.5 Liquefaction and Lateral Spreading

Liquefaction

Liquefaction is a seismic phenomenon in which loose, saturated, granular soils behave like a fluid when subject to high-intensity ground shaking. Liquefaction occurs when three general conditions coexist: (1) shallow groundwater; (2) low-density, noncohesive (granular) soils; and (3) high-intensity ground motion. Studies indicate that loose, saturated, near-surface, cohesionless soils exhibit the highest liquefaction potential, while dry, dense, cohesionless soils and cohesive soils exhibit low to negligible liquefaction potential. In general, cohesive soils are not considered susceptible to liquefaction. Effects of liquefaction on level ground include settlement, sand boils, and bearing capacity failures below structures. Furthermore, dynamic settlement of dry sands can occur as the sand particles tend to settle and densify as a result of a seismic event.

Based on regional mapping by CGS (2025), the northern portion of the project site is an area of potential liquefaction. However, soils present at the project site are not generally susceptible to liquefaction due to a lack of groundwater in the upper 50 feet. Isolated layers may be susceptible to dry sand seismic settlement (Appendix E-1).

Lateral Spreading

Lateral spreading is a type of liquefaction-induced ground failure associated with the lateral displacement of surficial blocks of sediment resulting from liquefaction in a subsurface layer. Once liquefaction transforms the subsurface layer into a fluid mass, gravity plus the earthquake's inertial forces may cause the mass to move downslope toward a free face (such as a river channel or an embankment). Lateral spreading may cause large horizontal displacements, and such movement typically damages pipelines, utilities, bridges, and structures. Due to the low liquefaction potential and lack of a free face, the potential for lateral spreading on the project site is considered very low (Appendix E-1).

4.7.1.6 Landslides

Landslides, slope failures, and mudflows of earth materials generally occur where slopes are steep and/or the earth materials are weak. Earthquake-induced landslides may also occur due to seismic ground shaking. Based on the project-specific geotechnical report (Appendix E-1), the geologic bedding and structure of the bedrock formations were observed to be massive to thickly bedded and steeply north-dipping. Based on regional mapping by CGS, the project site is not located in an area of potential seismically induced landslides (CGS 2025). However, based on regional mapping in the City LHMP (City of Irvine 2020) and City General Plan Safety Element (City of Irvine 2024), small portions of the project site along the northern, western, and eastern boundary consist of areas of deep-seated landslide susceptibility.

4.7.1.7 Expansive Soils

Expansive soils include clay minerals characterized by their ability to undergo significant volume change (shrink or swell) due to variation in moisture content over time. Sandy soils are generally not expansive, while clayey soils generally are expansive. Changes in soil moisture content can result from rainfall, irrigation, pipeline leakage, perched groundwater, drought, or other factors. Cyclical volumetric change of expansive soils may cause excessive cracking and heaving of structures with shallow foundations, concrete slabs-on-grade, or pavements supported on these materials. Based on observations made during the geotechnical investigation, finished grade soils are anticipated to have a very low to medium expansion potential (Appendix E-1).

4.7.2 Relevant Plans, Policies, and Ordinances

Federal

OSHA Excavation and Trenching Standard, Title 29

Excavation and trenching are among the most hazardous construction activities. The federal Occupational Safety and Health Administration (OSHA) Excavation and Trenching standard, Title 29 of the Code of Federal Regulations, Part 1926.650 et seq., covers requirements for excavation and trenching operations. OSHA requires that excavations in which employees could potentially be exposed to cave-ins be protected by sloping or benching the sides of the excavation, supporting the sides of the excavation, or placing a shield between the side of the excavation and the work area.

State

California Building Standards Code (Title 24)

The California Building Standards Code, commonly referred to as the California Building Code (CBC), has been codified in the California Code of Regulations as Title 24, Part 2. Title 24 is administered by the California Building Standards Commission, which, by law, is responsible for coordinating all building standards. Under state law, all building standards must be centralized in Title 24 to be enforceable. The purpose of the CBC is to establish minimum standards to safeguard public health, safety, and general welfare through structural strength, means of egress facilities, and general stability by regulating and controlling the design, construction, quality of materials, use and occupancy, location, and maintenance of all buildings and structures within its jurisdiction.

The 2022 edition of the CBC is based on the 2021 International Building Code published by the International Code Conference. The 2022 CBC contains California amendments based on the American Society of Civil Engineers Minimum Design Standards 7-16, which provides requirements for general structural design and includes means for determining earthquake loads and other loads (such as wind loads) for inclusion in building codes. The provisions of the CBC apply to the construction, alteration, movement, replacement, and demolition of every building or structure, or any appurtenances connected or attached to such buildings or structures, throughout California.

The CBC uses data on frequency of earthquakes, as well as locations of fault zones, to set forth requirements for new developments to be prepared for earthquake events. The earthquake design requirements also consider the occupancy category of the structure, site class, soil classifications, and various other seismic coefficients, which are used to determine a Seismic Design Category (SDC) for a project. The SDC is a classification system that combines the occupancy categories with the level of expected ground motions at the site and ranges from SDC A (very small seismic vulnerability) to SDC E/F (very high seismic vulnerability and near a major fault). Design specifications are then determined according to the SDC.

Alquist–Priolo Earthquake Fault Zoning Act

The Alquist–Priolo Earthquake Fault Zoning Act was established to mitigate the hazard of surface faulting to structures for human occupancy. Pursuant to the act, the state geologist has established regulatory zones (known as earthquake fault zones) around surface traces of active faults. Application for a development permit for any project within a delineated earthquake fault zone shall be accompanied by a geologic report, prepared by a geologist registered in the state of California, that is directed to the problem of potential surface fault displacement through a project site.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act (SHMA) was adopted in 1990 to protect the public from the effects of non-surface fault rupture earthquake hazards, including strong ground shaking, liquefaction, seismically induced landslides, and ground amplification or other ground failure caused by earthquakes. The goal of the act is to minimize loss of life and property by identifying and mitigating seismic hazards. CGS is the primary agency responsible for the implementation of SHMA. CGS prepares maps identifying seismic hazard zones and provides them to local governments. The maps include areas susceptible to amplified shaking, liquefaction, earthquake-induced landslides, and other ground failures. SHMA requires responsible agencies to approve projects within these zones only after a site-specific investigation has been performed to determine whether the hazard is present, and if so, to include appropriate mitigation. In addition, SHMA requires real estate sellers and agents at the time of sale to disclose whether a property is within one of the designated seismic hazard zones.

California Public Resources Code Section 5097.5(a)

According to the provisions of Section 5097.5(a) of the California Public Resources Code, no person shall knowingly and willfully excavate upon, or remove, destroy, injure, or deface, any historic or prehistoric ruins, burial grounds, or archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, rock art, or any other archaeological, paleontological, or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over the lands.

Local

Irvine 2045 General Plan

Safety Element

The following goal, objective, and policies from the Safety Element of the 2045 General Plan (City of Irvine 2024a) are relevant to the proposed project:

Goal 2: Improve the community's resilience to seismic and geologic hazards by ensuring the integrity of the built environment.

Objective S-2: Seismic and Geologic Hazards

Policy (a): Coordinate with Irvine Ranch Water District and Orange County Water District on emergency water storage and distribution following a liquefaction or landslide event.

Policy (b): Coordinate groundwater management with Orange County Water District to avoid subsidence impacts in Irvine.

Policy (c): Promote the strengthening of planned utilities, the retrofit and rehabilitation of existing weak structures and lifeline utilities, and the relocation or strengthening of certain critical facilities to increase public safety and minimize potential damage from seismic and geologic hazards.

Policy (d): Encourage replanting bare or disturbed areas after landslides to reduce erosion.

Conservation and Open Space Element

The following goals, objectives, and policies from the Conservation and Open Space Element of the 2045 General Plan (City of Irvine 2024b) are relevant to the proposed project:

Goal 3: Use and preserve geophysical resources, including, but not limited to, ridgelines, hillsides, and waterways, as part of the City's land use pattern.

Objective COS-3: Effectively utilize and safeguard geophysical resources, encompassing ridgelines, hillsides, and waterways, within the City's land use framework to maintain ecological integrity, enhance aesthetic value, and promote sustainable development practices that harmonize with the natural landscape.

Policy (i): Minimize the danger to life and property from geophysical hazards, including, but not limited to, unstable soils, liquefaction, steep slopes, and floodways.

Goal 4: Use and maintain societal resources, including but not limited to, archaeological, historical, and paleontological resources, as a part of the City's land use pattern.

Objective COS-4: To effectively utilize and preserve societal resources, encompassing archaeological, historical, and paleontological assets, within the City's land use framework, ensuring their integration and maintenance in alignment with conservation and open space goals.

Policy (a): Continue to coordinate General Plan level resource information to determine the level and type of resource(s) potentially impacted by proposed development.

Municipal Code

Title 5 (Planning), Division 9 (Building Regulations)

The City's Building Code Regulations are included in Division 9 of the City's Municipal Code, as adopted under Section 5-9-101 (Adoption of Building Code). Division 9 adopted by reference the most recent version of the CBC.

Title 5 (Planning), Division 10 (Grading Code and Encroachment Regulations), Chapter 1 (Grading Code)

The City's Grading Code establishes rules and regulations to control excavation, grading, and earthwork construction (including fills and embankments), and establishes administrative requirements for issuance of permits, approval of plans, and inspection of grading construction in accordance with the requirements for grading and excavation contained in the Uniform Building Code as adopted and modified by City ordinance. The Grading Code also contains water quality requirements.

Grading Manual

The City's Grading Manual is a compilation of rules, procedures, and interpretations necessary to carry out the provisions of the City's Grading Code. The purpose of the Grading Manual is to assist users of the Grading Code by supplementing it with detailed information regarding rules, interpretations, standard specifications, procedures, requirements, forms, and other information applicable to control excavation, grading, and earthwork construction in the City. The Grading Manual also contains guidelines for the preparation of geotechnical and geology reports, slope stability analysis and erosion control plans. The geotechnical and geology reports, slope stability analysis, and erosion control plan are required to be submitted as part of the grading plan and are reviewed and approved by the Building & Safety Division of the Community Development Department.

4.7.3 Thresholds of Significance

The significance criteria used to evaluate the project's impacts to geology and soils are based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines. According to Appendix G, a significant impact related to geology and soils would occur if the project would:

1. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:
    a. Rupture of a known earthquake fault, as delineated on the most recent Alquist–Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of as known fault. Refer to Division of Mines and Geology Special Publication 42.
    b. Strong seismic ground shaking.
    c. Seismic-related ground failure, including liquefaction.
    d. Landslides.

2. Result in substantial soil erosion or the loss of topsoil.
3. 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.
4. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property.
5. 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.
6. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

4.7.4 Impacts Analysis

1. Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

a. Rupture of a known earthquake fault, as delineated on the most recent Alquist–Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

No Impact. As detailed in Section 4.7.1, Existing Conditions, the project site is in a seismically active region with numerous Holocene-active faults. However, no Alquist–Priolo Earthquake Fault Zones are located within or immediately adjacent to the project site. As such, no impacts would occur with respect to surface fault rupture.

b. Strong seismic ground shaking?

Less-Than-Significant Impact. As mentioned in Section 4.7.4(1)(a), the project site is in an area of high seismic activity. According to the U.S. Geological Survey, there is a 93% chance of a M_W 6.7 or greater earthquake occurring in the Southern California region by 2045 (USGS 2015). If not designed appropriately, the proposed project could be subject to substantive damage and risk injury or death of occupants due to ground shaking from one of these regional faults. The amount of ground shaking would depend on a number of different factors, including the magnitude of the event, the distance to the source, the depth of displacement, the duration of shaking, and the characteristics of the underlying materials. According to the project-specific geotechnical investigation (Appendix E-1), the peak ground acceleration was estimated at 0.592 g (percent of gravity), which could cause damage if the project were not designed in accordance with seismic design requirements.

The proposed project would be required to comply with the current CBC and local amendments, which includes requirements to ensure that new development is designed to include seismic safety measures. The 2022 CBC design parameters are specifically tailored to minimize the risk of structure failure due to seismic hazards and include a requirement for a standard, project-specific geotechnical report (also known as a soils investigation report) as part of the building permit process (CBC Chapters 18 and 18A). A preliminary project-specific geotechnical report was prepared for the project site and is included as Appendix E-1 of this Draft EIR. In accordance with the CBC, this geotechnical report provides specific recommendations related to soils and seismic engineering, including recommendations for remedial grading, foundation design, and retaining walls, thus minimizing the potential for structural distress from seismically induced ground shaking.

The CBC requires compliance with these recommendations, thus minimizing the potential for structural damage during an earthquake. As with all development in the City, the City's plan check and building inspection procedures would ensure that the proposed project is constructed in accordance with CBC standards, including the seismic design recommendations provided in a final-design-level geotechnical report that must be included in the final design plans of construction.

The project would be designed in a manner consistent with applicable CBC regulations and local amendments with respect to seismic engineering and would therefore be considered seismically safe. Constructing new structures within an earthquake-prone area would not, in and of itself, increase seismic risks in the project area. Therefore, development of the proposed project would not directly or indirectly cause or exacerbate adverse effects involving strong seismic ground shaking. Impacts would be less than significant.

c. Seismic-related ground failure, including liquefaction?

Less-Than-Significant Impact. Liquefaction is a geotechnical hazard that occurs when loose, unconsolidated saturated soils are subjected to ground shaking, causing the pore pressure to exceed frictional forces and resulting in the soil units behaving more like a liquid than a solid. Liquefaction hazards are generally considered to be highest in susceptible soils within 50 feet of the ground surface. If susceptible soils are present, liquefaction can cause substantive damage. Based on mapping by CGS (2025), the northern portion of the site is an area of potential liquefaction. However, based on the project geotechnical report (Appendix E-1), soils present at the project site are not generally susceptible to liquefaction due to a lack of groundwater in the upper 50 feet. Isolated layers may be susceptible to dry sand seismic settlement. Nonetheless, all the proposed improvements that would be associated with the project would be required to comply with the current version of the CBC, along with local applicable amendments that include requirements for addressing liquefaction hazards, as appropriate. These requirements include incorporation of recommendations from a final-design-level project-specific geotechnical report, which would evaluate the potential for liquefaction and provide recommendations to incorporate design measures such as site preparations and foundation design measures to minimize the potential for structural damage caused by seismic-related ground failure such as liquefaction. Furthermore, development of the proposed project would not directly or indirectly cause or exacerbate adverse effects involving seismic-related ground failure, including liquefaction. Therefore, impacts would be less than significant.

d. Landslides?

Less-Than-Significant Impact. According to the 2045 Irvine General Plan Safety Element (City of Irvine 2024a) and the City LHMP (City of Irvine 2020), a small portion of the project site along the northern, western, and eastern boundary consists of areas of deep-seated landslide susceptibility (Figure 4.7-3, Deep-Seated Landslide Susceptibility Map). However, these areas are designated as having a moderately low risk of landslides due to seismic conditions and a low likelihood of a landslide under other conditions (City of Irvine 2024a). Geologic bedding and structure of the bedrock formations on site were observed in the geotechnical investigation to be massive to thickly bedded and steeply north-dipping. Steeply dipping bedding on gentle to moderate slopes is generally not susceptible to deep-seated landslides due to an absence of unsupported bedding.

The project-specific geotechnical report, dated November 22, 2024 (Appendix E-1), was completed in the absence of a tentative tract map (i.e., preliminary grading plans). The geotechnical report indicated that the existing slopes in the northern and eastern portions of the project site would not be disturbed during grading and would be outside the limits of the proposed development. The report indicated that any proposed slopes included in the final design should be evaluated. The geotechnical report also indicated that, pending final design grades, stabilization fill keyways may be recommended for the design cut slopes where bedrock is exposed within the small ascending slope along the eastern site boundary and within the prominent ridgeline at the northern boundary. Additionally, areas of bedrock exposed at design cut pad grade are recommended to be overexcavated a minimum of 5 feet below design grade. These recommendations would be refined in a forthcoming grading plan review report.

Based on a review of Vesting Tentative Tract Map 19352 (Fuscoe Engineering 2024), dated November 27, 2024 (after issuance of the geotechnical report), grading would result in engineered slopes of up to 30 feet above the existing grade along the eastern project boundary and up to 10 feet above the existing grade along the northern boundary. The preliminary geotechnical recommendations described above would tentatively be followed during project grading. However, as stated in the geotechnical report, the final project design would be further evaluated with respect to slope stability and recommendations would be included in the final design geotechnical report. Such recommendations for these slopes are standard geotechnical engineering practice and it can reasonably be assumed that no unmitigable slope-stability impacts would remain, pending additional slope stability analysis and associated geotechnical engineering.

In addition, the proposed improvements would include drainage control features in accordance with local drainage control requirements, which would also reduce the potential for adverse effects related to debris flows. Therefore, based on the recommendations of the geotechnical investigation, which would include standard geotechnical engineering for on-site slopes, the potential for earthquake-induced landslides or other types of slope failures would be less than significant.

2. Would the project result in substantial soil erosion or the loss of topsoil?

Less-Than-Significant Impact. Project construction would include demolition of existing farm-related structures, utilities, septic/leach field systems, and an underground drainage tunnel; substantial grading and earthwork activities; and new residential construction. Each of these activities could expose soils to the effects of wind and water erosion if not managed appropriately. However, the project applicant would be required to comply with South Coast Air Quality Management District Rule 403, Fugitive Dust, to minimize wind erosion at the site. Because project construction would involve ground disturbance in excess of 1 acre, a stormwater pollution prevention plan (SWPPP) would be implemented in accordance with the National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Order WQ 2022-0057-DWQ), effective September 1, 2023 (i.e., the Construction General Permit). The site-specific SWPPP would be prepared prior to earthwork activities and would be implemented during project grading and construction. The SWPPP would include best management practices (BMPs) and erosion control measures to prevent pollution in stormwater discharge, including erosion-induced siltation.

Typical BMPs that could be used during construction include erosion/sediment control measures such as silt fences, fiber rolls, gravel bags, stormwater inlet protection, soil stabilization measures, and street sweeping. The SWPPP would be subject to review and approval by the City. Additionally, all project

construction activities would be required to comply with the City's Grading Code and Grading Manual, which require the implementation of grading, dust, and erosion control measures, including an erosion control plan approved by the Chief Building Official, as well as inspections to ensure that sedimentation and erosion are minimized.

Through compliance with these existing regulations, the proposed project would not result in significant impacts related to soil erosion during the construction phase. Additionally, after project completion, most of the project site would be developed with impervious surfaces and landscaping, and all stormwater flows would be directed to storm drain features, which would reduce the potential for erosion. Therefore, project impacts related to soil erosion or the loss of topsoil would be less than significant.

3. Would the project 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?

Less-Than-Significant Impact. The project site is underlain by alluvial deposits, artificial fill, some minor areas of slopewash, and bedrock. If not addressed appropriately, areas of the site may not adequately support the proposed improvements. However, the project site was evaluated in a site-specific preliminary geotechnical investigation (Appendix E-1) that considered the breadth of geotechnical hazards present, including characteristics of underlying materials; topography; and potential for liquefaction, lateral spreading, subsidence, and collapse. The on-site soils are generally considered suitable for use as general compacted fill, provided they are screened for significant organic materials, construction debris, and any oversized material.

Proposed design soil cuts would be up to approximately 30 feet below the existing grade within the on-site stockpile, and design fills up to 11 feet above the existing grade or more would occur in the current detention basin at the southeast corner of the site. However, the majority of the site has proposed cuts/fills of approximately 5 feet below/above the existing grade (Appendix E-1). The on-site soil would be temporarily removed, screened, and recompacted to a minimum depth ranging from approximately 5 feet below the existing grade to 12 feet below the existing grade, or 3 feet below the bottom of proposed foundations, whichever is deeper. Import soils for general fill (i.e., non-retaining-wall backfill) would consist of clean, granular soils of low expansion potential (expansion index of 50 or less). The potential for seismic-related ground failure, including liquefaction, is discussed in Section 4.7.4(1)(c) and the hazard has been determined to be low at the project site. Therefore, lateral spreading, which is related to liquefaction, would also not be a hazard present at the site.

The City's LHMP and General Plan Safety Element identified that the most likely locations for subsidence are the low-lying areas overlying the Orange County Groundwater Basin, which includes the project site. The City does not have a history of seismically induced subsidence. Although there is evidence of subsidence due to excessive groundwater pumping in the first half of the twentieth century, prior to imported surface water, currently it is estimated that the greater Los Angeles Basin, which includes Orange County, experiences approximately 20 millimeters (0.8 inches) of net subsidence annually due to groundwater pumping and artificial recharge (City of Irvine 2020, 2024a). As discussed in more detail in Section 4.10, Hydrology and Water Quality, of this Draft EIR, the Irvine Sub-basin of the Orange County Groundwater Basin, which underlies the project site, is considered a high-priority basin with respect to the Sustainable Groundwater Management Act (DWR 2020). As a result, the groundwater basin is managed under a groundwater sustainability plan, which regulates groundwater pumping in the basin, thus minimizing the potential for ground subsidence. Subsidence due to earthwork equipment is expected to be 0.1 feet (Appendix E-1).

Soils that are typically susceptible to hydrocollapse (or collapsible soils) are predominantly sand and silt held in a loose honeycomb structure. This relatively loose honeycomb structure is held together by small amounts of clay or calcium carbonate acting as a temporary (soluble) cementing agent. If the soil remains dry the soil maintains its structure; however, the addition of water to the soil will greatly weaken the honeycomb structure and the soil can subsequently experience immediate collapse. This collapse results in rapid soil settlement and potential damage to any improvements that are located within the zone of influence of the collapsible soils. The measured collapse potential of the soils on the project site ranged from approximately 0.06% to 0.36%, which is considered to be low and not a significant issue (Appendix E-1). The geotechnical evaluation for the project also determined that with implementation of site preparations, including earthwork and recompaction of loose soils consistent with building code requirements, the potential for subsidence would be reduced to less-than-significant levels (Appendix E-1). Furthermore, development of the proposed project would not directly or indirectly cause or exacerbate any adverse effects involving these seismic-related hazards.

The proposed improvements would be required to comply with the most current CBC and applicable local amendments, which includes requirements to ensure that new development would not cause or exacerbate geological and soil hazards, including unstable soils and collapsible soils (e.g., by ensuring that underlying materials can adequately support the loadings [i.e., weight] of new structures). These requirements include incorporation of recommendations from a final-design-level project-specific geotechnical report, which would include recommendations for grading, treatment of soils, engineered fills, foundation design, and retaining walls, if warranted. Adherence to building code requirements would also ensure that all proposed improvements associated with the project are evaluated for potential unstable soils and that recommendations for site preparations (e.g., soil compaction) and/or building foundation designs to minimize the potential for settlement are incorporated into final project design plans. Compliance with these recommendations would minimize the potential for structural damage associated with potentially unstable soils. In addition, project development would not create unstable conditions related to unstable soils. Therefore, impacts would be less than significant.

4. Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

Less-Than-Significant Impact. Expansive soils, if present, can adversely affect improvements over time through cyclical volumetric changes. These volumetric changes include shrinking during drying and swelling during the rainy winter season, or when irrigation is resumed, which can crack foundations, pathways, and other improvements. According to the 2020 LHMP for the City of Irvine, expansive soils are present in the City. However, the City requires compliance with the CBC, which is intended to mitigate hazards associated with this condition (City of Irvine 2020). Based on the results of the preliminary geotechnical investigation and previous evaluations from nearby sites (Appendix E-1), finished grade soils are anticipated to have a very low to medium expansion potential. Based on this soil classification, the geotechnical report preliminarily recommends post-tensioned concrete foundation design, which is common for expansive soils.

As part of adherence to current building code requirements, prior to approval of a building permit the project applicant would be required to prepare a final-design-level geotechnical report that would include an evaluation for the presence of expansive soils at the completion of grading. Recommendations from this final-design-level geotechnical report would include measures to address expansive soils, as appropriate, which could include treatment of soils, engineered fills, and foundation design parameters. Therefore, with adherence to current building code requirements, the potential impact related to expansive soils would be less than significant.

5. Would the project 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?

No Impact. The project would not include septic tanks or alternative wastewater disposal systems. The project would be connected to the City's wastewater disposal and treatment system. As a result, there would be no impact related to this threshold.

6. Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less-Than-Significant Impact with Mitigation Incorporated. No paleontological resources were identified within the project site as a result of the institutional records search or desktop geological and paleontological review (Appendix E-2, Paleontological Resources Assessment). In addition, the project site is not anticipated to be underlain by unique geologic features. Portions of the project site underlain by Early Holocene to Late Pleistocene young alluvial fan deposits have high paleontological sensitivity (sensitivity increases with depth), and the Early Miocene to Late Eocene Sespe and Vaqueros Formations have high paleontological sensitivity. Ground-disturbing activities associated with construction of the proposed project, such as grading during site preparation and trenching for utilities, have the potential to destroy a unique paleontological resource or site. As such, the project site is considered to be potentially sensitive for paleontological resources. Without mitigation, the potential for adverse impacts to paleontological resources during construction associated with the project would be significant. Given the proximity of past fossil discoveries in the surrounding area in the same or similar deposits, the project site is highly sensitive for supporting paleontological resources below the depth of fill. However, upon implementation of Mitigation Measure (MM) GEO-1 (Paleontological Resources Impact Mitigation Program), impacts would be reduced to below a level of significance. Impacts of the proposed project would be considered less than significant with mitigation incorporated during construction.

Impact Summary

While the project site is in an area of seismic activity, there are no known fault lines that cross the site or are near the site. The proposed project would be required to comply with the current CBC and local amendments, which include requirements to ensure that new development is designed to include seismic safety measures. The project site was evaluated in a site-specific preliminary geotechnical investigation that considered the breadth of geotechnical hazards present, including characteristics of underlying materials; topography; and potential for liquefaction, lateral spreading, subsidence, landslides, and collapse. The on-site soils are generally considered suitable for use as general compacted fill, provided they are screened for significant organic materials, construction debris, and any oversized material. Therefore, all impacts relating to these geotechnical hazards would be less than significant or would not occur.

Portions of the project site are underlain by deposits that have high paleontological sensitivity, which increases with depth. Ground-disturbing activities associated with construction have the potential to destroy a unique paleontological resource or site. Therefore, impacts related to project destruction of a unique paleontological resource or site or geologic feature would be significant, absent mitigation.

4.7.5 Mitigation Measures

Implementation of the following mitigation measure would reduce impacts related to destruction of a unique paleontological resource or site or unique geologic feature:

MM-GEO-1 Paleontological Resources Impact Mitigation Program. Prior to commencement of any grading activity on site, the applicant shall retain a qualified paleontologist per the 2010 Society of Vertebrate Paleontology guidelines. The paleontologist shall prepare a Paleontological Resources Impact Mitigation Program for the Project. The Paleontological Resources Impact Mitigation Program shall be consistent with the 2010 Society of Vertebrate Paleontology guidelines and shall outline requirements for preconstruction meeting attendance and worker environmental awareness training, where monitoring is required within the proposed project site based on construction plans and/or geotechnical reports, procedures for adequate paleontological monitoring and discoveries treatment, and paleontological methods (including sediment sampling for microvertebrate fossils), reporting, and collections management. The qualified paleontologist shall attend the pre-construction meeting and a qualified paleontological monitor, per the 2010 Society of Vertebrate Paleontology guidelines, shall be on site during all rough grading and other significant ground-disturbing activities (including augering) in previously undisturbed, fine-grained Pleistocene alluvial deposits. In the event that paleontological resources (e.g., fossils) are unearthed during grading, the paleontological monitor will temporarily halt and/or divert grading activity to allow recovery of paleontological resources. The area of discovery will be roped off with a 50-foot-radius buffer. Once documentation and collection of the find is completed, the paleontological monitor will remove the rope and allow grading to recommence in the area of the find.

4.7.6 Level of Significance After Mitigation

Impacts related to destruction of a unique paleontological resource or site or unique geologic feature would be addressed by implementation of MM-GEO-1, which would reduce impacts to a less-than-significant level.

4.7.7 Cumulative Impacts

Cumulative projects listed in Table 3-1 in Chapter 3, Project Description, of this Draft EIR would be subject to relatively similar seismic hazards as that of the proposed project. However, the effects of these projects would not cause cumulatively significant effects from geologic impacts or on soils because such impacts are site specific, are expected to be mitigated on a site-specific basis through the CEQA documentation prepared for those projects, and would only have the potential to combine with impacts of the project if they occurred in the same location as the project.

Development of the project would not be subject to fault rupture hazards because it is not located within an Alquist–Priolo Fault Hazard Zone and thus would not result in an impact related to exposing persons or structures to adverse effects. Fault rupture hazards are entirely dependent on site location. Therefore, because the project site is not located within an Alquist–Priolo Fault Hazard Zone, it could not combine with other cumulative projects to become cumulatively considerable and no cumulative impact would occur.

Development of the project, with implementation of the regulatory requirements discussed in Section 4.7.4, Impacts Analysis, would result in less-than-significant impacts related to exposing persons or structures to strong seismic ground shaking. As stated in Section 4.7.4, the entire region is a seismically active area where conditions vary widely within a short distance, making the cumulative context for potential impacts resulting from ground shaking hazards more localized, or even site specific. Like the proposed project, other projects in the area would be required to adhere to the CBC, which would reduce the risk to people and property from ground shaking hazards to less-than-significant levels. While future seismic events cannot be predicted, adherence to all federal, state, and local programs, requirements, and policies pertaining to building safety and construction would limit the potential for cumulative impacts related to injury or damage to a less-than-significant level.

Development of the project, with implementation of the regulatory requirements discussed above, would result in less-than-significant impacts related to exposing persons or structures to seismic hazards, including ground failure and liquefaction. Although the entire region is a seismically active area, geologic and soil conditions vary widely within a short distance, making the cumulative context for potential impacts resulting from exposing people and structures to related risks more localized, or even site-specific. Like the proposed project, other projects in the area would be required to adhere to the CBC, which would reduce the risk to people and property from any localized hazards such as ground failure and liquefaction to less-than-significant levels. While future seismic events cannot be predicted, adherence to all federal, state, and local programs, requirements, and policies pertaining to building safety and construction would limit the potential for cumulative impacts related to injury or damage from seismic-related ground failure and liquefaction to a less-than-significant level.

With implementation of the regulatory requirements, the project would result in less-than-significant impacts related to exposing persons or structures to adverse effects due to landslides. Cumulative projects all have varying underlying soil conditions, and hazards associated with landslides are generally site specific. All projects, including the proposed project, would be required to adhere to the CBC, which would reduce the risk to people and property from localized hazards such as landslides to a less-than-significant level for each cumulative project such that cumulative effects would be less than significant.

With implementation of the regulatory requirements, including grading, dust, and erosion control measures, ground-disturbing activities would have a less-than-significant impact related to erosion and loss of topsoil. Although each cumulative project's soil disturbance could result in off-site water and wind erosion, each project has undergone or would undergo an environmental review under CEQA, as well as being subject to existing regulatory requirements. As a result, each cumulative project would be required to abide by existing regulations such that it would have an erosion control plan, drainage plan, and SWPPP that would reduce wind and water erosion and prevent dust and soil from leaving the site. Therefore, because the BMPs that would be included in the SWPPP would minimize the potential for wind and water erosion and prevent any substantive off-site transport, the proposed project would not result in a cumulatively considerable contribution to this impact.

With implementation of the regulatory requirements, the proposed project would result in less-than-significant impacts related to exposing persons or structures to adverse effects due to unstable soils such as landslides, lateral spreading, subsidence, liquefaction, or collapse. Cumulative projects all have varying underlying soil conditions, and hazards associated with unstable soils, such as landslides, lateral spreading, subsidence, liquefaction, or collapse, are generally site specific. All projects, including the proposed project, would be required to adhere to CBC, which would reduce the risk to people and property from localized hazards such as landslides, lateral spreading, subsidence, liquefaction, or collapse to a less-than-significant level for each cumulative project such that cumulative effects would be less than significant.

Through adherence to geotechnical recommendations provided by a licensed geotechnical engineer, the project would have less-than-significant impacts related to expansive soils. As with the other geologic hazards such as subsidence, collapse, and liquefaction, the hazards related to expansive soils are entirely dependent on site-specific conditions. Like the proposed project, each cumulative project would be required to adhere to current CBC requirements, which would reduce the potential for adverse effects occurring from any presence of expansive soils. Therefore, the proposed project would not have a cumulatively considerable contribution to this impact and cumulative impacts would be considered less than significant.

The proposed project would not include septic tanks or alternative wastewater disposal systems. As a result, there would be no cumulative impact related to this threshold. The ability of soils to adequately support the construction and installation of subsurface sewage disposal or septic systems is also site specific. Other projects in the area would also be required to adhere to all County Public Health Code requirements related to septic or other alternative wastewater disposal systems. Therefore, the project would not result in a cumulatively considerable contribution to this impact.

The proposed project would have the potential to indirectly destroy a unique paleontological resource or site or unique geologic feature during ground-disturbing activities. Potential cumulative impacts to paleontological resources would result from projects that combine to create an environment where fossils exposed on the surface are vulnerable to destruction by earthmoving equipment, looting by the public, and natural causes such as weathering and erosion. The majority of impacts to paleontological resources are site specific and are therefore generally mitigated on a project-by-project basis. Cumulative projects would be required to assess impacts to paleontological resources through the environmental review (CEQA) process. Additionally, as needed, projects would incorporate individual mitigation for site-specific geological units present on each individual project site. Furthermore, the proposed project does not include construction (including grading/excavation) or design features that could directly or indirectly contribute to an increase in a cumulative impact to paleontological resources, because the implementation of MM-GEO-1 (Paleontological Resources Impact Mitigation Program) would ensure that any significant paleontological resources uncovered during project excavations would be properly analyzed and salvaged by the on-site paleontological monitor. Therefore, the project would result in less-than-cumulatively considerable impacts to paleontological resources.

4.7.8 References

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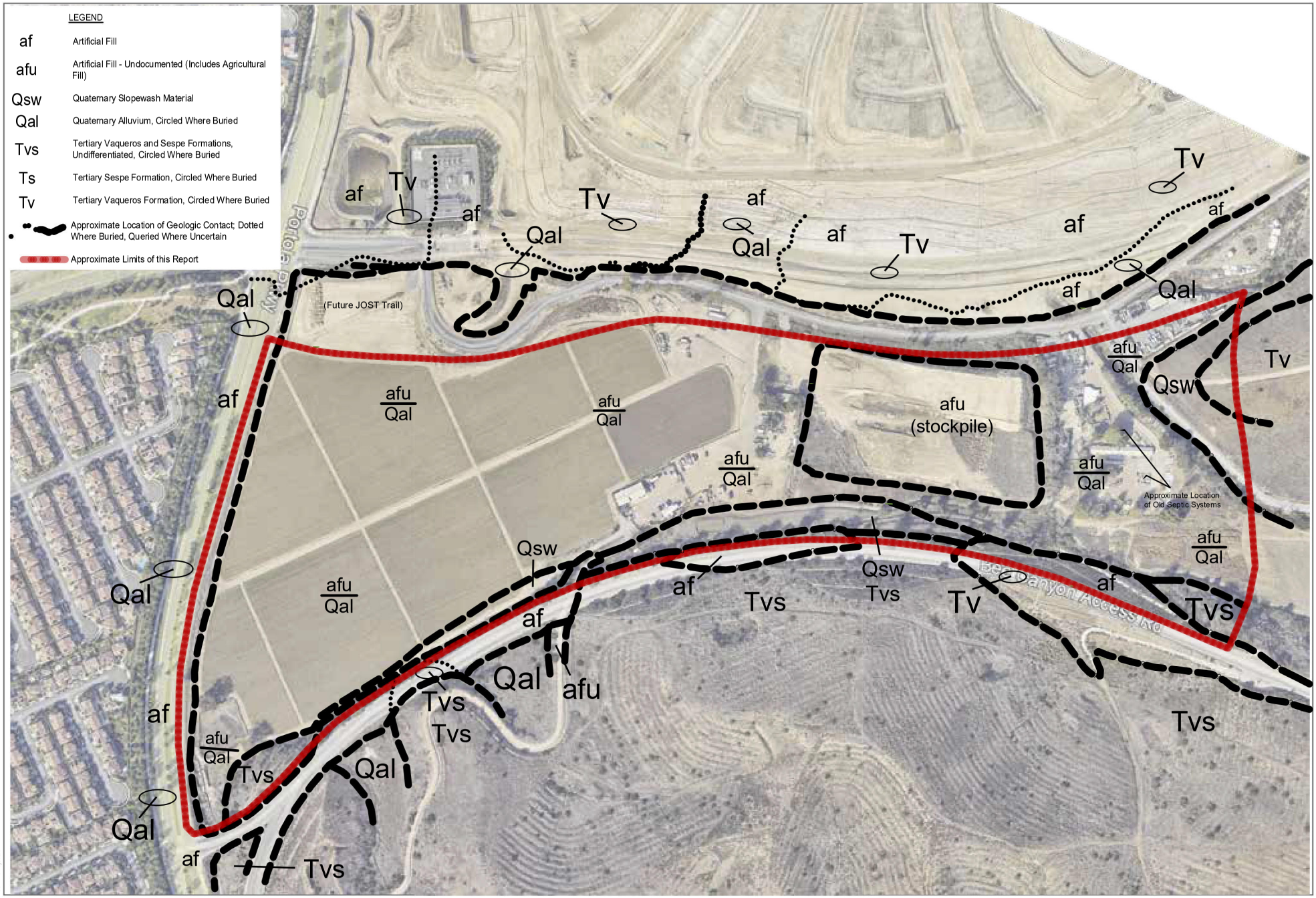
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SOURCE: LGC Geotechnical, Inc 2024

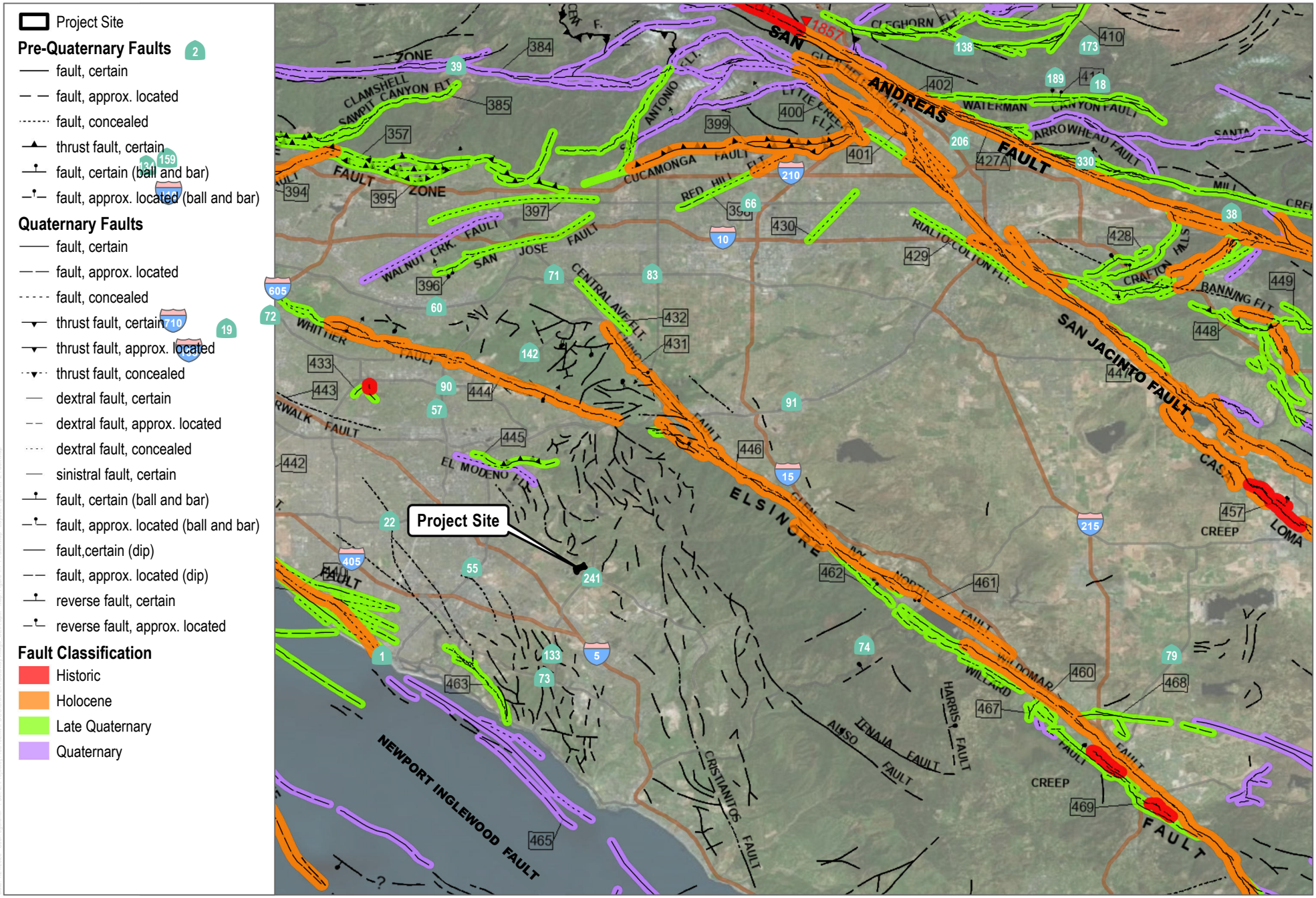
FIGURE 4.7-1

Geologic Map

Irvine Gateway Village Project EIR

DUDEK

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SOURCE: Bing Maps (Accessed: 2025); USGS 2024; California Department of Conservation 2024

DUDEK

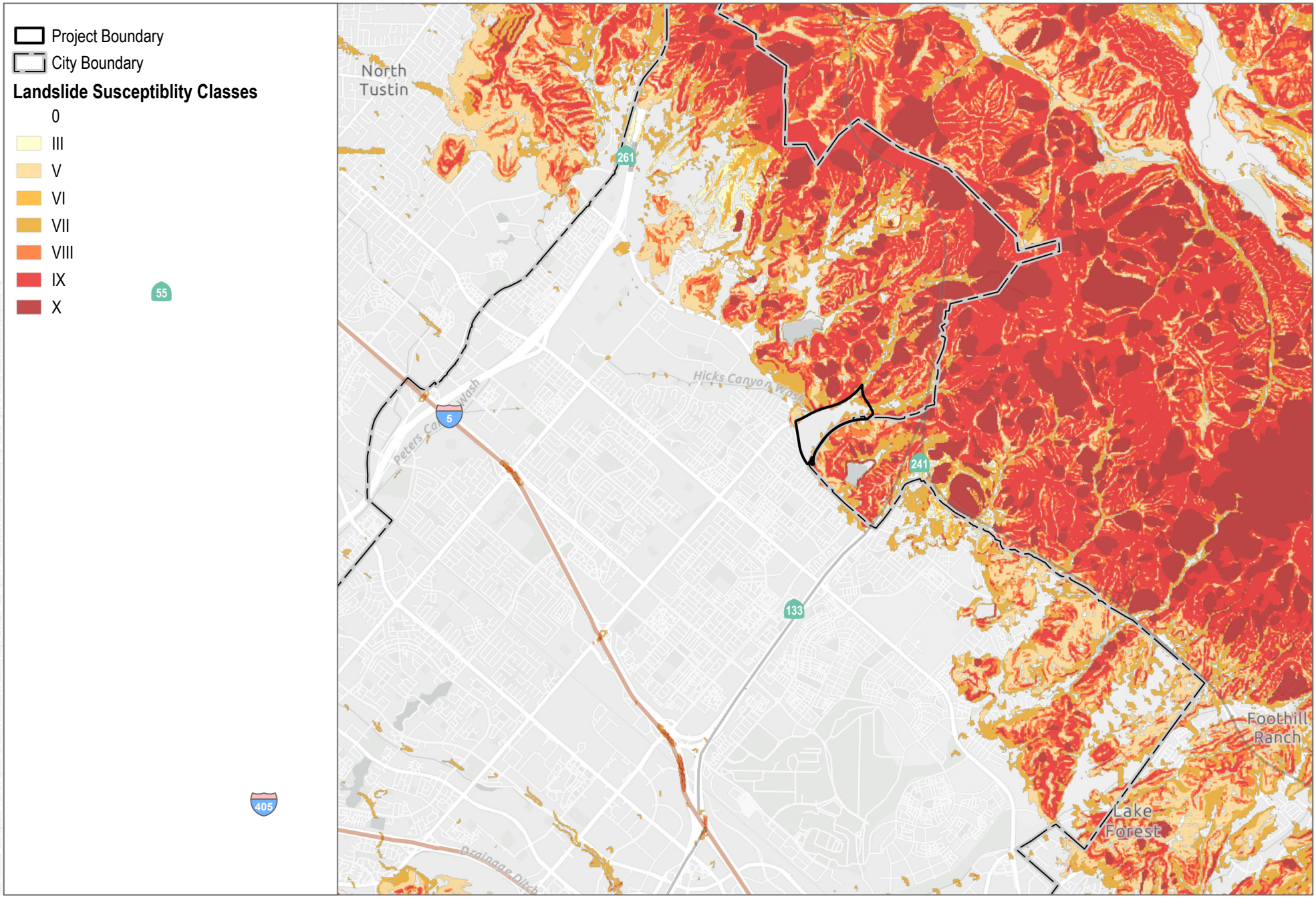
0 4.625 9.25 Miles

FIGURE 4.7-2

Fault Map

Irvine Gateway Village Project EIR

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SOURCE: Esri 2023; California Department of Conservation 2025

DUDEK

0 2,500 5,000 Feet

FIGURE 4.7-3

Deep-Seated Landslide Susceptibility Map

Irvine Gateway Village Project EIR

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4.8 Greenhouse Gas Emissions

This section describes the existing conditions related to greenhouse gas (GHG) emissions, identifies associated regulatory requirements, includes project design features (PDFs), evaluates potential impacts, and identifies mitigation measures related to implementation of the proposed project. The analysis included in this section is based on the findings of the documents listed below, as well as publicly available information referenced throughout this section. Sources used for this section include the following:

- **Appendix B-1:** Air Quality and Greenhouse Gas Emissions Modeling and Energy Estimates; prepared by Dudek; dated March 2025

4.8.1 Existing Conditions

The Greenhouse Effect

Climate change refers to any significant change in measures of climate, such as temperature, precipitation, or wind patterns, lasting for an extended period (i.e., decades or longer). The Earth's temperature depends on the balance of energy entering and leaving the planet's system. Many factors, both natural and human, can cause changes in Earth's energy balance, including variations in the Sun's energy reaching Earth, changes in the reflectivity of Earth's atmosphere and surface, and changes in the greenhouse effect, which affects the amount of heat retained by Earth's atmosphere (EPA 2023).

The greenhouse effect is the trapping and buildup of heat in the atmosphere (troposphere) near the Earth's surface. The greenhouse effect traps heat in the troposphere through a threefold process as follows: Short-wave radiation emitted by the Sun is absorbed by the Earth, the Earth emits a portion of this energy in the form of long-wave radiation, and GHGs in the upper atmosphere absorb this long-wave radiation and emit it into space and toward the Earth. The greenhouse effect is a natural process that contributes to regulating the Earth's temperature and creates a pleasant, livable environment on Earth. Human activities that emit additional GHGs to the atmosphere increase the amount of infrared radiation that gets absorbed before escaping into space, thus enhancing the greenhouse effect, and causing the Earth's surface temperature to rise.

The scientific record of the Earth's climate shows that the climate system varies naturally over a wide range of time scales and that, in general, climate changes prior to the Industrial Revolution in the 1700s can be explained by natural causes such as changes in solar energy, volcanic eruptions, and natural changes in GHG concentrations. However, recent climate changes—in particular, the warming observed over the past century—cannot be explained by natural causes alone. Rather, it is extremely likely that human activities have been the dominant cause of that warming since the mid-twentieth century and is the most significant driver of observed climate change (IPCC 2013; EPA 2023). Human influence on the climate system is evident from the increasing GHG concentrations in the atmosphere, radiation, observed warming, and improved understanding of the climate system (IPCC 2013). The atmospheric concentrations of GHGs have increased to levels unprecedented in the last 800,000 years, primarily from fossil fuel emissions and secondarily from emissions associated with land use changes (IPCC 2013). Continued emissions of GHGs will cause further warming and changes in all components of the climate system.

Greenhouse Gases

A GHG is any gas that absorbs infrared radiation in the atmosphere; in other words, GHGs trap heat in the atmosphere. As defined in California Health and Safety Code, Section 38505(g), for purposes of administering many of the state's primary GHG emission reduction programs, GHGs include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride (NF_3) (see also the California Environmental Quality Act [CEQA] Guidelines Section 15364.5). Some GHGs, such as CO_2, CH_4, and N_2O, occur naturally and are emitted into the atmosphere through natural processes and human activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Manufactured GHGs, which have a much greater heat-absorption potential than CO_2, include fluorinated gases, such as HFCs, PFCs, and SF_6, which are associated with certain industrial products and processes. The following paragraphs provide a summary of the most common GHGs and their sources.[1]

Carbon Dioxide. CO_2 is a naturally occurring gas and a by-product of human activities and is the principal anthropogenic (i.e., caused by human activity) GHG that affects the Earth's radiative balance. Natural sources of CO_2 include respiration of bacteria, plants, animals, and fungus; evaporation from oceans; volcanic outgassing; and decomposition of dead organic matter. Human activities that generate CO_2 are those that involve the combustion of fuels such as coal, oil, natural gas, and wood and changes in land use.

Methane. CH_4 is produced through both natural and human activities. CH_4 is a flammable gas and is the main component of natural gas. CH_4 is produced through anaerobic (without oxygen) decomposition of waste in landfills, flooded rice fields, animal digestion, decomposition of animal wastes, production and distribution of natural gas and petroleum, coal production, and incomplete fossil fuel combustion.

Nitrous Oxide. N_2O is produced through natural and human activities, mainly through agricultural activities and natural biological processes, although fuel burning and other processes also create N_2O. Sources of N_2O include soil cultivation practices (microbial processes in soil and water), especially the use of commercial and organic fertilizers; manure management; industrial processes (such as in nitric acid production, nylon production, and fossil-fuel-fired power plants); vehicle emissions; and use of N_2O as a propellant (e.g., for rockets, racecars, and aerosol sprays).

Fluorinated Gases. Fluorinated gases (also referred to as F-gases) are powerful synthetic GHGs emitted from many industrial processes. Fluorinated gases are commonly used as substitutes for stratospheric ozone (O_3) depleting substances (e.g., chlorofluorocarbons [CFCs], hydrochlorofluorocarbons [HCFCs], and halons). The most prevalent fluorinated gases include the following:

- **Hydrofluorocarbons:** HFCs are compounds containing only hydrogen, fluorine, and carbon atoms. HFCs are synthetic chemicals used as alternatives to O_3-depleting substances in serving many industrial, commercial, and personal needs. HFCs are emitted as by-products of industrial processes and are used in manufacturing.
- **Perfluorocarbons:** PFCs are a group of human-made chemicals composed of carbon and fluorine only. These chemicals were introduced as alternatives, with HFCs, to the O_3-depleting substances. The two main sources of PFCs are primarily aluminum production and semiconductor manufacturing. Because PFCs have stable molecular structures and do not break down through the chemical processes in the lower atmosphere, these chemicals have long lifetimes, ranging between 10,000 and 50,000 years.

[1] The descriptions of GHGs are summarized from the Intergovernmental Panel on Climate Change (IPCC) Second Assessment Report (IPCC 1995), IPCC Fourth Assessment Report (IPCC 2007), CARB's GHG Inventory Glossary (CARB 2025a), and EPA's Glossary of Climate Change Terms (EPA 2024a).

- **Sulfur Hexafluoride:** SF_6 is a colorless gas that is soluble in alcohol and ether and slightly soluble in water. SF_6 is used for insulation in electric power transmission and distribution equipment, semiconductor manufacturing, the magnesium industry, and as a tracer gas for leak detection.
- **Nitrogen Trifluoride:** NF_3 is used in the manufacture of a variety of electronics, including semiconductors and flat-panel displays.

Chlorofluorocarbons. CFCs are synthetic chemicals that were used as cleaning solvents, refrigerants, and aerosol propellants. CFCs are chemically unreactive in the lower atmosphere (troposphere) and the production of CFCs was prohibited in 1987 due to the chemical destruction of stratospheric O_3.

Hydrochlorofluorocarbons. HCFCs are a large group of compounds whose structure is very close to that of CFCs—containing hydrogen, fluorine, chlorine, and carbon atoms—but includes one or more hydrogen atoms. Like HFCs, HCFCs are used in refrigerants and propellants. HCFCs were also used in place of CFCs for some applications; however, their use in general is being phased out.

Black Carbon. Black carbon is a component of fine particulate matter ($PM_{2.5}$), which has been identified as a leading environmental risk factor for premature death. It is produced from the incomplete combustion of fossil fuels and biomass burning, particularly from older diesel engines and forest fires. Black carbon warms the atmosphere by absorbing solar radiation, influences cloud formation, and darkens the surface of snow and ice, which accelerates heat absorption and melting. Black carbon is a short-lived species that varies spatially, which makes it difficult to quantify its global warming potential (GWP). Diesel particulate matter emissions are a major source of black carbon and are toxic air contaminants that have been regulated and controlled in California for several decades to protect public health. In relation to declining diesel particulate matter from the CARB regulations pertaining to diesel engines, diesel fuels, and burning activities, CARB estimates that annual black carbon emissions in California were reduced by 70% between 1990 and 2010, with 95% control expected by 2020 (CARB 2014).

Water Vapor. The primary source of water vapor is evaporation from the ocean, with additional vapor generated by sublimation (change from solid to gas) from ice and snow, evaporation from other water bodies, and transpiration from plant leaves. Water vapor is the most important, abundant, and variable GHG in the atmosphere and maintains a climate necessary for life.

Ozone. Tropospheric O_3, which is created by photochemical reactions involving gases from both natural sources and human activities, acts as a GHG. Stratospheric O_3, which is created by the interaction between solar ultraviolet radiation and molecular oxygen (O_2), plays a decisive role in the stratospheric radiative balance. Depletion of stratospheric O_3, due to chemical reactions that may be enhanced by climate change, results in an increased ground-level flux of ultraviolet-B radiation.

Aerosols. Aerosols are suspensions of particulate matter in a gas emitted into the air through burning biomass (plant material) and fossil fuels. Aerosols can warm the atmosphere by absorbing and emitting heat and can cool the atmosphere by reflecting light.

Global Warming Potential

Gases in the atmosphere can contribute to climate change both directly and indirectly. Direct effects occur when the gas itself absorbs radiation. Indirect radiative forcing occurs when chemical transformations of the substance produce other GHGs, when a gas influences the atmospheric lifetimes of other gases, and/or when a gas affects atmospheric processes that alter the radiative balance of the Earth (e.g., affect cloud formation or albedo) (EPA

2025). The Intergovernmental Panel on Climate Change (IPCC) developed the GWP concept to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The GWP of a GHG is defined as the ratio of the time-integrated radiative forcing from the instantaneous release of 1 kilogram of a trace substance relative to that of 1 kilogram of a reference gas (IPCC 2014). The reference gas used is CO_2; therefore, GWP-weighted emissions are measured in metric tons (MT) of CO_2 equivalent (CO_2e).

The California Emissions Estimator Model (CalEEMod) (version 2022.1.1.29; CAPCOA 2022) assumes that the GWP for CH_4 is 25 (so emissions of 1 MT of CH_4 are equivalent to emissions of 25 MT of CO_2), and the GWP for N_2O is 298, based on the IPCC Fourth Assessment Report (IPCC 2007). The GWP values identified in CalEEMod were applied to the project.

Contributions to Greenhouse Gas Emissions

Per the 2024 EPA Inventory of U.S. GHG Emissions and Sinks: 1990–2022, total U.S. GHG emissions were approximately 6,343 million metric tons (MMT) CO_2e in 2022 (EPA 2024b). The primary GHG emitted by human activities in the United States was CO_2, which represented approximately 79.7% of total GHG emissions (5,053 MMT CO_2e). The largest source of CO_2, and of overall GHG emissions, was fossil-fuel combustion, which accounted for approximately 93.0% of CO_2 emissions in 2022 (4,699 MMT CO_2e). Relative to the 1990 emissions level, gross U.S. GHG emissions in 2022 were 3.0% lower. GHG emissions increased from 2021 to 2022 by 0.2% (14.4 MMT CO_2e) and, overall, net emissions in 2022 were 15.4% below 2005 levels (EPA 2024b).

According to California's 2000 to 2022 GHG emissions inventory (2024 edition), California emitted 371.1 MMT CO_2e in 2022, including emissions resulting from out-of-state electrical generation (CARB 2024). The sources of GHG emissions in California include transportation, industry, electric power production from both in-state and out-of-state sources, residential and commercial activities, agriculture, high GWP substances, and recycling and waste. The California GHG emission source categories and their relative contributions in 2022 are presented in Table 4.8-1.

Table 4.8-1. GHG Emissions Sources in California

Source Category	Annual GHG Emissions (MMT CO_2e)	Percent of Total[a]
Transportation	139.9	37.7%
Industrial	72.7	19.6%
Electricity (in state)	42.2	11.4%
Electricity (imports)	17.5	4.7%
Agriculture	29.8	8.0%
Residential	24.7	6.6%
Commercial	14.8	4.0%
High global-warming potential substances	21.3	5.7%
Recycling and waste	8.2	2.2%
Total[a]	**371.1**	**100%**

Source: CARB 2024.
Notes: GHG = greenhouse gas; MMT CO_2e = million metric tons of carbon dioxide equivalent.
[a] Totals may not sum precisely due to rounding.

According to its draft GHG inventory, the City of Irvine (City), as a community, emitted over 2.25 MMT CO_2e in 2019, excluding emissions from municipal sources, which make up less than 1% of total community emissions (City of Irvine 2023). The sources of GHG emissions in the City include on-road transportation, nonresidential building energy, solid waste, off-road vehicles and equipment, water supply, and wastewater treatment. The City GHG emission source categories and their relative contributions in 2019 are presented in Table 4.8-2.

Table 4.8-2. GHG Emissions Sources in the City of Irvine

Source Category	Annual GHG Emissions (MT CO_2e)	Percent of Total[a]
On-road transportation	1,144,205	51%
Nonresidential building energy	550,138	24%
Residential building energy	291,405	13%
Solid waste	160,626	7%
Off-road vehicles and equipment	68,756	3%
Water supply	30,798	1%
Wastewater treatment	5,665	<1%
Total[a]	**2,251,593**	**100%**

Source: City of Irvine 2023.
Notes: GHG = greenhouse gas; MT CO_2e = metric tons of carbon dioxide equivalent.
[a] Totals may not sum precisely due to rounding.

Potential Effects of Climate Change

Globally, climate change has the potential to affect numerous environmental resources through uncertain impacts related to future air temperatures and precipitation patterns. The 2014 IPCC Synthesis Report (IPCC 2014) indicated that warming of the climate system is unequivocal and that many of the changes observed since the 1950s are unprecedented over decades to millennia. Signs that global climate change has occurred include warming of the atmosphere and ocean, diminished amounts of snow and ice, rising sea levels, and ocean acidification (IPCC 2014).

In California, climate change impacts have the potential to affect sea-level rise, agriculture, snowpack and water supply, forestry, wildfire risk, public health, frequency of severe weather events, and electricity demand and supply. The primary effect of global climate change has been a rise in average global tropospheric temperature. Global surface temperature in the first two decades of the twenty-first century (2001–2020) was 0.99°C (0.84°C to 1.10°C) higher than surface temperatures from 1850 to 1900 (IPCC 2023). Global surface temperature has increased faster since 1970 than in any other 50-year period over at least the last 2000 years (IPCC 2023). Scientific modeling predicts that continued emissions of GHGs at or above current rates would induce more extreme climate changes during the twenty-first century than were observed during the twentieth century. Human activities, principally through emissions of GHGs, have unequivocally caused global warming, with global surface temperature reaching 1.1°C above 1850–1900 in 2011–2020 (IPCC 2023).

Although climate change is driven by global atmospheric conditions, climate change impacts are felt locally. A scientific consensus confirms that climate change is already affecting California. The State of California Office of Environmental Health Hazard Assessment identified various indicators of climate change in California, which are scientifically based measurements that track trends in various aspects of climate change. Many indicators reveal discernible evidence that climate change is occurring in California and is having significant, measurable impacts in the state. Changes in the state's climate have been observed, including an increase in annual average air temperature, more frequent extreme heat events, more extreme drought, a decline in winter chill, an increase in cooling degree days and a decrease in heating degree days, and an increase in variability of statewide precipitation (OEHHA 2022).

Warming temperatures and changing precipitation patterns have altered the physical systems—the ocean, lakes, rivers and snowpack—upon which California depends. Winter snowpack and spring snowmelt runoff from the Sierra Nevada and southern Cascade Mountains provide approximately one-third of the state's annual water supply. Impacts of climate on physical systems have been observed such as high variability of snow-water content (i.e., amount of water stored in snowpack), decrease in spring snowmelt runoff, glacier change (loss in area), rise in sea levels, increase in average lake water temperature and coastal ocean temperature, and a decrease in dissolved oxygen in coastal waters (OEHHA 2022).

Impacts of climate change on biological systems, including humans, wildlife, and vegetation, have also been observed, including climate change impacts on terrestrial, marine, and freshwater ecosystems. As with global observations, species responses include those consistent with warming: elevational or latitudinal shifts in range, changes in the timing of key plant and animal life cycle events, and changes in the abundance of species and in community composition. Humans are better able to adapt to a changing climate than plants and animals in natural ecosystems. Nevertheless, climate change poses a threat to public health because warming temperatures and changes in precipitation can affect vector-borne pathogen transmission and disease patterns in California, as well as because of the potential increase in heat-related deaths and illnesses. In addition, since 1950, the area burned by wildfires each year has been increasing.

The California Natural Resources Agency (CNRA) has released four California Climate Change Assessments (in 2006, 2009, 2012, and 2018), which have addressed the following: acceleration of warming across the state, more intense and frequent heat waves, greater riverine flows, accelerating sea level rise, more intense and frequent drought, more severe and frequent wildfires, more severe storms and extreme weather events, shrinking snowpack and less overall precipitation, ocean acidification, hypoxia,[2] and warming. To address local and regional governments' need for information to support action in their communities, the Fourth Assessment (CNRA 2018a) includes reports for nine regions of the state, including the Los Angeles Region, which includes Orange County, where the project site is located. Key projected climate changes for the Los Angeles Region include the following (CNRA 2018a):

- Continued future warming over the Los Angeles Region. Across the region, average maximum temperatures are projected to increase around 4°F to 5°F by the mid-century, and 5°F to 8°F by the late century.
- Extreme temperatures are also expected to increase. The hottest day of the year may be up to 10°F warmer for many locations across the Los Angeles Region by the late century under certain model scenarios. The number of extremely hot days is also expected to increase across the region.
- Despite small changes in average precipitation, dry and wet extremes are both expected to increase. By the late twenty-first century, the wettest day of the year is expected to increase across most of the Los Angeles Region, with some locations experiencing 25% to 30% increases under certain model scenarios. Increased frequency and severity of atmospheric river events are also projected to occur for this region.
- Sea levels are projected to continue to rise in the future, but there is a large range based on emissions scenario and uncertainty. Roughly 1 foot to 2 feet of sea level rise is projected by the mid-century, and the most extreme projections lead to 8 feet to 10 feet of sea level rise by the end of the century.
- Projections indicate that the number of wildfires may increase over Southern California, but there remains uncertainty in quantifying future changes of burned area over the Los Angeles Region.

[2] Hypoxia is the state in which oxygen is not available in sufficient amounts at the tissue level to maintain a stable internal environment in the body.

4.8.2 Relevant Plans, Policies, and Ordinances

Federal

Massachusetts v. EPA

In *Massachusetts v. EPA* (April 2007), the U.S. Supreme Court directed the U.S. Environmental Protection Agency (EPA) administrator to determine whether GHG emissions from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. In December 2009, the administrator signed a final rule with the following two distinct findings regarding GHGs under Section 202(a) of the Clean Air Act:

- The administrator found that elevated concentrations of GHGs—CO_2, CH_4, N_2O, HFCs, PFCs, and SF6—in the atmosphere threaten the public health and welfare of current and future generations. This is the "endangerment finding."
- The administrator further found the combined emissions of GHGs—CO_2, CH_4, N_2O, and HFCs—from new motor vehicles and new motor vehicle engines contribute to the GHG air pollution that endangers public health and welfare. This is the "cause or contribute finding."

These two findings were necessary to establish the foundation for regulation of GHGs from new motor vehicles as air pollutants under the Clean Air Act.

Energy Independence and Security Act

The Energy Independence and Security Act of 2007 (December 2007), among other key measures, would do the following, which would aid in the reduction of national GHG emissions:

- Increase the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard requiring fuel producers to use at least 36 billion gallons of biofuel in 2022.
- Set a target of 35 miles per gallon for the combined fleet of cars and light trucks by model year 2020 and direct the National Highway Traffic Safety Administration (NHTSA) to establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for work trucks.
- Prescribe or revise standards affecting regional efficiency for heating and cooling products and procedures for new or amended standards, energy conservation, energy efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances.

Federal Vehicle Standards

In response to the *Massachusetts v. EPA* ruling, the Bush administration issued Executive Order (EO) 13432 in 2007 directing EPA, the Department of Transportation, and the Department of Energy to establish regulations that reduce GHG emissions from motor vehicles, non-road vehicles, and non-road engines by 2008. In 2009, the National Highway Traffic Safety Administration (NHTSA) issued a final rule regulating fuel efficiency and GHG emissions from cars and light-duty trucks for model year 2011. In 2010, EPA and NHTSA issued a final rule regulating cars and light-duty trucks for model years 2012 through 2016 (75 FR 25324–25728).

In 2010, President Obama issued a memorandum directing the Department of Transportation, Department of Energy, EPA, and NHTSA to establish additional standards regarding fuel efficiency and GHG reduction, clean fuels, and advanced vehicle infrastructure. In response to this directive, EPA and NHTSA proposed stringent, coordinated federal GHG and fuel economy standards for model years 2017 through 2025 light-duty vehicles. The proposed standards projected to achieve 163 grams/mile of CO_2 in model year 2025, on an average industry fleet–wide basis, which is equivalent to 54.5 miles per gallon if this level were achieved solely through fuel efficiency. The final rule was adopted in 2012 for model years 2017 through 2021 (77 FR 62624–63200).

In addition to the regulations applicable to cars and light-duty trucks described above, in 2011, EPA and NHTSA announced fuel economy and GHG standards for medium- and heavy-duty trucks for model years 2014 through 2018. The standards for CO_2 emissions and fuel consumption are tailored to three main vehicle categories: combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles. According to EPA, this regulatory program will reduce GHG emissions and fuel consumption for the affected vehicles by 6% to 23% over the 2010 baselines (76 FR 57106–57513).

In August 2016, EPA and NHTSA announced the adoption of the Phase Two Program related to fuel economy and GHG standards for medium- and heavy-duty trucks. The Phase Two Program applies to vehicles with model year 2018 through 2027 for certain trailers and model years 2021 through 2027 for semi-trucks, large pickup trucks, vans, and all types of sizes of buses and work trucks. The Phase Two Program standards are expected to lower CO_2 emissions by approximately 1.1 billion MT and reduce oil consumption by up to 2 billion barrels over the lifetime of the vehicles sold under the program (EPA and NHTSA 2016).

On April 2, 2018, EPA, under administrator Scott Pruitt, reconsidered the final determination for light-duty vehicles and withdrew its previous 2017 determination, stating that the current standards may be too stringent and therefore should be revised as appropriate (83 FR 16077–16087).

In August 2018, EPA and NHTSA amended certain fuel economy and GHG standards for passenger cars and light trucks and established new standards for model years 2021 through 2026. Compared to maintaining the post-2020 standards then in place, the 2018 rulemaking would increase U.S. fuel consumption by about half a million barrels per day (2% to 3% of total daily consumption, according to the Energy Information Administration) and impact the global climate by 3/1000th of 1°C by 2100 (83 FR 42986–43500).

In 2019, EPA and NHTSA published the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program (84 FR 51310), which revoked California's authority to set its own GHG emissions standards and set zero-emission vehicle (ZEV) mandates in California. In March 2020, Part Two was issued, which set CO_2 emissions standards and Corporate Average Fuel Economy (CAFE) standards for passenger vehicles and light-duty trucks for model years 2021 through 2026.

In response to EO 13990, on December 21, 2021, NHTSA finalized the CAFE Preemption Rule to withdraw its portions of the Part One Rule. The final rule concluded that the Part One Rule overstepped the agency's legal authority and established overly broad prohibitions that did not account for a variety of important state and local interests.

In March 2022, NHTSA established new fuel economy standards that would require an industry-wide fleet average of approximately 49 miles per gallon for passenger cars and light trucks in model year 2026, by increasing fuel efficiency by 8% annually for model years 2024 and 2025, and 10% annually for model year 2026 (40 CFR Parts 85, 86, 600; 49 CFR Parts 523, 531, 533, 536, 537).

Inflation Reduction Act of 2022

The Inflation Reduction Act was signed into law by President Biden in August 2022. The act includes specific investment in energy and climate reform and is projected to reduce GHG emissions in the United States by 40% compared to 2005 levels by 2030. The act allocates funds to boost renewable energy infrastructure (e.g., solar panels and wind turbines), includes tax credits for the purchase of electric vehicles, and includes measures that will make homes more energy efficient. The Inflation Reduction Act confirms that reduction of GHGs is a core goal of the Clean Air Act and that the funding provided should allow EPA to increase the scope of its Clean Air Act rulemakings. The act also confirms applicability of the Inflation Reduction Act to GHGs in three specific areas: (1) California's ability to regulate GHG emissions from vehicles, (2) EPA's authority to regulate CH_4 emissions from oil and gas facilities, and (3) EPA's authority to regulate GHG emissions from power plants.

State

The statewide GHG emissions regulatory framework is summarized in this subsection by category: state climate change targets, building energy, renewable energy and energy procurement, mobile sources, solid waste, water, and other state regulations and goals. The following text describes EOs, legislation, regulations, and other plans and policies that would directly or indirectly reduce GHG emissions and/or address climate change issues.

California Climate Change Targets

Executive Order S-3-05

EO S-3-05 (June 2005) established the following statewide goals: GHG emissions should be reduced to 2000 levels by 2010, to 1990 levels by 2020, and to 80% below 1990 levels by 2050.

Assembly Bill 32

In furtherance of the goals identified in EO S-3-05, the State Legislature enacted Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006 (California Health and Safety Code Sections 38500–38599). AB 32 provided initial direction on creating a comprehensive multiyear program to limit California's GHG emissions at 1990 levels by 2020, and initiate the transformations required to achieve the state's long-range climate objectives.

Executive Order B-30-15

EO B-30-15 (April 2015) identified an interim GHG reduction target in support of targets previously identified under EO S-3-05 and AB 32. EO B-30-15 set an interim target goal of reducing statewide GHG emissions to 40% below 1990 levels by 2030 to keep California on its trajectory toward meeting or exceeding the long-term goal of reducing statewide GHG emissions to 80% below 1990 levels by 2050, as set forth in EO S-3-05.

Senate Bill 32 and Assembly Bill 197

Senate Bill (SB) 32 and AB 197 (enacted in 2016) are companion bills that set new statewide GHG reduction targets, made changes to CARB's membership, increased legislative oversight of CARB's climate change–based activities, and expanded dissemination of GHG and other air-quality-related emissions data to enhance transparency and accountability. More specifically, SB 32 codified the 2030 emissions reduction goal of EO B-30-15 by requiring CARB to ensure that statewide GHG emissions are reduced to 40% below 1990 levels by 2030. AB 197 established the Joint Legislative Committee on Climate Change Policies, consisting of at least three members of

the senate and three members of the assembly, to provide ongoing oversight over implementation of the state's climate policies. AB 197 also added two members of the legislature to CARB as nonvoting members, required CARB to make available and update (at least annually through its website) emissions data for GHGs, criteria air pollutants, and toxic air contaminants from reporting facilities and required CARB to identify specific information for GHG emissions-reduction measures when updating the Scoping Plan.

Senate Bill 605 and Senate Bill 1383

SB 605 (2014) required CARB to complete a comprehensive strategy to reduce emissions of short-lived climate pollutants (SLCPs) in the state, and SB 1383 (2016) required CARB to approve and implement the SLCP Reduction Strategy. SB 1383 also established specific targets for the reduction of SLCPs (40% below 2013 levels by 2030 for CH_4 and HFCs, and 50% below 2013 levels by 2030 for anthropogenic black carbon) and provided direction for reductions from dairy and livestock operations and landfills. Accordingly, and as mentioned above, CARB adopted its SLCP Reduction Strategy in March 2017, which established a framework for the statewide reduction of emissions of black carbon, CH_4, and fluorinated gases.

Executive Order B-55-18

EO B-55-18 (September 2018) established a new statewide goal "to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter." This executive order directed CARB to "work with relevant state agencies to ensure future Scoping Plans identify and recommend measures to achieve the carbon neutrality goal."

Assembly Bill 1279

AB 1279 (2022) establishes that it is the policy of the state to achieve carbon neutrality as soon as possible, but no later than 2045; to maintain net negative GHG emissions thereafter; and to ensure that, by 2045, statewide anthropogenic GHG emissions are reduced to at least 85% below 1990 levels.

Climate Change Scoping Plan

One specific requirement of AB 32 is for CARB to prepare a scoping plan to help achieve the maximum technologically feasible and cost-effective GHG emission reductions by 2020 (California Health and Safety Code Section 38561[a]) and to update the plan at least once every 5 years. In 2008, CARB approved the first scoping plan: The Climate Change Scoping Plan: A Framework for Change (Scoping Plan). The Scoping Plan included a mix of recommended strategies that combined direct regulations, market-based approaches, voluntary measures, policies, and other emission-reduction programs calculated to meet the 2020 statewide GHG emission limit and initiate the transformations needed to achieve the state's long-range climate objectives.

In 2014, CARB adopted the First Update to the Climate Change Scoping Plan: Building on the Framework (First Update). The stated purpose of the First Update is to "highlight California's success to date in reducing its GHG emissions and lay the foundation for establishing a broad framework for continued emission reductions beyond 2020, on the path to 80% below 1990 levels by 2050" (CARB 2014). The First Update found that California was on track to meet the 2020 emissions reduction mandate established by AB 32 and noted that California could reduce emissions further by 2030 to levels squarely in line with those needed to stay on track to reduce emissions to 80% below 1990 levels by 2050 if the state realizes the expected benefits of existing policy goals.

In December 2017, CARB adopted the 2017 Climate Change Scoping Plan Update (Second Update) (CARB 2017). This update identifies CARB's strategy for achieving the state's 2030 GHG target as established in SB 32 (discussed below), including continuing the cap-and-trade program through 2030. The Second Update incorporated approaches to cutting SLCPs under the SLCP Reduction Strategy (adopted by CARB in March 2017), acknowledged the need for reducing emissions in agriculture, and highlighted the work underway to ensure that California's natural and working lands increasingly sequester carbon. When discussing project-level GHG emissions-reduction actions and thresholds, the Second Update stated, "Achieving net zero increases in GHG emissions, resulting in no contribution to GHG impacts, may not be feasible or appropriate for every project, however, and the inability of a project to mitigate its GHG emissions to net zero does not imply the project results in a substantial contribution to the cumulatively significant environmental impact of climate change under CEQA" (CARB 2017).

The most recent update adopted by CARB in November 2022, the 2022 Scoping Plan, outlines the state's plan to reduce emissions and achieve carbon neutrality by 2045 in alignment with AB 1279 and assesses progress toward the 2030 SB 32 target (CARB 2022). The 2022 Scoping Plan builds upon and accelerates programs currently in place, including moving to zero-emission transportation; phasing out use of fossil gas use for heating homes and buildings; reducing chemical and refrigerants with high GWP; providing communities with sustainable options for walking, biking, and public transit; and displacement of fossil-fuel-fired electrical generation through use of renewable energy alternatives (e.g., solar arrays and wind turbines) (CARB 2022). Appendix D of the 2022 Scoping Plan outlines local actions that residential and mixed-use projects can implement to address their largest sources of emissions including transportation electrification, vehicle miles traveled (VMT) reduction, and building decarbonization. CARB identifies these three sources as "Priority Areas" given that they represent those with the highest GHG reduction potential and GHG reduction opportunities for which local governments and agencies have the most authority (CARB 2022). The 2045 carbon neutrality goal required CARB to expand proposed actions in the 2022 Scoping Plan to include those that capture and store carbon in addition to those that reduce only human-caused sources of GHG emissions.

Many of the measures and programs included in the 2022 Scoping Plan would result in the reduction of project-related GHG emissions with no action required at the project level, including GHG emission reductions through increased energy efficiency and renewable energy production (SB 350), reduction in carbon intensity of transportation fuels through the Low Carbon Fuel Standard (LCFS) Program, and the accelerated efficiency and electrification of the statewide vehicle fleet (Mobile Source Strategy). Notably, the 2022 Scoping Plan emphasizes that reliance on carbon sequestration in the state's natural and working lands will not be sufficient to address residual GHG emissions, and achieving carbon neutrality will require research, development, and deployment of additional methods to capture atmospheric GHG emissions (e.g., mechanical direct air capture). The 2022 Scoping Plan details "Local Actions" in Appendix D. The Local Actions include recommendations intended to build momentum for local government actions that align with the state's climate goals, with a focus on local GHG reduction strategies (commonly referred to as "climate action planning") and approval of new land use development projects, including through environmental review under CEQA. The recommendations provided in Appendix D are non-binding and should not be interpreted as a directive to local governments, but rather as evidence-based analytical tools to assist local governments with their role as essential partners in achieving California's climate goals.[3] Appendix D recognizes consistency with a CEQA-qualified GHG reduction plan such as a Climate Action Plan as a preferred option for evaluating potential GHG emission impacts under CEQA. Absent a qualified GHG reduction plan, Appendix D provides recommendations for key attributes that residential and mixed-use projects should

[3] The threshold approaches outlined in the 2022 Scoping Plan, Appendix D, are recommendations only and are not requirements; they do not supplant lead agencies' discretion to develop their own evidence-based approaches for determining whether a project would have a potentially significant impact on GHG emissions (CARB 2022).

achieve that would align with the state's climate goals, including electric vehicle (EV) charging infrastructure, infill location, no loss or conversion of natural and working lands, transit-supportive densities or proximity to transit stops, reducing parking requirements, provision of affordable housing (20% of units), and all-electric appliances with no natural gas connection (CARB 2022). Projects that achieve all key attributes are considered clearly consistent with the state's climate and housing goals and would have a less-than-significant GHG impact under CEQA (CARB 2022). However, projects that do not achieve all attributes are not considered to result in a potentially significant GHG emission impact. Additional potential threshold options identified when a CEQA-qualified GHG reduction plan is not available included a net-zero threshold and use of air district–recommended thresholds of significance. However, per the CARB Scoping Plan, although net-zero targets can often be valuable and achievable, targets should be considered in the larger context of these goals, and any GHG targets on a local scale should take into consideration the actions and outcomes included in this Scoping Plan (CARB 2022). The CARB Scoping Plan states that jurisdictions considering "net zero" targets should carefully consider the implications such targets may have on emissions in neighboring communities and the ability of the state to meet collective targets (CARB 2022).

Building Energy

Title 24, Part 6 of the California Code of Regulations

Title 24 of the California Code of Regulations was established in 1978 and serves to enhance and regulate California's building standards. While not initially promulgated to reduce GHG emissions, Part 6 of Title 24 specifically establishes Building Energy Efficiency Standards that are designed to ensure that new and existing buildings in California achieve energy efficiency and preserve outdoor and indoor environmental quality. These energy efficiency standards are reviewed every few years by the Building Standards Commission and the California Energy Commission (CEC) (and revised if necessary) (PRC Section 25402[b][1]). The regulations receive input from members of industry, as well as the public, with the goal of "reducing of wasteful, uneconomic, inefficient, or unnecessary consumption of energy" (PRC Section 25402). These regulations are carefully scrutinized and analyzed for technological and economic feasibility (PRC Section 25402[d]) and cost effectiveness (PRC Sections 25402[b][2] and [b][3]). These standards are updated to consider and incorporate new energy-efficient technologies and construction methods. As a result, these standards save energy, increase electricity supply reliability, increase indoor comfort, avoid the need to construct new power plants, and help preserve the environment. The 2022 standards went into effect on January 1, 2023. The 2025 standards, adopted in September 2024, will go into effect on January 1, 2026.

Title 24, Part 11 of the California Code of Regulations

In addition to CEC's efforts, in 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (24 CCR 11) is commonly referred to as CALGreen and establishes minimum mandatory standards and voluntary standards pertaining to the planning and design of sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and interior air quality. The CALGreen standards took effect in January 2011 and instituted mandatory minimum environmental performance standards for all ground-up, new construction of commercial, low-rise residential, and state-owned buildings, schools, and hospitals. The CALGreen 2022 standards went into effect on January 1, 2023. The 2025 CALGreen proposed standards, adopted in September 2024, will go into effect on January 1, 2026.

Title 20 of the California Code of Regulations

Title 20 of the California Code of Regulations requires manufacturers of appliances to meet state and federal standards for energy and water efficiency. Performance of appliances must be certified through CEC to demonstrate compliance with standards. New appliances regulated under Title 20 include refrigerators, refrigerator-freezers, and freezers; room air conditioners and room air-conditioning heat pumps; central air conditioners; spot air conditioners; vented gas space heaters; gas pool heaters; plumbing fittings and plumbing fixtures; fluorescent lamp ballasts; lamps; emergency lighting; traffic signal modules; dishwashers; clothes washers and dryers; cooking products; electric motors; low voltage dry-type distribution transformers; power supplies; televisions and consumer audio and video equipment; and battery charger systems. Title 20 presents protocols for testing for each type of appliance covered under the regulations, and appliances must meet the standards for energy performance, energy design, water performance, and water design. Title 20 contains three types of standards for appliances: federal and state standards for federally regulated appliances, state standards for federally regulated appliances, and state standards for non-federally regulated appliances.

Assembly Bill 1470

This bill established the Solar Water Heating and Efficiency Act of 2007 (California Public Utilities Code Sections 2851–2869). The bill makes findings and declarations of the Legislature relating to the promotion of solar water heating systems and other technologies that reduce natural gas demand.

Assembly Bill 1109

Enacted in 2007, AB 1109 required CEC to adopt minimum energy efficiency standards for general-purpose lighting to reduce electricity consumption by 50% for indoor residential lighting and by 25% for indoor commercial lighting (PRC Section 25402.5.4).

Renewable Energy and Energy Procurement

Senate Bills 1078, X1-2, 350, 100, and 1020

SB 1078 (Sher) (September 2002) established the state's Renewables Portfolio Standard (RPS) program and required an annual increase in renewable generation by utilities equivalent to at least 1% of sales, with an aggregate goal of 20% by 2017. SB X1-2 expanded the RPS by establishing a renewable energy target of 20% of the total electricity sold to retail customers in California per year by December 31, 2013, and 33% by December 31, 2020, and in subsequent years. SB 350 (October 2015) further expanded the RPS by establishing a goal of 50% of the total electricity sold to retail customers in California per year to be sourced from eligible renewable sources by December 31, 2030. SB 100 (2018) increased, once again, the standards set forth in SB 350, establishing that 44% of the total electricity sold to retail customers in California per year by December 31, 2024, 52% by December 31, 2027, and 60% by December 31, 2030, be secured from qualifying renewable energy sources. SB 100 also states that it is the policy of the state that eligible renewable energy resources and zero-carbon resources supply 100% of the retail sales of electricity to California.

SB 1020 (September 2022) revises the standards from SB 100, requiring that the following percentages of retail sales of electricity to California end-use customers come from eligible renewable energy resources and zero-carbon resources: 90% by December 31, 2035; 95% by December 31, 2040; and 100% by December 31, 2045 (California Government Code Section 7921.505; California Health and Safety Code Section 38561; California Public Utilities Code Sections 454.53, 583, 454.59, 739.13).

Mobile Sources

Low Carbon Fuel Standard

CARB's LCFS Program is designed to decrease the carbon intensity of California's transportation fuel pool and provide a range of low-carbon and renewable fuel alternatives. CARB's implementing regulations originally were adopted in 2009, with the most recent program amendments approved in 2018. As most recently amended, the LCFS Program sets carbon intensity benchmarks for transportation fuels through calendar year 2030. The original target of the LCFS Program was to reduce the carbon intensity of California passenger vehicle fuels by at least 10% by 2020 (17 CCR 95480 et seq.), and the updated targets include reducing the carbon intensity of California's transportation fuel pool by 30% by 2030 and 90% by 2045.

Senate Bill 375

SB 375 (2008) addresses GHG emissions associated with the transportation sector through regional transportation and sustainability plans. SB 375 required CARB to adopt regional GHG reduction targets for the automobile and light-truck sector for 2020 and 2035. Regional metropolitan planning organizations were then responsible for preparing a Sustainable Communities Strategy (SCS) within their Regional Transportation Plan (RTP). The goal of the SCS is to establish a forecasted development pattern for the region that, after considering transportation measures and policies, would achieve, if feasible, the GHG reduction targets. If an SCS is unable to achieve the GHG reduction target, a metropolitan planning organization must prepare an Alternative Planning Strategy demonstrating how the GHG reduction target would be achieved through alternative development patterns, infrastructure, or additional transportation measures or policies.

Pursuant to California Government Code Section 65080(b)(2)(K), an SCS does not (i) regulate the use of land; (ii) supersede the land use authority of cities and counties; or (iii) require that a city's or county's land use policies and regulations, including those in a general plan, be consistent with it. Nonetheless, SB 375 makes regional and local planning agencies responsible for developing those strategies as part of the federally required metropolitan transportation planning process and the state-mandated housing element process. Unlike AB 32, the California Global Warming Solutions Act of 2006, with its market mechanisms that generate cap-and-trade auction proceeds to the state for reinvestment, SB 375 does not provide any new financial resources to make the production and preservation of affordable homes near transit feasible.

Advanced Clean Cars Program and Zero-Emissions Vehicle Program

CARB's Advanced Clean Cars (ACC) I program (as adopted in January 2012) is an emissions-control program for model years 2015 through 2025. The program combines the control of smog- and soot-causing pollutants and GHG emissions into a single coordinated package of regulations: the low-emission vehicle regulation for criteria air pollutant and GHG emissions and a technology forcing regulation for zero-emission vehicles (ZEV) that contributes to both types of emission reductions (CARB 2025b). The package includes elements to reduce smog-forming pollution, reduce GHG emissions, promote clean cars, and provide fuels for clean cars. It was estimated that, in 2025, cars would emit 75% less smog-forming pollution than the average new car sold in 2015. The ZEV program acted as the focused technology of the ACC I program by requiring manufacturers to produce increasing numbers of ZEVs and plug-in hybrid EVs in the 2018 to 2025 model years.

CARB's ACC II program (August 2022) established the next set of low-emission vehicle and zero-emission vehicle requirements for model years after 2025 to contribute to meeting federal ambient air quality 0_3 standards and California's carbon neutrality standards (CARB 2025b). The main objectives of ACC II are as follows:

- Maximize criteria and GHG emission reductions through increased stringency and real-world reductions.
- Accelerate the transition to ZEVs through both increased stringency of requirements and associated actions to support wide-scale adoption and use.

The ACC II rulemaking package also considers technological feasibility, environmental impacts, equity, economic impacts, and consumer impacts.

Executive Order N-79-20

EO N-79-20 (September 2020) requires CARB to develop regulations as follows: (1) passenger vehicle and truck regulations requiring increasing volumes of new ZEVs sold in the state toward the target of 100% of in-state sales by 2035; (2) medium- and heavy-duty vehicle regulations requiring increasing volumes of new zero-emission trucks and buses sold and operated in the state toward the target of 100% of the fleet transitioning to ZEVs by 2045 everywhere feasible, and for all drayage trucks to be zero emission by 2035; and (3) strategies, in coordination with other state agencies, EPA, and local air districts, to achieve 100% zero emissions from off-road vehicles and equipment operations in the state by 2035. EO N-79-20 called for the development of a ZEV Market Development Strategy, which was released in February 2021, to be updated every 3 years, that ensures coordination and implementation of the EO, and outlines actions to support new and used ZEV markets. In addition, the EO specifies identification of near-term actions and investment strategies to improve clean transportation, sustainable freight, and transit options, and calls for development of strategies, recommendations, and actions by July 15, 2021, to manage and expedite the responsible closure and remediation of former oil extraction sites as the state transitions to a carbon-neutral economy.

Advanced Clean Trucks Regulation

The Advanced Clean Trucks Regulation was approved by CARB in 2020. The purpose of the Advanced Clean Trucks Regulation is to accelerate the market for ZEVs in the medium- and heavy-duty truck sector and to reduce air pollutant emissions generated from on-road mobile sources (CARB 2025c). The regulation has two components, (1) a manufacturer sales requirement and (2) a reporting requirement:

1. **Zero-Emission Truck Sales:** Manufacturers who certify Class 2b–8 chassis or complete vehicles with combustion engines will be required to sell zero-emission trucks as an increasing percentage of their annual California sales from 2024 to 2035. By 2035, zero-emission truck/chassis sales would need to be 55% of Class 2b–3 truck sales, 75% of Class 4–8 straight truck sales, and 40% of truck tractor sales.
2. **Company and Fleet Reporting:** Large employers including retailers, manufacturers, brokers, and others will be required to report information about shipments and shuttle services. Fleet owners, with 50 or more trucks, will be required to report about their existing fleet operations. This information will help identify future strategies to ensure that fleets purchase available zero-emission trucks and place them in service where suitable to meet their needs.

Senate Bill 350

In 2015, SB 350—the Clean Energy and Pollution Reduction Act—was enacted into law. As one of its elements, SB 350 established a statewide policy for widespread electrification of the transportation sector, recognizing that such electrification is required for achievement of the state's 2030 and 2050 reduction targets (see California Public Utilities Code, Section 740.12).

Executive Order B-48-18

EO B-48-18 (2018) launched an 8-year initiative to accelerate the sale of EVs through a mix of rebate programs and infrastructure improvements. The order also set a new EV target of 5 million EVs in California by 2030. EO B- 48- 18 included funding for multiple state agencies, including CEC, to increase EV charging infrastructure and for CARB to provide rebates for the purchase of new EVs and purchase incentives for low-income customers.

Solid Waste

Assembly Bills 939, 341, and 1826 and Senate Bill 1383

In 1989, AB 939, known as the Integrated Waste Management Act (PRC Section 40000 et seq.), was passed because of the increase in waste stream and the decrease in landfill capacity. The statute established the California Integrated Waste Management Board (replaced in 2010 by the California Department of Resources Recycling and Recovery, or CalRecycle), which oversees a disposal reporting system. AB 939 mandated a reduction of waste being disposed of where jurisdictions were required to meet diversion goals of all solid waste through source reduction, recycling, and composting activities of 25% by 1995 and 50% by 2000.

AB 341 (2011) amended the California Integrated Waste Management Act of 1989 to include a provision declaring that it is the policy goal of the state that not less than 75% of solid waste generated be source-reduced, recycled, or composted by 2020, and annually thereafter. In addition, AB 341 required CalRecycle to develop strategies to achieve the state's policy goal.

AB 1826 (Chapter 727, Statutes of 2014, effective 2016) requires businesses to recycle their organic waste (i.e., food waste, green waste, landscape and pruning waste, nonhazardous wood waste, and food-soiled paper waste that is mixed in with food waste) depending on the amount of waste they generate per week. This law also requires local jurisdictions across the state to implement an organic waste recycling program to divert organic waste generated by businesses, including multi-family residential dwellings that consist of five or more units. The minimum threshold of organic waste generation by businesses decreases over time, which means an increasingly greater proportion of the commercial sector will be required to comply.

SB 1383 (2016) required a 50% reduction in organic waste disposal from 2014 levels by 2020 and a 75% reduction by 2025—essentially requiring the diversion of up to 27 million tons of organic waste—to reduce GHG emissions. SB 1383 also required that not less than 20% of edible food that is currently disposed of be recovered for human consumption by 2025.

Water

Executive Order B-29-15

In response to the ongoing drought in California, EO B-29-15 (April 2015) set a goal of achieving a statewide reduction in potable urban water usage of 25% relative to water use in 2013. The term of the EO extended through February 28, 2016, although many of the directives have become permanent water-efficiency standards and requirements. The EO includes specific directives that set strict limits on water usage in the state. In response to EO B-29-15, the California Department of Water Resources modified and adopted a revised version of the Model Water Efficient Landscape Ordinance that, among other changes, significantly increases the requirements for landscape water use efficiency and broadens its applicability to include new development projects with smaller landscape areas.

Executive Order N-10-21

In response to a state of emergency due to severe drought conditions, EO N-10-21 (July 2021) called on all Californians to voluntarily reduce their water use by 15% from their 2020 levels. Actions suggested in EO N-10-21 include reducing landscape irrigation, running dishwashers and washing machines only when full, finding and fixing leaks, installing water-efficient showerheads, taking shorter showers, using a shut-off nozzle on hoses, and taking cars to commercial car washes that use recycled water.

Other State Regulations and Goals

Senate Bill 97

SB 97 (August 2007) directed the Governor's Office of Planning and Research (now known as the Governor's Office of Land Use and Climate Innovation) and CNRA to develop guidelines under CEQA for the mitigation of GHG emissions. In 2008, the Office of Planning and Research issued a technical advisory as interim guidance regarding the analysis of GHG emissions in CEQA documents. The advisory indicated that the lead agency should identify and estimate a project's GHG emissions, including those associated with vehicular traffic, energy consumption, water usage, and construction activities (OPR 2008). The advisory further recommended that the lead agency determine significance of the impacts and impose all mitigation measures necessary to reduce GHG emissions to a level that is less than significant. CNRA subsequently adopted the CEQA Guidelines amendments pertaining to GHG emissions called for by SB 97 in December 2009. Those amendments to the CEQA Guidelines became effective in March 2010 (CNRA 2009a).

With respect to GHG emissions, CEQA Guidelines Section 15064.4(a) states that lead agencies should "make a good faith effort, to the extent possible on scientific and factual data, to describe, calculate or estimate" GHG emissions. The CEQA Guidelines note that an agency may identify emissions by either selecting a "model or methodology" to quantify the emissions or by relying on "qualitative analysis or performance based standards" (14 CCR 15064.4[a], [c]). Section 15064.4(b) states that the lead agency should consider the following when assessing the significance of impacts from GHG emissions on the environment: (1) the extent a project may increase or reduce GHG emissions as compared to the existing environmental setting; (2) whether project emissions exceed a threshold of significance that the lead agency determines applies to the project; and (3) the extent to which a project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4[b]).

Executive Order S-13-08

EO S-13-08 (November 2008) is intended to hasten California's response to the impacts of global climate change, particularly sea-level rise. Therefore, the EO directs state agencies to take specified actions to assess and plan for such impacts. The final 2009 California Climate Adaptation Strategy report was issued in December 2009 (CNRA 2009b), and an update, Safeguarding California: Reducing Climate Risk, followed in July 2014 (CNRA 2014). To assess the state's vulnerability, the report summarizes key climate change impacts to the state for the following areas: agriculture, biodiversity and habitat, emergency management, energy, forestry, ocean and coastal ecosystems and resources, public health, transportation, and water. Issuance of the Safeguarding California: Implementation Action Plans followed in March 2016 (CNRA 2016). In January 2018, the CNRA released the Safeguarding California Plan: 2018 Update, which communicates current and needed actions that state government should take to build climate change resiliency (CNRA 2018b).

Local

South Coast Air Quality Management District

Air districts typically act in an advisory capacity to local governments in establishing the framework for environmental review of air pollution impacts under CEQA. This may include recommendations regarding significance thresholds, analytical tools to estimate emissions and assess impacts, and mitigation for potentially significant impacts. Although air districts will also address some of these issues on a project-specific basis as responsible agencies, they may provide general guidance to local governments on these issues (SCAQMD 2008).

Southern California Association of Governments

The Southern California Association of Governments (SCAG) is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties, and serves as a forum for regional issues relating to transportation, the economy, community development, and the environment. SCAG serves as the federally designated metropolitan planning organization for the Southern California region and is the largest metropolitan planning organization in the United States.

On April 4, 2024, SCAG's Regional Council adopted Connect SoCal (2024–2050 Regional Transportation Plan [RTP]/Sustainable Communities Strategy [SCS]). Connect SoCal is a long-range visioning plan that balances future mobility and housing needs with economic, environmental, and public health goals. Connect SoCal charts a path toward a more mobile, sustainable, and prosperous region by making connections between transportation networks, between planning strategies, and between the people whose collaboration can improve the quality of life for Southern Californians. Connect SoCal embodies a collective vision for the region's future and is developed with input from local governments, county transportation commissions, tribal governments, non-profit organizations, businesses, and local interested parties within Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura Counties (SCAG 2024). The updated growth projections from the 2024 RTP/SCS (Connect SoCal) have not yet been incorporated into an adopted Air Quality Management Plan. The South Coast Air Quality Management District (SCAQMD) adopted its latest Air Quality Management Plan, which incorporates previous regional growth projections, in 2022 (SCAG 2020; SCAQMD 2022).

Irvine 2045 General Plan

The City's General Plan (City of Irvine 2025) includes various policies related to reducing GHGs (both directly and indirectly). Applicable goals, objectives, and policies include the following:

Environmental Protection and Climate Action Element

Goal 3: Reduce greenhouse gas emissions and mitigate climate change impacts in Irvine to create a more sustainable and resilient community.

Objective EPCA-3: Achieve significant reductions in greenhouse gas emissions across all sectors within Irvine by implementing targeted policies and initiatives.

Policy (a): Promote the transition to renewable energy sources, such as solar, wind, and geothermal, for electricity generation within Irvine.

Policy (b): Encourage the adoption of energy-efficient technologies and practices in buildings, transportation, and industries to reduce reliance on fossil fuels.

Policy (d): Promote energy conservation measures, such as retrofitting buildings with energy-efficient appliances, insulation, and lighting systems.

Goal 8: Mitigate the impacts of climate change, enhance resilience, and transition to a climate-resilient community in Irvine.

Objective EPCA-8: Reduce greenhouse gas emissions, adapt to the effects of climate change, and promote climate resilience through comprehensive policies, programs, and initiatives that engage stakeholders, foster innovation, and prioritize equitable and sustainable solutions.

Policy (a): Implement strategies to achieve significant reductions in greenhouse gas emissions across all sectors, including energy, transportation, buildings, waste, and land use, in alignment with state and regional climate goals.

Goal 10: Continue to promote sustainable land use practices in Irvine.

Objective EPCA-10: Implement policies and initiatives that prioritize sustainable land management, smart growth principles, and equitable development strategies to ensure the efficient use of land while protecting environmental quality and promoting community well-being.

Policy (g): Explore the adoption of green building standards, energy-efficient design guidelines, and sustainable construction practices to reduce greenhouse gas emissions, promote energy conservation, and minimize environmental impacts associated with new development and redevelopment projects.

City of Irvine Climate Action and Adaptation Plan

The City is, at the time of writing this document, in the process of developing its first Climate Action and Adaptation Plan (CAAP). The CAAP will outline the strategies and measures to be implemented to achieve City's GHG emissions

reduction targets. The City sent out a Notice of Preparation of a PEIR for the CAAP, which has been under development since 2021, in January 2024. At the time of writing of this Draft EIR, the City has held public workshops, prepared a draft GHG Inventory Report, published a draft framework, and drafted proposed measures and actions. However, an estimated adoption date for the CAAP is currently not available.

City of Irvine Strategic Energy Plan

The City's Strategic Energy Plan is a proactive plan that analyzes the City's energy sustainability, assesses the feasibility of reductions to energy use and related emissions, and provides recommendations for the community to promote energy conservation and the use of renewable energy sources throughout the City (City of Irvine 2020a). The Strategic Energy Plan's recommendations include actions for three main categories—energy supply, buildings, and transportation and land use—and are designed to help the City align itself with the state's reduction targets. The recommendations listed in the Strategic Energy Plan are as follows:

Energy Supply

ES-1: Join a CCE Electricity Supplier

ES-2: Portfolio-wide Procurement for City Facilities

Buildings

B-1: Develop a Community-Facing Energy Upgrade Program

B-2: Reduce or Remove Administrative Obstacles to Energy Storage, Electric Vehicles, and Building Electrification

B-3: Decarbonize City Facilities

B-4: Develop Decarbonization Roadmap

Transportation and Land Use

TLU-1: Reduce emissions from City Fleet Vehicles and Employee Commute

TLU-2: Incentivize Sustainable Transportation Modes for Residents and Businesses

TLU-3: Develop a Comprehensive Electric Vehicle Action Plan

4.8.3 Thresholds of Significance

The City's CEQA Manual states that the City has adopted the significance criteria used to evaluate project impacts to greenhouse gases/climate change based on Appendix G of the CEQA Guidelines (City of Irvine 2020b; 14 CCR 15000 et seq.). A significant impact related to GHG emissions would occur if the project would:

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

The Methodology subsection, below, details the specific thresholds and methodology used for each CEQA threshold.

Methodology

Global climate change is a cumulative impact; a project participates in this potential impact through its incremental contribution combined with the cumulative increase of all other sources of GHGs. There are currently no established numeric thresholds for assessing whether the GHG emissions of a project, such as the proposed project, would be considered a cumulatively considerable contribution to global climate change; however, all reasonable efforts should be made to minimize a project's contribution to global climate change. In addition, while GHG impacts are recognized exclusively as cumulative impacts (CAPCOA 2008), GHG emissions impacts must also be evaluated at a project level under CEQA.

The CEQA Guidelines do not prescribe specific methodologies for performing an assessment, do not establish specific thresholds of significance, and do not mandate specific mitigation measures. Rather, the CEQA Guidelines emphasize the lead agency's discretion to determine the appropriate methodologies and thresholds of significance consistent with the manner in which other impact areas are handled in CEQA (CNRA 2009a). The State of California has not adopted emission-based thresholds for GHG emissions under CEQA. The Governor's Office of Planning and Research's Technical Advisory titled "CEQA and Climate Change: Addressing Climate Change Through California Environmental Quality Act Review" states that "public agencies are encouraged but not required to adopt thresholds of significance for environmental impacts. Even in the absence of clearly defined thresholds for GHG emissions, the law requires that such emissions from CEQA projects must be disclosed and mitigated to the extent feasible whenever the lead agency determines that the project contributes to a significant, cumulative climate change impact" (OPR 2008). Furthermore, the advisory document indicates that "in the absence of regulatory standards for GHG emissions or other scientific data to clearly define what constitutes a 'significant impact,' individual lead agencies may undertake a project-by-project analysis, consistent with available guidance and current CEQA practice." Section 15064.7(c) of the CEQA Guidelines specifies that "when adopting thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies, or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence."

Threshold 1

In October 2008, SCAQMD proposed recommended numeric CEQA significance thresholds for GHG emissions for lead agencies to use in assessing GHG impacts of residential and commercial development projects as presented in its Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold (SCAQMD 2008). This guidance document, which builds on the previous guidance prepared by the California Air Pollution Control Officers Association, explored various approaches for establishing a significance threshold for GHG emissions. The draft interim CEQA thresholds guidance document was not adopted or approved by the Governing Board. However, in December 2008, the SCAQMD adopted an interim 10,000 MT CO2e per-year screening level threshold for stationary source/industrial projects for which the SCAQMD is the lead agency (see SCAQMD Resolution No. 08-35, December 5, 2008).

SCAQMD formed a GHG CEQA Significance Threshold Working Group to work with SCAQMD staff on developing GHG CEQA significance thresholds until statewide significance thresholds or guidelines are established. From December 2008 to September 2010, SCAQMD hosted working group meetings and revised the draft threshold proposal several times, although it did not officially provide these proposals in a subsequent document. The most recent proposal, issued in September 2010, uses a tiered approach to evaluate potential GHG impacts from various uses (SCAQMD 2010).

The City's CEQA Manual includes the following screening criteria for evaluating GHG emissions from development projects based on the approach defined by the SCAQMD's CEQA Significance Threshold Working Group (City of Irvine 2020b):

- **Tier 1.** If a project is exempt from CEQA, project-level and cumulative GHG emissions are less than significant.
- **Tier 2.** If the project complies with a GHG emissions reduction plan or mitigation program that avoids or substantially reduces GHG emissions in the project's geographic area (i.e., City or County), project-level and cumulative GHG emissions are less than significant.
- **Tier 3.** If GHG emissions are less than the screening-level threshold, project-level and cumulative GHG emissions are less than significant.
- **Tier 4.** If emissions exceed the screening threshold, a more detailed review of the project's GHG emissions is warranted.

For projects that are not exempt under Tier 1 or where no qualifying GHG reduction plans are directly applicable under Tier 2, the Working Group recommended a quantitative assessment of project-related GHG emissions using CalEEMod to compare emissions to the SCAQMD bright-line threshold of 3,000 MT CO_2e per year for Tier 3. Per the SCAQMD guidance, construction emissions should be amortized over the operational life of the proposed project, which is assumed to be 30 years (SCAQMD 2008). This impact analysis, therefore, adds amortized construction emissions to the estimated annual operational emissions and then compares operational emissions to the proposed SCAQMD threshold of 3,000 MT CO_2e per year for the Tier 3 analysis.

Construction

CalEEMod Version 2022.1.1.29 was used to estimate potential project-generated GHG emissions during construction. Construction of the proposed project would result in GHG emissions primarily associated with use of off-road construction equipment, on-road hauling and vendor (material delivery) trucks, and worker vehicles. All details for construction criteria air pollutants discussed in Section 4.3, Air Quality, under Approach and Methodology, are also applicable for the estimation of construction-related GHG emissions. As such, see Section 4.3, Air Quality, Approach and Methodology, for a discussion of construction emissions calculation methodology and assumptions used in the GHG emissions analysis.

Operation

Operation of the project would generate GHG emissions from mobile sources, area sources (landscape maintenance equipment), energy use, water use and wastewater generation, solid waste, and refrigerants. As with project construction, CalEEMod Version 2022.1.1.29 was used to estimate potential project-generated operational GHG emissions based on project land uses. The total project buildout scenario is expected to be fully operational in 2032. More detailed information regarding the land use breakdown is included in Section 4.3, Air Quality, Approach and Methodology.

Area Sources. The area source category calculates direct sources of GHG emissions from the project site, including hearths and landscape maintenance equipment. This source category does not include the emissions associated with natural gas usage in space heating or water heating because these are calculated in the building energy use module of CalEEMod. The project would not include any wood fireplaces in residential units, as this is prohibited by SCAQMD Rule 445. Per PDF-AQ/GHG-1 (All-Electric Residential Development; refer to Section 4.8.4, Project Design Features, for the text of all air quality and GHG PDFs) all appliances, including fireplaces, would be electric.

Landscape maintenance includes fuel combustion emissions from equipment, such as lawnmowers, rototillers, shredders/grinders, blowers, trimmers, chainsaws, and hedge trimmers, as well as air compressors, generators, and pumps. The emissions from landscape equipment use were estimated using CalEEMod defaults. For Orange County, CalEEMod assumes that landscaping equipment would operate 250 days per year.

Energy Sources. The energy use (electricity per square foot per year) from residential land uses is calculated in CalEEMod based on the Residential Appliance Saturation Study and the energy use from nonresidential land uses is calculated in CalEEMod based on the California Commercial End-Use Survey database. Per PDF-AQ/GHG-1, the residential portion of the project would be all electric and would not include the use of natural gas. For residential uses, natural gas demand was converted to electrical demand in CalEEMod. Per PDF-AQ/GHG-2 (Energy-Efficient Appliances), the appliances installed in the residential portion of the project would be Energy Star rated. These PDFs are reflected in the "mitigated" operational GHG energy estimates in Appendix B-1. Annual natural gas and electricity emissions were estimated in CalEEMod using default values for emissions factors for Southern California Gas and Southern California Edison, respectively, which would be the energy source providers for the project.

Mobile Sources. All details for criteria air pollutants discussed in Section 4.3, Air Quality, Approach and Methodology, are also applicable for the estimation of operational mobile source GHG emissions. Regulatory measures related to mobile sources include AB 1493 (Pavley) and related federal standards. AB 1493 required that CARB establish GHG emission standards for automobiles, light-duty trucks, and other vehicles determined by CARB to be vehicles that are primarily used for noncommercial personal transportation in the state. In addition, NHTSA and EPA have established corporate fuel economy standards and GHG emission standards, respectively, for automobiles and light-, medium-, and heavy-duty vehicles. Implementation of these standards and fleet turnover (replacement of older vehicles with newer ones) will gradually reduce emissions from the proposed project's motor vehicles. The effectiveness of fuel economy improvements was evaluated by using the CalEEMod emission factors for motor vehicles in the buildout operational year (2032).

Refrigerants. Refrigerants are substances used in equipment for air conditioning and refrigeration. Most of the refrigerants used today are HFCs or blends thereof, which can have high GWP values. All equipment that uses refrigerants has a charge size (i.e., quantity of refrigerant the equipment contains) and an operational refrigerant leak rate, and each refrigerant has a GWP that is specific to that refrigerant. CalEEMod default values were applied to quantify refrigerant emissions from leaks during regular operation and routine servicing over the equipment lifetime and then to derive average annual emissions from the lifetime estimate (CAPCOA 2022).

Solid Waste. The proposed project would generate solid waste and therefore would result in CO_2e emissions associated with landfill off-gassing. CalEEMod default values for solid waste generation were used to estimate GHG emissions associated with solid waste for the proposed project.

Water and Wastewater Treatment. Supply, conveyance, treatment, and distribution of water for the proposed project would require the use of electricity, which would result in associated indirect GHG emissions. Similarly, wastewater generated by the proposed project requires the use of electricity for conveyance and treatment, along with GHG emissions generated during wastewater treatment. Water consumption estimates for both indoor and outdoor water use and associated electricity consumption from water use and wastewater generation were estimated using default values in CalEEMod.

Threshold 2

For Threshold 2, the project is evaluated for its potential to conflict with state, regional, and local GHG reduction plans. According to the City's CEQA Manual, applicable plans include CARB's Scoping Plan and SCAG's RTP/SCS and the City's Strategic Energy Plan. Regarding the project's potential to conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions, the analysis includes a comparison of the project's potential to conflict with the City's Strategic Energy Plan, Appendix D of the CARB Scoping Plan, and SCAG's Connect SoCal (2024–2050 RTP/SCS).

4.8.4 Project Design Features

The project would implement PDFs to reduce GHG emissions. These PDFs may also reduce other potential environmental impacts, such as criteria air pollutant emissions, and would provide energy co-benefits.

PDF-AQ/GHG-1 All-Electric Residential Development. All proposed residential development would use all-electric appliances and end uses (including heating, ventilation, and air conditioning; water heating; and induction cooking).

PDF-AQ/GHG-2 Energy-Efficient Appliances. During construction activities, the project applicant or its designee would install ENERGY STAR®-rated appliances within the residential and recreational land uses, including but not limited to refrigerators, dishwashers, clothes washers, and ceiling fans.

PDF-AQ/GHG-3 Exceedance of Title 24, Part 6 Standards. The project would exceed the requirements of the 2022 California Code of Regulations Title 24, Part 6, Building Energy Efficiency Standards by 10% at the time of building permit issuance.

4.8.5 Impacts Analysis

1. Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Significant and Unavoidable Impact. Project-generated GHG emissions were estimated per the methodology described in Section 4.8.3, Thresholds of Significance, and are discussed for construction and operation below. Quantification of GHG emissions is provided pursuant to CEQA Guidelines Section 15064.4(c), and the determination of significance is based on the SCAQMD's 3,000 MT CO_2e per year threshold per the City's CEQA Manual (City of Irvine 2020b).

Construction

Table 4.8-3 shows the estimated annual GHG construction emissions associated with the project. Additional information about methodology and approaches is provided in Section 4.8.3. Complete details of the construction emissions calculations are provided in Appendix B-1.

Table 4.8-3. Estimated Annual Construction Greenhouse Gas Emissions

Year	CO2	CH4	N2O	R	CO2e
	Metric Tons per Year				
2026	988.86	0.04	0.02	0.14	995.94
2027	2,512.00	0.07	0.06	1.52	2,532.89
2028	3,748.24	0.11	0.08	1.86	3,777.81
2029	3,002.10	0.09	0.07	1.42	3,026.24
2030	3,091.23	0.09	0.03	1.30	3,103.68
2031	1,582.96	0.04	0.01	0.72	1,588.93
2032	330.08	0.01	0.00	0.13	331.30
				Total for All Years of Construction	15,356.80
				Amortized Over 30 Years	*511.89*

Source: Appendix B-1.
Notes: CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; R = refrigerants; CO_2e = carbon dioxide equivalent.
Totals may not sum precisely due to rounding.

As shown in Table 4.8-3, the estimated total GHG emissions during construction would be approximately 15,357 MT CO_2e over the construction period. Estimated project-generated construction emissions amortized over 30 years would be approximately 512 MT CO_2e per year. As with project-generated construction criteria air pollutant emissions, GHG emissions generated during construction of the project would last only for the duration of the construction period.

Operation

Operation of the project would generate GHG emissions through vehicle trips by residents, employees, and visitors to and from the project site; landscape maintenance equipment operation; energy use (generation of electricity consumed by the project and natural gas use); solid waste disposal; water supply, treatment, and distribution and wastewater treatment; and refrigerants. CalEEMod was used to calculate the annual GHG emissions based on the operational assumptions described in Section 4.8.3.

As detailed in Section 4.8.3, the project would incorporate PDF-AQ/GHG-1 (All-Electric Residential Development), and PDF-AQ/GHG-2 (Energy-Efficient Appliances), which would reduce the GHG emissions from energy sources during project operations (included in Section 4.8.4). The estimated operational project-generated GHG emissions are shown in Table 4.8-4, including amortized construction emissions.

Table 4.8-4. Estimated Annual Operational GHG Emissions

Emission Source	CO_2	CH_4	N_2O	R	CO_2e
	Metric Tons per Year				
Operational Emissions					
Mobile	8,750.89	0.41	0.37	6.76	8,876.86
Area	23.53	<0.01	<0.01	N/A	23.61
Energy[a]	3,157.50	0.31	0.02	N/A	3,170.36
Water	76.12	1.69	0.04	N/A	130.45
Waste	86.61	8.66	0.0	N/A	303.01

Table 4.8-4. Estimated Annual Operational GHG Emissions

Emission Source	CO_2	CH_4	N_2O	R	CO_2e
	Metric Tons per Year				
Refrigerant	N/A	N/A	N/A	2.98	2.98
Total	**12,094.64**	**11.06**	**0.42**	**9.74**	**12,507.27**
Amortized 30-Year Mitigated Construction Emissions					*511.89*
Project Operation + Amortized Construction Total					**13,019.16**
Recommended SCAQMD Threshold (residential-only projects)					*3,000*
Threshold Exceeded?					**Yes**

Notes: CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; R = refrigerant; CO_2e = carbon dioxide equivalent; <0.01 = reported value less than 0.01; N/A = not applicable; SCAQMD = South Coast Air Quality Management District.
Totals may not sum precisely due to rounding.
See Appendix B-1 for complete results.
[a] Includes emission reductions from PDF-AQ/GHG-1 and PDF-AQ/GHG-2.

As shown in Table 4.8-4, operation of the project would result in approximately 12,507 MT CO_2e per year, and emissions would be approximately 13,019 MT CO_2e per year with amortized construction emissions. Operational emissions would be above the 3,000 MT CO_2e per year threshold recommended in the City's CEQA Guidelines, and GHG emissions associated with long-term operation of the project would be potentially significant.

As such, the project would implement Mitigation Measure (MM) GHG-1 through MM-GHG-4, which are provided in Section 4.8.6, Mitigation Measures, to reduce the GHG emissions associated with long-term operation of the project. MM-GHG-1 (Electric Vehicle Charging Infrastructure), which requires installation of EV charging infrastructure, would reduce mobile source GHG emissions by encouraging transition from fossil fuel vehicles to EVs by providing necessary infrastructure. MM-GHG-2 (Energy Conservation) involves various strategies to reduce energy consumption and associated GHG emissions by increasing energy efficiency, including installation of a solar photovoltaic electricity-generating system at the proposed on-site amenity building, light emitting diodes or other high-efficiency buildings for outdoor lighting, cool pavement. MM-GHG-3 (Water Use Efficiency and Water Conservation) requires water efficiency strategies to reduce water consumption and associated GHG emissions. MM-GHG-4 (Solid Waste Reduction) requires several strategies to reduce solid waste generation and associated GHG emissions. However, the GHG emissions reductions achieved by implementation of these mitigation measures for the project could not be reliably quantified. As such, implementation of these mitigation measures cannot demonstrate that GHG emissions would be mitigated to a less-than-significant level.

Therefore, because operational GHG emissions cannot feasibly be reduced to less than 3,000 MT CO_2e per year, the project would exceed the City's threshold for GHG emissions even with implementation of all feasible mitigation. The project would result in a significant and unavoidable impact regarding the potential to generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.

2. Would the project generate conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Significant and Unavoidable Impact. The evaluation herein addresses the project's potential to conflict with the following: key attributes for residential and mixed-use projects from CARB's 2022 Scoping Plan

Updated Appendix D, and SCAG's RTP/SCS (Connect SoCal). The project's potential to conflict with the Strategic Energy Plan is addressed in Section 4.6, Energy, of this Draft EIR.

Consistency with Applicable GHG Reduction Plans

CARB Scoping Plan Appendix D

As discussed in Section 4.8.2, Relevant Plans, Policies, and Ordinances, the California State Legislature passed AB 32 to provide initial direction to limit California's GHG emissions to 1990 levels by 2020 and initiate the state's long-range climate objectives. Since the passage of AB 32, the state has adopted GHG emissions reduction targets for future years beyond the initial 2020 horizon year. CARB is required to develop the Scoping Plan, which provides the framework for actions to achieve the state's GHG emission reduction targets. The Scoping Plan is the official framework for the measures and regulations that will be implemented to reduce California's GHG emissions in alignment with the state's adopted GHG reduction targets. Therefore, a project would be found to not conflict with the state's climate goals set forth in statutes and regulations if it would meet the Scoping Plan policies and not impede attainment of the goals therein.

For the project, the relevant GHG emissions reduction targets include those established by SB 32 and AB 1279, which require GHG emissions be reduced to 40% below 1990 levels by 2030, and 85% below 1990 levels by 2045, respectively. In addition, AB 1279 requires that the state achieve net zero GHG emissions by no later than 2045 and achieve and maintain net negative GHG emissions thereafter. CARB's 2017 Scoping Plan Update was the first to address the state's strategy for achieving the 2030 GHG reduction target set forth in SB 32 (CARB 2017), and the most recent CARB 2022 Scoping Plan Update outlines the state's plan to reduce emissions and achieve carbon neutrality by 2045 in alignment with AB 1279 and assesses progress toward the 2030 SB 32 target (CARB 2022). As such, given that SB 32 and AB 1279 are the relevant GHG emission targets, the CARB 2017 and 2022 Scoping Plan Updates that outline the strategy to achieve those targets, are the most applicable to the proposed project.

The 2017 Scoping Plan Update included measures to promote renewable energy and energy efficiency (including the mandates of SB 350), increase stringency of the LCFS Program, measures identified in the Mobile Source and Freight Strategies, measures identified in the proposed SLCP Plan, and increase stringency of SB 375 targets. The 2022 Scoping Plan Update builds upon and accelerates programs currently in place, including moving to zero-emission transportation; phasing out use of fossil gas use for heating homes and buildings; reducing chemical and refrigerants with high GWP; providing communities with sustainable options for walking, biking, and public transit; and displacement of fossil-fuel-fired electrical generation through use of renewable energy alternatives (e.g., solar arrays and wind turbines) (CARB 2022).

Many of the measures and programs included in the Scoping Plan would result in the reduction of project-related GHG emissions with no action required at the project level, including GHG emission reductions through increased energy efficiency and renewable energy production (SB 350), reduction in carbon intensity of transportation fuels (LCFS Program), and the accelerated efficiency and electrification of the statewide vehicle fleet (Mobile Source Strategy).

Table 4.8-5 evaluates the project's potential to conflict with the CARB 2022 Scoping Plan Update, specifically the project attributes to reduce operational GHG emissions identified in Appendix D, Local Actions (CARB 2022). Per the Scoping Plan, empirical evidence shows that residential and mixed-use

development projects that are consistent with these attributes to reduce GHG emissions will accommodate growth in a manner that aligns with the GHG emissions and equity goals of SB 32. Additionally, compliance with the key project attributes of the 2022 Scoping Plan Update ensures that projects (1) are addressing the largest sources of their operational emissions, (2) are in alignment with the priority areas defined for Local Climate Action, and (3) are in alignment with the state's climate goals.

Table 4.8-5. Project Potential to Conflict with Key Project Attributes of CARB 2022 Scoping Plan's Appendix D

Key Project Attributes	Potential to Conflict
Transportation Electrification	
Provide EV charging infrastructure at least in accordance with CALGreen Tier 2 standards[a]	***Project would partially conflict prior to mitigation.*** The project would facilitate future installation and use of EV chargers through compliance with Title 24, Part 11, Chapter 4 requirements per the mandatory Residential Measures. However, this would not meet CALGreen's Tier 2 voluntary standard. Therefore, the project would partially conflict with this key project attribute prior to implementation of mitigation measures. ***Project would not conflict with mitigation.*** With implementation of MM-GHG-1, the project would meet the most ambitious voluntary EV charging infrastructure standards (Tier 2) of the most recent 2022 CALGreen standards. Therefore, after implementation of mitigation, the project would not conflict with this key project attribute.
VMT Reduction	
Is located on infill sites that are surrounded by existing urban uses and reuses or redevelops previously undeveloped or underutilized land presently served by existing utilities and essential public services (e.g., transit, streets, water, sewer)[b]	***Project would conflict.*** The project is not located on an infill site, as defined by the CEQA Guidelines Section 21061.3. The project site consists of active agricultural fields, which is not a qualified urban use under CEQA Guidelines Section 21061.3, and the project site's adjacent parcels are not all qualified urban uses. The project site is adjacent to parcels designated for preservation under the General Plan. Furthermore, the project has not been previously developed for urban uses. While the project site's surrounding area is semi-urbanized with residential communities located directly to the west, Hicks Canyon Wash to the north, and predominantly open space to the north and east, the project site is not an existing urban use. The project site has a zoning designation of 1.5 – Recreation and has a land use designation of Recreational, and as such, a zone change and General Plan Amendment are required to implement the project. Regarding existing utilities presently serving the project site, there are existing infrastructure and utilities located within adjacent roadways. However, the project would result in off-site improvements to extend sewer stormwater and drainage infrastructure into the project site, and as such, the project would not be entirely served by existing utilities and essential public services such as stormwater and sewer.
Do not result in the loss or conversion of the state's natural and working lands	***Project would conflict.*** The project would convert agricultural working lands to develop a residential community; the project site is land use designation of recreational in the City's General Plan. As such, the project would result in the conversion of the state's working lands into a residential use and would conflict with this key project attribute.

Table 4.8-5. Project Potential to Conflict with Key Project Attributes of CARB 2022 Scoping Plan's Appendix D

Key Project Attributes	Potential to Conflict
Consists of transit-supportive densities (minimum of 20 residential dwelling units/acre),[c] *or* in proximity to existing transit (within ½ mile),[d] *or* satisfies more detailed and stringent criteria specified in the region's Sustainable Communities Strategy (SCS)	***Project would not conflict.*** The project proposes the development of 1,360 dwelling units on 105 acres, representing a minimum overall transit-supportive density of 11.3 DU/ac. Thus, the project would not meet the minimum of 20 DU/ac discussed in this key project attribute. Regarding proximity to existing transit within 1/2 mile of the project site, there is a planned transit stop that would be within a 1/2 mile at South Park; as such, the project would not conflict with this option of the key project attribute. The project would exceed the City's VMT significance criteria, which would conflict with SCAG's SCS, as detailed below. As evaluated in detail in the project's transportation analysis, per the City's VMT significance criteria for impact determination, the project would have a significant VMT impact with full buildout of the project. The project's effect on VMT was determined to be significant. Therefore, the project would conflict with CEQA Guidelines Section 15064.3(b) related to the VMT threshold. As such, the project would conflict with Connect SoCal and with this key project attribute. Notably, the project would extend the JOST, which currently terminates at Portola Parkway just south of the project site, to serve pedestrians as an open space for transit and recreation. The project would add approximately 9.5 acres to the JOST extension. Because the project would be within 1/2 mile of a transit stop that would be in service at the time of project operation, it would not conflict with this measure.
Reduce parking requirements by:[e] ▪ Eliminating parking requirements or including maximum allowable parking ratios, *or* ▪ Providing residential parking supply at a ratio of <1 parking space per unit, *or* ▪ Unbundling residential parking costs from costs to rent or lease.	***Project would not conflict.*** The project is pursuing parking ratios under State Density Bonus law, and as such, the project is mandated to provide a certain amount of parking with the residential units and those spaces cannot be unbundled. Thus, the project has provided parking on-site to meet the minimum allowable parking ratios consistent with applicable requirements.
At least 20% of the units are affordable to lower-income residents[f,g]	***Project would not conflict.*** The project includes the development of 340 units designated to be affordable dwelling units. Therefore, of the 1,360 total units proposed, 25% would be affordable units.
Result in no net loss of existing affordable units	***Project would not conflict.*** The project site does not contain any existing residences. Project implementation would not displace any existing affordable housing units or necessitate construction of any replacement affordable housing units elsewhere. Additionally, the project would result in a net gain of 340 affordable dwelling units.
Building Decarbonization	
Use all electric appliances, without any natural gas connections, and would not use propane or other fossil	***Project would partially conflict.*** The project has incorporated PDF-AQ/GHG-1, which requires that all residential development use all-electric appliances, and PDF-AQ/GHG-2, which requires that all

Table 4.8-5. Project Potential to Conflict with Key Project Attributes of CARB 2022 Scoping Plan's Appendix D

Key Project Attributes	Potential to Conflict
fuels for space heating, water heating, or indoor cooking[h,i]	appliances installed for the residential and recreational uses be ENERGY STAR®-rated appliances. As such, the project's residential land uses, would not conflict with the building decarbonization key project attribute. However, the ancillary residential uses, including the amenity building and swimming pools and spa, would use natural gas for HVAC systems and would thus conflict with the building decarbonization attribute uses by requiring natural gas connections to the project site. Thus, MM-GHG-2, Energy Conservation, would be required. MM-GHG-2 includes installation of a solar PV electricity-generating system at the proposed on-site amenity building to reduce non-renewable energy consumption. Nevertheless, because the project would still include some natural gas connections, the project would still partially conflict with this key attribute.

Source: CARB 2022, Appendix D, Table 3 – Key Residential and Mixed-Use Project Attributes that Reduce GHGs.
Notes: CARB = California Air Resources Board; EV = electric vehicle; CALGreen = California Green Building Code, VMT = vehicle miles traveled; CEQA = California Environmental Quality Act; DU/ac = dwelling units per acre; SCAG = Southern California Association of Governments; JOST = Jeffrey Open Space Trail; GHG = greenhouse gas.
[a] Cal. Code of Regs., tit. 24, Part 11.
[b] California Government Code Section 65041.1.
[c] Federal Transit Administration. 2014.
[d] Washington Department of Transportation. 2013.
[e] CAPCOA 2021.
[f] Newmark and Haas 2015.
[g] California Housing Partnership Corporation 2015 and TransForm 2014.
[h] Energy and Environmental Economics. 2019.
[i] Energy and Environmental Economics. 2021.

As shown in Table 4.8-5, the project would not conflict with half of the key project attributes. In addition to the mitigation measures detailed in Table 4.8-5, MM-GHG-3 (Water Use Efficiency and Water Conservation) and MM-GHG-4 (Solid Waste Reduction) would also reduce GHG emissions. However, the project would not clearly satisfy the VMT reduction, natural or working lands conservation, or transit density project attributes, and although the project would include all-electric buildings in the majority of the proposed development, including all of the proposed residential units, this would only partially satisfy the building decarbonization attribute due to limitations with feasible electrical pool heating systems. Therefore, the project would continue to conflict with the previously mentioned key attributes of the 2022 CARB Scoping Plan Update, Appendix D.

SCAG 2024–2050 RTP/SCS

SCAG's 2024–2050 RTP/SCS identifies the following strategy areas to support its environmental goals: Sustainable Development, Air Quality, Clean Transportation, Natural and Agricultural Lands Preservation, and Climate Resilience. An analysis of the project's potential to conflict with the applicable strategies is presented below.

Sustainable Development. The 2024–2050 RTP/SCS identifies sustainable development, including water and energy-efficient building practices and green infrastructure, as a strategy to reduce GHG emissions. Targeted sustainable design strategies of the project, in addition to meeting the requirements of California's Building Energy Efficiency Standards and CALGreen, would include incorporating PDF-AQ/GHG-1 (All-Electric Residential Development), PDF-AQ/GHG-2 (Energy-Efficient Appliances), and PDF-AQ/GHG-3

(Exceedance of Title 24, Part 6 Standards). Furthermore, the project would implement MM-GHG-1 through MM-GHG-4, which would increase the efficiency and sustainability of the project with respect to energy, water, and waste conservation. With these strategies, the project would not conflict with the RTP/SCS goal of promoting sustainability within development.

Air Quality. The 2024–2050 RTP/SCS identifies air quality and meeting federal and state ambient air quality standards as a co-benefit of reducing GHG emissions. After mitigation, the project would exceed SCAQMD's threshold of significance for volatile organic compound (VOC) emissions; however, the project would not exceed the threshold for any other criteria air pollutants. Despite the project exceeding the threshold for a criteria air pollutant during operations, the project itself would not obstruct the goal of reducing air pollution in Southern California nor would it obstruct the SCAG's implementation of the RTP/SCS.

Clean Transportation. The 2024–2050 RTP/SCS identifies EV charging infrastructure, adoption of ZEVs, and clean transit as ways to reduce GHG emissions from mobile sources. The project would support clean transportation use by providing EV-ready requirements to all residential buildings and including EV charging infrastructure within the development per MM-GHG-1. Because the project would promote the adoption of clean transportation in the region, the project would not conflict with this strategy.

Natural and Agricultural Lands Preservation. The 2024–2050 RTP/SCS promotes the conservation and restoration of natural and agricultural lands through several policies, such as quantifying the carbon sequestration potential of natural and agricultural lands and prioritization of sensitive habitat and wildlife corridors for permanent protection. Project development would convert what is currently agricultural land into single- and multi-family residences and associated recreational uses. While not quantified, the project would replace some of the loss of sequestered carbon through the addition of 16.2 acres of park and open space. Nonetheless, because the project would convert agricultural land into residential use, the project would conflict with this strategy.

Climate Resilience: The 2024–2050 RTP/SCS promotes regional coordination and solutions for effective emergency response for climate-related hazards. Additionally, in the category of climate resilience, SCAG has established the following policies: prioritize the most vulnerable populations and communities subject to climate hazards; support local and regional climate and hazard planning; support nature-based solutions to increase regional resilience; promote sustainable water use planning; and support an integrated planning approach to help jurisdictions meet housing needs in a drier environment. While it does not directly pertain to these climate resilience efforts, the project would not conflict with these policies.

Based on the analysis above, the project would conflict with the 2024–2050 RTP/SCS.

Summary

Because the project would conflict with the key attributes of the 2022 CARB Scoping Plan Update Appendix D, as well as the environmental goals of the SCAG 2024-2050 RTP/SC, the project would conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases despite implementation of the mitigation measures noted above; therefore, impacts would be significant and unavoidable.

Impact Summary

Impacts from the proposed project relating to GHG emissions would be significant and unavoidable, despite implementation of MM-GHG-1 through MM-GHG-4.

4.8.6 Mitigation Measures

To reduce project-generated GHG emissions and associated potential impacts, the following mitigation measures are identified.

MM-GHG-1 Electric Vehicle Charging Infrastructure. The project applicant or designee shall provide electric vehicle (EV) charging infrastructure that meets or exceeds 2022 California Green Building Standards Code Tier 2 standards A4.106.8.1 for single-family homes and A4.106.8.2 for multifamily dwellings to encourage use of EVs, consistent with Appendix D, Table 3, of the 2022 CARB Scoping Plan.

MM-GHG-2 Energy Conservation. Prior to the issuance of building permits, the project applicant or its designee shall provide evidence to the City that the residential and recreational building design plans include the following energy conservation measures:

a) A solar photovoltaic electricity-generating system shall be installed at the proposed on-site amenity building to the extent feasible.
b) Outdoor lighting shall be light emitting diode (LED) or other high-efficiency lightbulbs.
c) Prior to the issuance of building permits, the Project applicant or its designee shall submit building plans illustrating installation of cool pavements in place of dark pavements within walkways and patios. Walkways and patios shall use natural grey or uncolored concrete with a Solar Reflectance Index (SRI) value of 0.39.
d) Information on energy efficiency, energy-efficient lighting and lighting control systems, energy management, and existing energy incentive programs shall be provided to future residents of the project.

MM-GHG-3 Water Use Efficiency and Water Conservation. Prior to the issuance of building permits, the project applicant or its designee shall provide evidence to the City of Irvine that the residential and recreational building design plans include water use efficiency and conservation measures, including the following:

a) High-efficiency appliances/fixtures to reduce water use, and/or include water-efficient landscape design
b) Low-flow or high-efficiency water fixtures
c) Water-efficient landscapes with lower water demands than required by the California Department of Water Resources 2015 Model Water Efficient Landscape Ordinance
d) Planting of native and drought-tolerant plant species where permissible under fuel modification requirements
e) Educational materials provided to future tenants and building occupants about water saving behaviors and water-conserving landscaping

MM-GHG-4 Solid Waste Reduction. Prior to the issuance of building permits for the project, the project applicant shall provide building plans that include the following solid waste reduction measure:

a) Provide storage areas for recyclables and organic waste in new construction, and food waste storage, if a pick-up service is available.

Note: None of the above GHG mitigation measures (i.e., MM-GHG-1 through MM-GHG-4) are quantified; however, the mitigation measures are anticipated to result in direct or indirect GHG emission reductions.

4.8.7 Level of Significance After Mitigation

Regarding the project's ability to generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, emissions during project operations would exceed the SCAQMD threshold of 3,000 MT CO_2e, even after mitigation; as such, the project would result in a significant and unavoidable impact regardless of the application of feasible mitigation.

Impacts to a potential conflict an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs would be significant and unavoidable, even after implementation of all feasible mitigation measures.

4.8.8 Cumulative Impacts

This section provides an analysis of cumulative impacts from construction and operation of the project and other past, present, and reasonably foreseeable future projects, as required by Section 15130 of the CEQA Guidelines. The past, present, and reasonably foreseeable future projects (i.e., cumulative projects) used for this analysis are presented in Chapter 3, Project Description, of this Draft EIR. For purposes of GHG emissions, the geographical area of cumulative impacts is global, as further detailed below.

Where a lead agency concludes that the cumulative effects of a project, taken together with the impacts of other closely related past, present, and reasonably foreseeable future projects are significant, the lead agency then must determine whether the project's incremental contribution to such significant cumulative impact is "cumulatively considerable" (and thus significant in and of itself).

Global climate change is a cumulative impact; a project participates in this potential impact through its incremental contribution combined with the cumulative increase of all other sources of GHGs. As previously discussed in Section 4.8.1, Existing Conditions, GHG emissions inherently contribute to cumulative impacts, and thus, any additional GHG emissions would result in a cumulative impact. As discussed in Section 4.8.5, Impacts Analysis, the project would generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment or conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. Therefore. the project would result in a cumulatively considerable contribution to a cumulative impact with regard to the generation of GHG emissions, and the cumulative impact would be significant and unavoidable despite the implementation of MM-GHG-1 through MM-GHG-4.

As previously discussed in Section 4.8.5(2), the project would conflict with an applicable GHG reduction plan. Therefore, cumulative impacts associated with the conflict of any applicable plan, policy or regulation adopted to reduce GHG emission would be significant and unavoidable.

4.8.9 References

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4.9 Hazards and Hazardous Materials

This section describes the existing hazardous materials conditions of the project site and vicinity, identifies associated regulatory requirements, evaluates potential impacts, and identifies mitigation measures related to implementation of the proposed project. The analysis included in this section is based on publicly available information referenced throughout this section and on the findings of the following documents, which are included as appendices to this environmental impact report (EIR):

- **Appendix G-1:** Phase I Environmental Site Assessment (Phase I ESA); prepared by AEI Consultants; dated May 4, 2023
- **Appendix G-2:** Limited Subsurface Investigation Report (Subsurface Investigation); prepared by AEI Consultants; dated May 17, 2023
- **Appendix G-3:** Phase II Environmental Site Assessment (Phase II ESA); prepared by Stantec; dated November 8, 2024
- **Appendix J-1:** Fire Behavior Analysis and Report (Fire Behavior Analysis) – Gateway Village, Irvine, California; prepared by FireSafe Planning Inc.; dated December 30, 2024

4.9.1 Existing Conditions

As discussed in Section 3.3, Environmental Setting, the project site currently consists primarily of active agricultural fields, with equipment storage and laydown areas in the northern portion of the project site. As noted in the Phase II ESA (Appendix G-3), the project site also includes multiple permanent and portable buildings, storage sheds, and unpaved roadways. Current and former tenants have included landscaping and agricultural operations. Past operations have also included the use of a gasoline underground storage tank (UST) and diesel UST, both of which have since been removed.

4.9.1.1 Previous Environmental Investigations

The boundaries of the previous investigations did not exactly match the current project site boundaries, as detailed below. However, based on the findings of the previous investigations, project site history, and information obtained during this analysis, it is not anticipated that environmental contamination is present that was not identified during previous investigations.

- The Phase I ESA (Appendix G-1) was completed on approximately 118 acres of land, which included 80 acres of the proposed project (referred to in the Phase I ESA as “Gateway”). The Phase I ESA project boundary did not include the narrow strip of project site south of Bee Canyon Access Road.
- The Subsurface Investigation (Appendix G-2) was completed on the current and former agricultural portions of the project site, which cover the majority of the project site; this did not include a small area off Jeffrey Road in the northeastern portion of the project site or the easternmost portion of the project site, which currently contains a landscaping equipment storage yard.
- The Phase II ESA (Appendix G-3) property boundary included the project site, except for the linear section south of Bee Canyon Access Road and the northeastern portion of the project site that currently contains a construction company.

The following findings on the project site resulting from past operations are summarized from the previous environmental investigations.

- **Former Agricultural Operations.** Soil sampling completed during the Subsurface Investigation and Phase II ESA confirmed the presence of organochlorine pesticides, specifically 4,4-DDE, 4,4-DDT, and endrin, and arsenic and lead in surface soils across the project site. Concentrations of organochlorine pesticides and lead identified in the Phase II ESA and the Subsurface Investigation do not exceed residential screening levels, specifically Environmental Screening Levels (ESLs) (SFB RWQCB 2019); however, one composite sample contained a combined concentration of 4,4-DDE and 4,4-DDT of 1.316 milligrams per kilogram (mg/kg), which exceeds the California hazardous waste criteria for soil disposal (1 mg/kg). As such, while soils do not exceed applicable screening levels for unrestricted development, off-site export and disposal will likely require additional soil handling measures. Detected arsenic concentrations were above residential ESLs but below typical background concentrations and are therefore considered within acceptable levels.
- **Former Fuel USTs.** Two former USTs, which were removed in 1998, were identified in the central portion of the project site. The soil around the former USTs was assessed during removal, then again under Orange County Health Care Agency (OCHCA) oversight in 2010.[1] Soil vapor samples were collected during the Phase II ESA in 2024. Soil vapor samples collected in the former UST had multiple volatile organic compounds (VOCs) that are associated with solvents and petroleum (including, but not limited to, chloroform, tetrachloroethylene, naphthalene, and tert-butyl alcohol), all of which were below residential ESLs (SFB RWQCB 2019). One detection of naphthalene of 3 micrograms per cubic meter (µg/m^3), was "slightly above" the residential ESL of 2.77 µg/m^3. The detection was at 15 feet below ground surface, and the other three soil vapor samples, collected in the same area at 5 and 15 feet below ground surface, had concentrations of 2 µg/m^3, which is below the residential ESL. The Phase II ESA determined that "the minor detection of naphthalene is not considered representative of soil vapor conditions at the site." The average detected concentration of naphthalene in soil vapor is 2.25 µg/m^3, which is also below the residential ESL. As such, soil and soil vapor samples did not identify petroleum or VOC contamination above acceptable levels. As with the pesticide-contaminated soils, soils may require special handling for off-site transport and disposal.
- **Soil Stockpiles.** Multiple soil stockpiles observed on the project site were investigated due to their unknown origin at the time of the Phase II ESA. Sampling results indicated the stockpiles did not contain contaminants of concern associated with past project site operations (organochlorine pesticides, arsenic, or lead). Additional information obtained during the Phase II ESA was used to determine that the stockpiles originated from a nearby residential development site.
- **Undocumented or Unknown Structures.** Based on the long commercial and agricultural history of the project site, the Phase II ESA identified the potential for previously undocumented and/or unknown subsurface structures or features. The Phase II ESA recommended that a soil management plan be prepared that provides protocols for proper identification and management of subsurface features, potential impacts, and proper notification requirements.
- **Former Orange County Shooting and Training Center.** The Phase I ESA discusses a cleanup site associated with the former Orange County Shooting and Training Center, which is located on the "Foothills" portion of the subject property evaluated during the Phase I ESA; the Foothills portion adjoined the current project site to the northeast. Operations at the Orange County Shooting and Training Center resulted in lead

[1] This cleanup site is identified on the State Water Resources Control Board GeoTracker database under "Modeno Gardens," 11911 Jeffrey Road, Case No. T10000017722).

contamination to soils in multiple areas; risk assessments conducted in 2013 and 2015 determined that remaining lead concentrations were above acceptable levels for future development; however, the proposed use of the project site at the time was "open space" and therefore potential risk was deemed acceptable. The cleanup case is currently open (as of January 2025) and is under Orange County and Santa Ana Regional Water Quality Control Board (RWQCB) oversight. The former range areas are at least 0.25 miles northeast of the project site, separated by agricultural land that is regularly disturbed and tilled. Based on this information, it is not expected that the former shooting ranges have resulted in lead contamination to the project site.

4.9.1.2 Hazardous Materials

Hazardous Material Use and Storage

As discussed in the Phase I ESA (Appendix G-1), the age of the on-site structures indicates there is a potential for asbestos-containing materials (ACM) and lead-based paints (LBP) to be present. In addition, other hazardous building materials may be present within on-site buildings. These may include polychlorinated biphenyls (PCBs) and mercury in old electrical equipment, as well as other universal wastes (e.g., batteries, fluorescent bulbs, halogen bulbs).

As also discussed in the Phase I ESA, multiple hazardous materials are used and stored on the project site, including petroleum products in drums and aboveground storage tanks, fertilizers, spray paints, herbicides and pesticides, methanol, and batteries. These materials are used for site operations, including farming, and are also staged in a construction storage yard.

Contaminated Sites

A search for contaminated sites was completed as part of the Phase I ESA, including those on the Cortese List compiled pursuant to California Government Code Section 65962.5. The Phase I ESA was conducted in 2023. Because sites are added to and removed from regulatory databases on a rolling basis, an updated search was completed in January 2025 as part of the analysis for this EIR. Databases reviewed as part of this analysis are summarized in Table 4.9-1. Results of the updated search were compared to the findings of the Phase I ESA, as discussed below.

Table 4.9-1. Online Database Listings

Database	Details
Department of Toxic Substances Control (DTSC) EnviroStor https://www.envirostor.dtsc.ca.gov/	The DTSC's data management system for tracking cleanup, permitting, enforcement, and investigation efforts at hazardous waste facilities and sites with known contamination or sites where there may be reasons for further investigation. This database includes both Cortese List sites (hazardous waste and substance sites listed pursuant to Health and Safety Codes 25220, 25242, 25356, and 116395) and non-Cortese List sites.
Regional Water Quality Control Board (RWQCB) GeoTracker http://geotracker.waterboards.ca.gov/	The California RWQCBs' data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis

Table 4.9-1. Online Database Listings

Database	Details
	on groundwater. GeoTracker contains records for sites that require cleanup, various unregulated projects, and permitted facilities. This database includes both Cortese List sites (leaking underground storage tank sites listed pursuant to California Health and Safety Code 25295) and non-Cortese List sites.
Cortese List Sites https://calepa.ca.gov/sitecleanup/corteselist/	The Cortese List is no longer maintained as a single list. Therefore, multiple databases are used to provide information that meets the Cortese List requirements. In addition to EnviroStor and GeoTracker, the Cortese List information website includes links to solid waste disposal sites with constituents above hazardous waste levels (California Water Code Section 13273[e] and 14 CCR Section 18051), active Cease and Desist Orders and Cleanup and Abatement Orders (California Water Code Sections 13301 and 13304), and hazardous waste facilities subject to corrective actions (California Health and Safety Code 25187.5).
California Environmental Protection Agency (CalEPA) https://siteportal.calepa.ca.gov/nsite/	The CalEPA Regulated Site Portal is a website that combines data about environmentally regulated sites and facilities in California into a single, searchable database and interactive map. Data sources include California Environmental Reporting System (CERS), EnviroStor, GeoTracker, California Integrated Water Quality System (CIWQS), and Toxics Release Inventory (TRI).
CalRecycle Solid Waste Information System (SWIS) https://www2.calrecycle.ca.gov/SolidWaste/Site/Search	The CalRecycle SWIS database contains information on solid waste facilities, operations, and disposal sites throughout California.

With the exception of the Stonegate Development site (discussed in the following paragraph), no new sites or findings were identified in the updated database search. Inclusive of the findings of the Phase I ESA and database search outlined in Table 4.9-1, no Cortese List sites were identified on the project site, nor were any Cortese List sites identified that could impact the environmental condition of the project site.

Stonegate Development. This site was identified as an "orphan site" in the Phase I ESA regulatory records search, which indicates that insufficient information was available to properly map the site. Current GeoTracker records include files pertaining to sampling and cleanup of soils contaminated with organochlorine pesticides prior to residential development (AEC 2014). Although GeoTracker plots this site on the project site, the cleanup files indicate that the site is actually located south and west of Portola Parkway, at the western-adjoining residential development. The environmental documents found indicate that impacted soils were removed during development of the residences. Based on the location and the current residential development, impacts from this site do not appear to have affected the environmental conditions of the project site.

Oil, Gas, and Methane

As further discussed in Section 4.9.2, Relevant Plans, Policies, and Ordinances, Orange County requires methane mitigation for any site within 100 feet of an oil or gas well, within 100 feet of an oil or gas field administrative boundary, or within 1,000 feet of a landfill. No oil or gas wells or oil field administrative boundaries were identified on or within 100 feet of the project site (CalGEM 2025). Additionally, no landfills were identified within 1,000 feet of the project site (CalRecycle 2025). The nearest landfill is the Frank R. Bowerman Landfill, which is approximately 1 mile east of the project site (CalRecycle 2025).

4.9.1.3 Schools

Currently there are no K–12 schools present within 0.25 miles of the project site. The nearest schools are Stonegate Elementary, at 100 Honors Street, and Eastwood Elementary, at 99 Meander Street, which are 0.26 and 0.47 miles from the project site, respectively (GreenInfo 2021). No pending schools in the City of Irvine were identified (CDE 2025).

4.9.1.4 Airports

The John Wayne Airport, at 18601 Airport Way in Santa Ana, is located approximately 7.25 miles west-southwest of the project site (AirNav 2025). The project site does not lie within the published airport influence area for John Wayne Airport (ALUC 2008).

The Federal Aviation Administration (FAA) provides an online tool to evaluate the need for notification under Title 14 of the Code of Federal Regulations (CFR), Part 77.9. Based on the findings of this online criteria, notification may be required for development on the project site, specifically in the southeastern corner of the project site (FAA 2024).

4.9.1.5 Emergency Response and Wildfire

In the Safety Element of the 2045 General Plan, the City of Irvine has analyzed multiple emergency scenarios that could result in the need to evacuate the City (City of Irvine 2024). Evacuation routes would be dependent on conditions following an emergency and would be determined by the City's Emergency Operations Center and first responders (City of Irvine 2024).

The project site is bordered by two existing thoroughfares, Jeffrey Road and Portola Parkway. Both roads connect to state highways within 1 to 2 miles of the project site, providing exit routes north, southwest, and southeast of the project site.

The northern portion of the project site is classified as a Very High Fire Hazard Severity Zone, located within a Local Responsibility Area. Fire response within the Local Responsibility Area is managed by Orange County Fire Authority. The project site also lies directly west of a Very High Fire Hazard Severity Zone within a State Responsibility Area. Fire response within State Responsibility Areas is managed by the California Department of Forestry and Fire Protection (CAL FIRE 2025). The nearest fire station is Orange County Fire Station 55, 4955 Portola Parkway, located approximately 0.75 miles north of the project site.

4.9.2 Relevant Plans, Policies, and Ordinances

Federal

Solid Waste Disposal Act/Federal Resource Conservation and Recovery Act of 1976 (Title 40 USC, Chapter 1, Subchapter I, Parts 260–265)

The Solid Waste Disposal Act, as amended and revised by the Resource Conservation and Recovery Act (RCRA), establishes requirements for the management of solid wastes (including hazardous wastes), landfills, USTs, and certain medical wastes. The statute also addresses program administration; implementation and delegation to the states; enforcement provisions and responsibilities; and research, training, and grant funding. Provisions are established for the generation, storage, treatment, and disposal of hazardous waste, including requirements addressing generator record keeping, labeling, shipping paper management, placarding, emergency response information, training, and security plans.

Universal Waste (Title 40 USC, Chapter 1, Subchapter I, Part 273)

This regulation governs the collection and management of widely generated waste, including batteries, pesticides, mercury-containing equipment, and lightbulbs. This regulation streamlines the hazardous waste management standards and ensures that such waste is diverted to the appropriate treatment or recycling facility.

Oil Pollution Prevention (Title 40 USC, Chapter 1, Subchapter D, Part 112)

Oil pollution prevention regulations require the preparation of a spill prevention, control, and countermeasure (SPCC) Plan if oil is stored in excess of 1,320 gallons in aboveground storage (or, if buried, more than 42,000 gallons). SPCC regulations place restrictions on the management of petroleum materials and therefore have some bearing on hazardous materials management.

National Emission Standard for Asbestos (Title 40 USC, Chapter 1, Subchapter C, Part 61 – National Emission Standards for Hazardous Air Pollutants, Subpart M)

This regulation established National Emission Standards for Hazardous Air Pollutants (NESHAP) and names ACM as one of these materials. ACM is defined as materials containing more than 1% asbestos. ACM use, removal, and disposal are regulated by the U.S. Environmental Protection Agency (EPA) under this law. In addition, notification of friable ACM (ACM that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure) removal prior to a proposed demolition project is required by this law.

Emergency Planning and Community Right-to-Know Act (Title 42 CFR, Chapter 116)

The Emergency Planning and Community Right-to-Know Act provides for public access to information about chemical hazards. The act and its regulations (included in 40 USC Parts 350–372) establish four types of reporting obligations for facilities storing or managing specified chemicals: emergency planning, emergency release notification, hazardous chemical storage reporting requirements, and toxic chemical release inventory. EPA maintains a database, termed the Toxic Release Inventory, which includes information on reportable releases to the environment.

Toxic Substances Control Act of 1976 (Title 15 USC, Chapter 53, Subchapter I, Section 2601 et seq.)

The Toxic Substances Control Act of 1976 empowers EPA to require reporting, record-keeping, and testing, as well as to place restrictions on the use and handling of chemical substances and mixtures. This regulation phased out the use of asbestos and ACM in new building materials and also sets requirements for the use, handling, and disposal of ACM as well as for LBP waste. As discussed previously, EPA has also established NESHAP that govern the use, removal, and disposal of ACM as a hazardous air pollutant, mandate the removal of friable ACM before a building is demolished, and require notification before demolition. In addition to asbestos, ACM, and LBP requirements, this regulation also banned the manufacturing of PCBs and sets standards for the use and disposal of existing PCB-containing equipment or materials.

Regional Screening Levels

The federal EPA provides regional screening levels (RSLs) for chemical contaminants to provide comparison values for residential and commercial/industrial exposures to soil, air, and tap water (drinking water). RSLs are available on the EPA website and provide a screening level calculation tool to assist risk assessors, remediation project managers, and others involved with risk assessment and decision-making. RSLs are also used when a site is initially investigated to determine if potentially significant levels of contamination are present to warrant further investigation. In California, the Department of Toxic Substances Control (DTSC) Human and Ecological Risk Office (HERO) incorporated the EPA RSLs into the HERO human health risk assessment. HERO created Human Health Risk Assessment (HHRA) Note 3, which incorporates HERO recommendations and DTSC-modified screening levels (DTSC-SLs) based on review of the EPA RSLs. The DTSC-SLs should be used in conjunction with the EPA RSLs to evaluate chemical concentrations in environmental media at California sites and facilities.

U.S. Department of Labor, Occupational Safety and Health Administration

Safety and Health Regulations for Construction (Title 29 USC, Part 1926 et seq.)

These standards require employee training; personal protective equipment; safety equipment; and written procedures, programs, and plans for ensuring worker safety when working with hazardous materials or in hazardous work environments during construction activities, including renovations and demolition projects and the handling, storage, and use of explosives. These standards also provide rules for the removal and disposal of asbestos, lead, LBP, and other lead materials. Although intended primarily to protect worker health and safety, these requirements also guide general facility safety. This regulation also requires that an engineering survey be prepared prior to demolition.

Occupational Safety and Health Standards (Title 29 USC, Part 1910 et seq.)

Under this regulation, facilities that use, store, manufacture, handle, process, or move hazardous materials are required to conduct employee safety training, inventory safety equipment relevant to potential hazards, have knowledge on safety equipment use, prepare an illness prevention program, provide hazardous substance exposure warnings, prepare an emergency response plan, and prepare a fire prevention plan.

U.S. Department of Transportation

Shipping Papers (Title 49 USC, Part 172, Subchapter C)

The U.S. Department of Transportation has established standards for the transport of hazardous materials and hazardous wastes. The standards include requirements for labeling, packaging, and shipping hazardous materials and hazardous wastes, as well as training requirements for personnel completing shipping papers and manifests.

Federal Aviation Administration

Aeronautics and Space – Safe, Efficient Use, and Preservation of the Navigable Airspace (Title 14 USC, Chapter 1, Subchapter E, Part 77)

This regulation establishes requirements for notifying FAA of certain construction activities and alterations to existing structures to ensure that there are no obstructions to navigable airspace. For example, projects that include construction or alteration exceeding 200 feet in height above ground level are required to notify FAA.

Federal Response Plan

The Federal Response Plan of 1999, as amended in 2003 (FEMA 2003) is a signed agreement among 27 federal departments and agencies, including the American Red Cross, that (1) provides the mechanism for coordinating delivery of federal assistance and resources to augment efforts of state and local governments overwhelmed by a major disaster or emergency; (2) supports implementation of the Robert T. Stafford Disaster Relief and Emergency Act, as well as individual agency statutory authorities; and (3) supplements other federal emergency operations plans developed to address specific hazards. The Federal Response Plan is implemented in anticipation of a significant event likely to result in a need for federal assistance or in response to an actual event requiring federal assistance under a presidential declaration of a major disaster or emergency.

International Fire Code

The International Fire Code (IFC), created by the International Code Council, is the primary means for authorizing and enforcing procedures and mechanisms to ensure the safe handling and storage of any substance that may pose a threat to public health and safety. The IFC regulates the use, handling, and storage requirements for hazardous materials at fixed facilities. The IFC and the International Building Code use a hazard classification system to determine what measures are required to protect against structural fires. These measures may include construction standards, separations from property lines, and specialized equipment. To ensure that these safety measures are met, the IFC employs a permit system based on hazard classification. The IFC is updated every 3 years.

State

California Unified Program for Management of Hazardous Waste and Materials

Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (California Health and Safety Code, Division 20, Chapter 6.11, Sections 25404–25404.9)

Under the California Environmental Protection Agency, DTSC and the Enforcement and Emergency Response Program administer the technical implementation of California's Unified Program, which consolidates the administration, permit, inspection, and enforcement activities of several environmental and emergency management programs at the

local level. Certified Unified Program Agencies (CUPAs) implement the hazardous waste and materials standards. This program was established under the amendments to the California Health and Safety Code (HSC) made by Senate Bill 1082 in 1994. The programs that make up the Certified Unified Program are as follows:

- Aboveground Petroleum Storage Act Program
- Area Plans for Hazardous Materials Emergencies
- California Accidental Release Prevention (CalARP) Program
- Hazardous Materials Release Response Plans and Inventories (Hazardous Materials Business Plans [HMBPs])
- Hazardous Material Management Plan and Hazardous Material Inventory Statements
- Hazardous Waste Generator and On-Site Hazardous Waste Treatment (Tiered Permitting) Program
- Underground Storage Tank Program

The CUPA for the project site is Orange County Environmental Health, a division of OCHCA.

Business and Area Plans (Title 19 CCR, Chapter 2, Subchapter 3, Sections 2729–2734/California HSC Division 20, Chapter 6.95, Sections 25500–25520)

This regulation requires the preparation of an HMBP by facility operators. The HMBP identifies the hazards, storage locations, and storage quantities for each hazardous chemical stored on site. The HMBP is submitted to the CUPA for emergency planning purposes. The project site is currently subject to these requirements and an HMBP is in place.

Hazardous Waste Management

Environmental Health Standards for the Management of Hazardous Waste (Title 22 CCR, Division 4.5)

In the State of California, DTSC regulates hazardous wastes. These regulations establish requirements for the management and disposal of hazardous waste in accordance with the provisions of the California Hazardous Waste Control Act and the federal RCRA. As with federal requirements, waste generators must determine if their wastes are hazardous according to specified characteristics or lists of wastes. Hazardous waste generators must obtain identification numbers; prepare manifests before transporting waste off site; and use only permitted treatment, storage, and disposal facilities. Standards also include requirements for recordkeeping, reporting, packaging, and labeling. Additionally, although it is not a federal requirement, California requires that hazardous waste be transported by registered hazardous waste transporters.

In addition, Chapter 31: Waste Minimization, Article 1: Pollution Prevention and the Hazardous Waste Source Reduction and Management Review of these regulations requires that generators of 12,000 kilograms/year of typical, operational hazardous waste evaluate their waste streams every 4 years and, as applicable, select and implement viable source reduction alternatives. This act does not apply to non-typical hazardous waste, including ACM and PCBs, among others.

California Hazardous Waste Control Act of 1972 (Title 22 California HSC, Division 20, Chapter 6.5)

This legislation created the framework under which hazardous wastes must be managed in California. It provides for the development of a state hazardous waste program (regulated by DTSC) that administers and implements the provisions of the federal RCRA program. It also provides for the designation of California-only hazardous wastes and development of standards that are equal to or, in some cases, more stringent than, federal requirements. The CUPA is responsible for implementing some elements of the law at the local level.

DTSC-Modified Screening Levels (HHRA Note 3)

HHRA Note 3 presents recommended screening levels (derived from the EPA RSLs using DTSC-modified exposure and toxicity factors) for constituents in soil, tap water, and ambient air. The DTSC-SLs should be used in conjunction with the EPA RSLs to evaluate chemical concentrations in environmental media at California sites and facilities.

Aboveground and Underground Petroleum Storage Tanks

Aboveground Petroleum Storage Act (Title 22 California HSC, Division 20, Chapter 6.67, Sections 25270–25270.13)

This law applies if a facility is subject to SPCC regulations under Title 40 USC Part 112, or if the facility has 10,000 gallons or more of petroleum in any combination of ASTs and connecting pipes. If a facility exceeds these criteria, it must prepare an SPCC plan.

Low-Threat UST Case Closure Policy

This policy applies to petroleum UST sites subject to Chapter 6.7 of the California HSC. This policy establishes both general and media-specific criteria. If both the general and applicable media-specific criteria are satisfied, then the leaking UST case is generally considered to present a low threat to human health, safety, and the environment. This policy recognizes, however, that even if all of the specified criteria in the policy are met, there may be unique attributes of the case or site-specific conditions that increase the risk associated with the residual petroleum constituents. In these cases, the regulatory agency overseeing corrective action at the site must identify the conditions that make case closure under the policy inappropriate.

The RWQCBs and local agencies have been directed to review all cases in the petroleum UST Cleanup Program using the framework provided in this policy. These case reviews shall, at a minimum, include the following for each UST case:

1. Determination of whether each UST case meets the criteria in this policy or is otherwise appropriate for closure based on a site-specific analysis.
2. If the case does not satisfy the criteria in this policy or does not present a low risk based on a site-specific analysis, impediments to closure shall be identified.
3. Each case review shall be made publicly available on the State Water Resources Control Board's GeoTracker website in a format acceptable to the Executive Director.

Environmental Cleanup Levels

Environmental Screening Levels

ESLs provide conservative screening levels for over 100 chemicals found at sites with contaminated soil and groundwater. They are intended to help expedite the identification and evaluation of potential environmental concerns at contaminated sites. The ESLs were developed by the San Francisco Bay Regional Water Quality Control Board; however, they are used throughout the state. Although ESLs are not intended to establish policy or regulations, they can be used as a conservative screening level for sites with contamination. Other agencies in California currently use the ESLs (as opposed to RSLs). In general, the ESLs could be used at any site in the State of California, provided all stakeholders agree (SFB RWQCB 2019). Recently, regulatory agencies in various

regions have used ESLs as regulatory cleanup levels. The ESLs are not generally used at sites where the contamination is solely related to a leaking underground storage tank; those sites are instead subject to the Low-Threat Underground Storage Tank Closure Policy.

California Integrated Waste Management Board

Electronic Waste Recovery and Recycling Act of 2003 (Title 14 CCR, Division 7, Chapter 8.2)

This regulation sets requirements regarding the use and disposal of hazardous substances in electronics. When discarded, the following materials manufactured before 2006 are considered hazardous waste by DTSC: cathode ray tube devices, liquid crystal display (LCD) desktop monitors, laptop computers with LCD displays, LCD televisions, plasma televisions, and portable DVD players with LCD screens.

California Green Building Code

CALGreen (Title 24 CCR Part 11)

Under the California Green Building Code (CALGreen) and Senate Bill 1383, all new demolition and construction projects are required to divert at least 65% of their debris away from landfills by means of reuse or recycling. This waste diversion requirement applies to both demolition and construction activities and operations. For multi-family housing, dedicated space and receptacles must be provided to help administer waste diversion, such as compost and recycling areas and dumpsters. Local permitting jurisdictions may also require waste management plans be submitted for review prior to issuance of permits.

California Department of Transportation/California Highway Patrol

Motor Carrier Safety (Title 13 CCR, Division 2, Chapter 6)

California regulates the transportation of hazardous waste originating or passing through the state. The California Highway Patrol (CHP) and the California Department of Transportation (Caltrans) have primary responsibility for enforcing federal and state regulations and responding to hazardous materials transportation emergencies. CHP enforces materials and hazardous waste labeling and packing regulations that prevent leakage and spills of material in transit and provides detailed information to cleanup crews in the event of an incident. Vehicle and equipment inspection, shipment preparation, container identification, and shipping documentation are all part of the responsibility of CHP. CHP conducts regular inspections of licensed transporters to ensure regulatory compliance. Caltrans has emergency chemical spill identification teams at locations throughout the state. Hazardous waste must be regularly removed from generating sites by licensed hazardous waste transporters. Transported materials must be accompanied by hazardous waste manifests.

Occupational Safety and Health

Safety Orders (Title 8 CCR)

Under the California Occupational Safety and Health Act of 1973, the California Occupational Safety and Health Administration (Cal/OSHA) is responsible for ensuring safe and healthy working conditions for California workers. Cal/OSHA assumes primary responsibility for developing and enforcing workplace safety regulations in Title 8 of the CCR. Cal/OSHA hazardous substances regulations include requirements for safety training, availability of safety equipment, hazardous substance exposure warnings, and emergency action and fire prevention plan preparation.

Cal/OSHA also enforces hazard communication program regulations, which contain training and information requirements, including procedures for identifying and labeling hazardous substances. The hazard communication program also requires that Material Safety Data Sheets be available to employees and that employee information and training programs be documented.

In Division 1, Chapter 4, Subchapter 4 – Construction Safety Orders, of Title 8, construction safety orders are listed and include rules for demolition, excavation, explosives work, working around fumes and vapors, pile driving, vehicle and traffic control, crane operation, scaffolding, fall protection, and fire protection and prevention, among others.

The Cal/OSHA Asbestos and Carcinogen Unit enforces asbestos standards in construction, shipyards, and general industry. This includes identification and removal requirements of asbestos in buildings, as well as health and safety requirements for employees performing work under the Asbestos-In-Construction regulations at 8 CCR 1529. Only a Cal/OSHA-Certified Asbestos Consultant can provide asbestos consulting (as defined by the Business and Professions Code 7180–7189.7, and triggered by the same size and concentration triggers as for registered contractors). These services include building inspection, abatement project design, contract administration, supervision of site surveillance technicians, sample collection, preparation of asbestos management plans, and clearance air monitoring.

Asbestos and Air Quality

Enforcement of the NESHAP Regulation (California HSC Section 39658[b][1])

The California Air Resources Board is responsible for overseeing compliance with the federal Asbestos NESHAPs in Orange County. The Asbestos NESHAP Program enforces compliance with the federal NESHAPs regulation for asbestos and investigates all related complaints, as specified by California HSC Section 39658(b)(1). Of the 35 air districts in California, 16 do not have an asbestos program in place. In these “non-delegated” districts, a demolition/ renovation notification is required for compliance with the Asbestos NESHAP. (This notification is not equivalent to a permit.) The California Air Resources Board reviews and investigates the notifications. The Asbestos NESHAP Program also administers two annual statewide asbestos NESHAP task force meetings for air districts and EPA to facilitate communication and enforcement continuity, and it assists EPA in training district staff to enforce the Asbestos NESHAP.

Contractors State License Board

The California Department of Consumer Affairs Contractors State License Board manages the licensing of asbestos abatement contractors.

Lead-Based Paint

The California Department of Public Health enforces lead laws and regulations related to the prevention of lead poisoning in children, prevention of lead poisoning in occupational workers, accreditation and training for construction-related activities, lead exposure screening and reporting, disclosures, and limitations on the amount of lead found in products. Accredited lead specialists are required to find and abate lead hazards in a construction project and to perform lead-related construction work in an effective and safe manner. The specific regulations are described in the following subsections.

California HSC Sections 124125–124165

These sections of the California HSC declared childhood lead exposure as the most significant childhood environmental health problem in the state, establishing the Childhood Lead Poisoning Prevention Program and instructing it to continue to take steps necessary to reduce the incidence of childhood lead exposure in California.

California HSC Sections 105275–105310

These sections of the California HSC reaffirmed California's commitment to lead poisoning prevention activities; provided the California Department of Public Health with broad mandates on blood lead screening protocols, laboratory quality assurance, identification and management of lead exposed children, and reducing lead exposures.

California HSC Section 105250

This section of the California HSC establishes a program to accredit lead-related construction training providers and certify individuals to conduct lead-related construction activities.

California Civil Code Section 1941.1; California HSC Sections 17961, 17980, 124130, 17920.10, and 105251–105257

These regulations deem a building to be in violation of the State Housing Law if it contains lead hazards and require local enforcement agencies to enforce provisions related to lead hazards. They make it a crime for a person to engage in specified acts related to lead hazard evaluation, abatement, and lead-related constructions courses, unless certified or accredited by the California Department of Public Health. The regulations permit local enforcement agencies to order the abatement of lead hazards or issue a cease and desist order in response to lead hazards.

California Civil Code Sections 1102 to 1102.16

These sections of the Civil Code require the disclosure of known LBP hazards upon sale of a property.

California Labor Code Sections 6716–6717

These sections of the Labor Code provide for the establishment of standards that protect the health and safety of employees who engage in lead-related construction work, including construction, demolition, renovation, and repair.

California HSC Sections 116875–116880

These sections of the California HSC require the use of lead-free pipes and fixtures in any installation or repair of a public water system or in a facility where water is provided for human consumption.

California HSC Sections 105185–105197

These sections of the California HSC establish an occupational lead poisoning prevention program to register and monitor laboratory reports of adult lead toxicity cases, monitor reported cases of occupational lead poisoning to ascertain lead poisoning sources, conduct investigations of take-home exposure cases, train employees and health professionals regarding occupational lead poisoning prevention, and recommend means for lead poisoning prevention.

California Building Code – Chapter 7A

This chapter of the California Building Code establishes minimum standards for buildings located in any Fire Hazard Severity Zone within State Responsibility Areas or any Wildland-Urban Interface Fire Area to resist the intrusion of flames or burning embers ejected by a vegetation fire.

California Board of Forestry and Fire Protection 2010 Strategic Fire Plan for California

California Public Resources Code Sections 4114 and 4130 authorize the California Board of Forestry and Fire Protection to establish a fire plan that establishes the levels of statewide fire protection services for State Responsibility Area lands. These levels of service recognize other fire protection resources at the federal and local level that collectively provide a regional and statewide emergency response capability. In addition, California's integrated mutual aid fire protection system provides fire protection services through automatic and mutual aid agreements for fire incidents across all ownerships. The 2010 Strategic Fire Plan for California is the state's road map for reducing the risk of wildfire through planning and prevention to reduce firefighting costs and property losses, increase firefighter safety, and contribute to ecosystem health.

California State Fire Marshal, Title 19 CCR, Division 1, Chapter 10 – Explosives

This regulation addresses the sale, transportation, storage, use, and handling of explosives in California. Requirements for obtaining permits from the local Fire Chief having jurisdiction and blasting guidelines (such as blasting times, warning devices, and protection of adjacent structures and utilities) are also explained in Chapter 10 of Title 19.

California Emergency Services Act

Under the Emergency Services Act (California Government Code Section 8550 et seq.), the State of California developed an emergency response plan to coordinate emergency services provided by federal, state, and local agencies. Rapid response to incidents involving hazardous materials or hazardous waste is an integral part of the plan, which is administered by the Governor's Office of Emergency Services. The Office of Emergency Services coordinates the responses of other agencies, including EPA, CHP, RWQCBs, air quality management districts, and county disaster response offices.

California Accidental Release Prevention Program

Similar to the EPA Risk Management Program, the CalARP Program (19 CCR 2735.1 et seq.) regulates facilities that use or store regulated substances, such as toxic or flammable chemicals, in quantities that exceed established thresholds. Under the regulations, industrial facilities that handle hazardous materials above threshold quantities are required to prepare and submit an HMBP to the local CUPA via the California Environmental Reporting System. As part of the HMBP, a facility is further required to specify applicability of other state regulatory programs. The overall purpose of CalARP is to prevent accidental releases of regulated substances and reduce the severity of releases that may occur. The CalARP Program meets the requirements of the EPA Risk Management Program, which was established pursuant to the federal Clean Air Act Amendments.

California Dig Alert (California Government Code 4216)

In accordance with California Government Code 4216.2, an excavator planning to conduct an excavation shall notify the appropriate regional notification center of the intent to excavate at least 2 working days, and not more than 14 calendar days, prior to the start of excavation activities. When the excavation is proposed within 10 feet of a "high-

priority subsurface installation," which includes high-pressure natural gas and petroleum pipelines, the operator of the high-priority subsurface installation shall notify the excavator of the installation's existence. Then the operator shall set up an on-site meeting to determine actions required to verify the location of, and prevent damage to, the installation. The excavator shall not begin excavating until the on-site meeting is complete.

Local

Hazardous Materials

Orange County Health Care Agency – Environmental Health

OCHCA is the CUPA designated for the County of Orange by the Secretary for Environmental Protection. The CUPA is the local administrator for hazardous materials, business emergency plans, hazardous waste, USTs, aboveground petroleum storage tanks, and the CalARP Program. Additional information on the CUPA is discussed under "State" in this section under the subheading California Unified Program for Management of Hazardous Waste and Materials.

Waste Management and Hazardous Materials (Orange County Codified Ordinance, Section 7-9-146.4)

The County of Orange has specific requirements, in addition to the requirements of each district, for procedures and principles applicable to the use, storage, management, and disposal of hazardous materials. These procedures include disclosure prior to issuance of certificate of occupancy for commercial uses, waste management, and USTs.

South Coast Air Quality Management District

Rule 403 – Fugitive Dust

The South Coast Air Quality Management District (SCAQMD) requires compliance with Rule 403 to reduce the amount of particulate matter in ambient air resulting from man-made fugitive dust sources. These compulsory steps include monitoring and dust-reducing actions during activities that can generate dust, such as construction and earthwork.

Rule 1403 – Asbestos-Containing Materials

SCAQMD requires compliance with Rule 1403 for protection from ACM. These compulsory steps include surveys, notification, and proper abatement of ACM prior to renovation or any demolition.

Rule 1166 – Volatile Organic Compound Emissions from Decontamination of Soil

SCAQMD requires compliance with Rule 1166 to control emissions during excavation, grading, handling, and treating of VOC-contaminated soil.

Methane

Combustible Soil Gas Hazard Mitigation (Orange County Fire Authority, Community Risk Reduction Guideline C-03)

Orange County Fire Authority has provided guidance for investigation, remediation, and/or mitigation of potentially hazardous concentrations of combustible soil gases associated with construction and occupancy of a structure located within a specified methane risk area. The risk area is defined as within 100 feet of an administrative

boundary of an oil/gas field, within 100 feet of an active or abandoned oil/gas well (not within an administrative boundary), within 300 feet of any gas seepage zone, within 1,000 feet of the refuse footprint of any existing or new landfill, or any other location as determined by Orange County Fire Authority.

Emergency Response

Emergency Services (Orange County Codified Ordinance, Title 3, Division 1)

An emergency management council and emergency management manager are responsible for ensuring development of the Orange County Emergency Plan, which provides effective mobilization of resources, both public and private, in the County to meet conditions constituting a local or state emergency.

City of Irvine

Underground Storage Tanks

Under Bulletin No. 241 of the General Plan, a City building permit is required for installation of a UST. Additionally, under Bulletin No. 183, a grading permit is required for removal of a UST. Grading permits are also submitted to OCHCA, and the agency will also oversee removal efforts.

Construction and Demolition Debris Recycling and Reuse Ordinance – Waste Diversion

Under Ordinance 07-18, construction development, renovation, and demolition projects are required to recycle or reuse most of the debris generated by the project at levels consistent with CALGreen (discussed in this section under "State"). This regulation applies to construction of new residential buildings, remodeling or renovation of existing buildings that adds to the conditioned space, and other structures subject to building permits. Under this ordinance, residential projects are required to divert 75% of non-hazardous concrete and asphalt and 65% of all other construction, demolition, excavated soil, and land clearing debris. Forms and fees are administered by the City.

4.9.3 Thresholds of Significance

The significance criteria used to evaluate the project impacts related to hazards and hazardous materials are based on Appendix G of the CEQA Guidelines. According to Appendix G, a significant impact related to hazards and hazardous material would occur if the project would:

1. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.
2. 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.
3. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.
4. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment.

5. 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, result in a safety hazard or excessive noise for people residing or working in the project area.
6. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.
7. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.

4.9.4 Impacts Analysis

1. Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less-Than-Significant Impact with Mitigation Incorporated. As discussed in Section 3.1, Project Overview, the proposed project would include 1,360 residential units, parks, paseos, and an extension of the Jeffrey Open Space Trail. Construction of the proposed project would require demolition of existing on-site structures, utilities, and related features. As discussed in Section 4.9.1.2, Hazardous Materials, on-site structures may contain hazardous building materials, such as asbestos, LBP, and universal wastes, and hazardous materials used for on-site operations, such as paints and petroleum products. If these materials are disturbed during demolition activities without proper abatement, they could result in a significant hazard to the public or environment through routine transport or disposal. Mitigation Measure (MM) HAZ-1 (Pre-Demolition Hazardous Materials Abatement; see Section 4.9.5, Mitigation Measures, for the full text of mitigation measures for hazards and hazardous materials) requires implementation of abatement procedures during demolition that include surveying of existing buildings for, and abatement of, asbestos- and lead-containing materials, PCB-containing items, universal wastes, and other hazardous materials. Stored hazardous materials, such as petroleum products, fertilizers, and paints, would be identified and either recycled or disposed of in accordance with state and local rules and regulations. Once the materials are abated, the buildings would be prepared for demolition. After demolition, the remaining materials would be sorted for reuse, recycling, and landfill disposal. Materials to be hauled off the project site would be transported in accordance with federal, state, and local laws and regulations. In accordance with CALGreen's diversion requirements and the City's Construction and Demolition Debris Recycling and Reuse Ordinance (07-18), at least 65% of construction and demolition debris will be recycled, reused, or otherwise diverted from landfill.

Hazardous materials that may be used during construction and demolition activities of the proposed project include gasoline, diesel fuel, oil, lubricants, grease, welding gases (e.g., acetylene, oxygen, and argon), solvents, paints, and explosives. These materials would be used and stored in designated construction staging areas within the boundaries of the project site and would be transported, handled, and disposed of in accordance with all applicable federal, state, and local laws and regulations. The use of these materials for their intended purpose would not pose a significant risk to the public or environment. Hazardous wastes accumulated during project construction may include unused or off-specification paint and primer, paint thinner, solvents, and vehicle and equipment maintenance–related materials, many of which can be recycled. Empty containers for such materials (e.g., drums and totes) may also be returned to vendors, if possible. Hazardous waste that cannot be recycled would be transported by a licensed hazardous waste hauler using a Uniform Hazardous Waste Manifest and would be disposed of at an appropriately permitted facility. As noted previously, in accordance with CALGreen's diversion requirements, at least 65% of

construction debris will be recycled, reused, or otherwise diverted from the landfill. The use of these substances is subject to applicable federal, state, and local health and safety laws and regulations that are intended to minimize health risk to the public associated with hazardous materials.

Also discussed in Section 4.9.1.1, Previous Environmental Investigations, and Section 4.9.1.2, Hazardous Materials, contaminated soils are present on the project site. These contaminants include organochlorine pesticides and possible undocumented or unknown subsurface contamination due to past commercial and agricultural use of the project site. While contamination levels are below residential screening levels for future use, soils do have concentrations that may characterize them as California hazardous waste for disposal purposes. Movement, transportation, and disposal of contaminated soils without proper characterization and management procedures could result in a significant hazard to the public or environment through routine transport or disposal without appropriate procedures. MM-HAZ-2 (Soil Management Plan; see Section 4.9.5) requires preparation and implementation of a soil management plan (SMP) that includes procedures for identification, characterization, management, and proper disposal of known and potentially contaminated soils, as well as health and safety measures for construction workers. The SMP will also include procedures for identification and management of unforeseen subsurface features or contamination that may be present on the project site due to past operations.

With implementation of MM-HAZ-1 and MM-HAZ-2, the identified potentially significant impacts would be reduced to less than significant with mitigation incorporated.

Once operational, the proposed project is not expected to create a significant hazard to the public or environment through the routine transport, use, or disposal of hazardous materials. Hazardous materials would be limited to use of commercially available cleaning products, landscaping chemicals and fertilizers, and various other commercially available substances. Although the project would introduce commercially available potentially hazardous materials (e.g., fertilizers and weed control chemicals associated with park maintenance operations) in the vicinity of future residents of and visitors to the project site, the use of these substances would be subject to applicable federal, state, and local health and safety laws and regulations that are intended to minimize health risk to the public associated with hazardous materials. Therefore, operational impacts related to hazardous materials would be less than significant.

2. ***Would the project 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?***

Less-Than-Significant Impact with Mitigation Incorporated. As identified previously, demolition of buildings without proper abatement of hazardous building materials could result in a release of hazardous materials to the environment. A release of hazardous building materials during demolition activities could create a significant hazard to the public or environment due to upset or accident conditions. Additionally, grading and excavation work during construction activities could occur in areas with contaminated soils. This work could result in a significant hazard to the public or environment due to a release of hazardous materials by means of releases of contaminated soils. MM-HAZ-1 and MM-HAZ-2, respectively, would mitigate these impacts by requiring appropriate abatement of hazardous materials in buildings before demolition and construction activities, and implementation of an SMP designed to identify, characterize, and manage contaminated or potentially contaminated soils during earthwork activities. Federal, state, and local rules and regulations have reporting and action requirements for releases of hazardous materials, and the SMP would outline proper procedures to avoid fugitive dusts and exposure to stormwater runoff,

further preventing accidental releases. Stormwater management requirements for construction would also include runoff prevention in the stormwater pollution prevention plan, as discussed in Section 4.10, Hydrology and Water Quality, of this EIR.

Also, as discussed previously, construction and demolition activities would require the use of hazardous materials and may result in the generation of hazardous wastes. State regulations (see Section 4.9.2) require preparation of an HMBP if quantities of hazardous materials and/or wastes stored on site exceed 55 gallons of liquid, 500 pounds of solid, or 200 cubic feet of gas. This HMBP would require training, emergency response procedures, and reporting to the local CUPA (OCHCA). Reported sites are subject to regulatory inspections that verify storage, labeling, reporting, and disposal and are conducted in accordance with applicable rules and regulations. Petroleum storage above 1,320 gallons also requires preparation of an SPCC Plan, and reporting through California's Aboveground Petroleum Storage Act, which requires secondary containment, spill prevention, and training for proper handling of petroleum products. With these regulatory requirements and implementation of MM-HAZ-1 and MM-HAZ-2, any potential for reasonably foreseeable upset or accident conditions to occur on site during demolition and construction activities would be less than significant with mitigation incorporated.

3. ***Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?***

No Impact. As discussed in Section 4.9.1.3, Schools, no current or proposed K–12 schools are within 0.25 miles of the project site. As such, the project would not emit hazardous emissions or handle hazardous materials near a school, and no impact would occur.

4. ***Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?***

No Impact. As discussed in Section 4.9.1.2, no sites listed pursuant to California Government Code Section 65962.5 (Cortese List sites) were identified on the project site, nor were any Cortese List sites identified that appear to impact the environmental condition of the project site. As such, the project would not create a significant hazard due to its presence on a Cortese List site, and no impact would occur.

5. ***For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?***

No Impact. As discussed in Section 4.9.1.4, Airports, the project site is not located within an airport land use plan, nor is it located within 2 miles of a public use airport. As such, the project would not result in a safety hazard or excessive noise for people within the project area, and no impact would occur.

6. ***Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?***

Less-Than-Significant Impact. As further discussed in Section 4.19, Wildfire, off-site improvements causing temporary lane closures would be completed in the first phase of construction. Lane closures would be completed prior to construction of the residential units. Therefore, construction activities are

not anticipated to impede evacuations during this period. Operation of the proposed project would increase the resident population that could require evacuation in the event of a wildfire emergency, but fire modeling outputs (see Appendix J-1, Fire Behavior Analysis) reveal that evacuation would only be required due to impacts of embers and smoke. With the City's Traffic Management Center's adjustments to traffic signals in real time and emergency personnel at intersections to guide evacuees in a real wildfire emergency, worst-case scenario evacuation times would be reduced, and emergency response and evacuation plans would not be significantly impacted. Impacts to adopted emergency response and evacuation plans would be less than significant.

7. Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

Less-Than-Significant Impact with Mitigation Incorporated. As further discussed in Section 4.19, the project site is located in a Very High Fire Hazard Severity Zone (VHFHSZ) and a Local Responsibility Area, and the proposed project could exacerbate wildfire risks, exposing people and structures to significant risk. During construction, MM-WF-1 (Pre-Construction Requirements) would ensure that utilities, site improvements, fire hydrants, all-weather roadway, and fuel modification zones are in place before combustibles are brought onto the project site. This, as well as adherence to City and state regulatory standards for wildfire safety, would reduce the risk of ignition and spread during construction activities. Operation of the proposed project would include a layered approach to wildfire mitigation, including ignition-resistant construction and vegetation and fire-resistant and irrigated landscaping, reducing the potential for ignition. Implementation of a wide fuel modification zone separating homes from unmaintained fuel; Zone 0 landscaping requirements; and Chapter 7A requirements would further reduce fuel load and ember and ignition sources. Implementation of MM-WF-2 (Fire-Resistant Landscape Plan) and homeowners' association maintenance would further reduce ignition sources, such as non-native plants. Electrical lines will be subterranean. With implementation of these mitigation measures, project modifications (such as subterranean electrical lines), and state and City-required actions (Zone 0 landscaping and Chapter 7A), the proposed project would not expose people or structures to significant risk of loss, injury, or death involving wildfires. Impacts would be less than significant with mitigation incorporated.

Impact Summary

On-site structures may contain hazardous materials and hazardous building materials, such as asbestos, lead-based paints, and universal wastes. If these materials are disturbed during demolition activities without proper abatement, they could result in a significant hazard to the public or environment through routine transport or disposal. Therefore, impacts related to creating a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials would be potentially significant, absent mitigation.

Due to the project's location within a VHFHSZ, construction and operation of the proposed project could exacerbate wildfire risks, exposing people and structures to significant risk. Impacts would be potentially significant, absent mitigation.

Other impacts relating to hazards and hazardous materials would be less than significant or would not occur.

4.9.5 Mitigation Measures

The following mitigation measures would address impacts regarding creation of a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials:

MM-HAZ-1 Pre-Demolition Hazardous Materials Abatement. Prior to issuance of a demolition and/or grading permit, the applicant or its designee shall ensure that demolition or renovation plans and contract specifications incorporate appropriate abatement procedures for the removal of materials containing asbestos, lead, polychlorinated biphenyls, hazardous material, hazardous wastes, petroleum and oil products, and universal waste items. Survey for and abatement of these materials must be completed by a licensed contractor in accordance with state regulations. Further, all abatement work shall be done in accordance with federal, state, and local regulations, including, but not limited to, those of the U.S. Environmental Protection Agency (which regulates disposal), federal Occupational Safety and Health Administration, U.S. Department of Housing and Urban Development, California Occupational Safety and Health Administration (which regulates employee exposure), California Department of Public Health (which certifies lead paint workers), and the South Coast Air Quality Management District.

MM-HAZ-2 Soil Management Plan. Prior to the issuance of a grading permit, the project applicant/developer or their designated contractor shall retain a qualified environmental consultant to prepare a soil management plan (SMP) that outlines the proper screening, handling, characterization, transportation, and disposal procedures for contaminated or potentially contaminated soils on site. The SMP shall include health and safety and training procedures for workers who may come in contact with contaminated soils. The SMP shall include on-site soil management requirements to avoid fugitive dust and stormwater runoff, including stockpile management, and response and reporting procedures in the event of a release of contaminated soils or violation of air quality or water quality rules (of the South Coast Air Quality Management District and Santa Ana Regional Water Quality Control Board, respectively). The SMP shall be implemented by the project applicant or their designated contractor for all confirmed and suspected contaminated soils that require excavation and off-site disposal. The SMP shall also include procedures for the identification and proper abandonment of underground storage tanks, piping, sumps, or other features, should any be identified during demolition and construction activities. The SMP shall include procedures to meet all applicable federal, state, and local regulations (including those of the Orange County Health Care Agency and South Coast Air Quality Management District) associated with handling, excavating, stockpiling, and disposing of contaminated soils; the proposed disposal facility that will accept the contaminated soils; and appropriate procedures, notifications, permitting requirements, handling, and disposal requirements for decommissioning any underground storage tanks.

The following mitigation measures for impacts due to wildfires would also reduce impacts relating to wildfire hazards (refer to Section 4.19.5 for the text of these measures):

- MM-WF-1 (Pre-Construction Requirements)
- MM-WF-2 (Fire Resistant Landscape Plan)

4.9.6 Level of Significance After Mitigation

Potentially significant impacts regarding creation of a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials would be addressed by abatement of hazardous materials prior to demolition and/or construction activities as required by MM-HAZ-1. With implementation of MM-HAZ-1, impacts associated with the presence of hazardous building materials (such as asbestos and LBP) and potential remaining hazardous materials within the buildings (such as petroleum products and paints) would be reduced to less than significant. These impacts would also be addressed by preparation and implementation of an SMP (MM-HAZ-2). The SMP would be prepared before earthwork activities occurred and would be implemented during all earthwork activities. With implementation of MM-HAZ-2, impacts associated with the presence of contaminated soils and potentially unforeseen contaminated soil or subsurface features (such as tanks or pipes) would be reduced to less than significant.

Impacts associated with wildfire hazards would be addressed by implementing safety requirements before construction, including establishment of temporary access roads, fuel modification zones, and phased site access as required by MM-WF-1, as well as introducing a fire-resistant landscape plan for operation of the project as required by MM-WF-2. With implementation of MM-WF-1 and MM-WF-2, impacts associated with exposure of people or structures to significant risk of loss, injury, or death, would be reduced to less than significant.

All other impacts would be less than significant or would not occur.

4.9.7 Cumulative Impacts

Impacts associated with hazardous materials, including environmental contamination and releases, are generally localized and specific to the project site in question. In addition, site redevelopment often results in a reduction of environmental contamination, if such exists, through soil removal and excavation activities and abatement of hazardous building materials. Through regulatory requirements and mitigation for each specific project, impacts are ultimately reduced and are not cumulative. Environmental regulations such as spill control requirements and hazardous material management regulations that are put in place to protect site-specific workers and occupants are also protective of nearby occupants and receptors.

Development and redevelopment activities have the potential to use hazardous materials or expose workers and the public to pre-existing contamination. However, these cumulative projects would be fully regulated per federal, state, and local requirements, thus reducing potential for public safety risks; therefore, cumulative impacts associated with exposure to hazards and hazardous materials would be less than significant. Additionally, through mitigation and compliance with regulatory requirements, the construction or operation of the proposed project itself would reduce the potential to combine with other project impacts to create a significant and cumulatively considerable environmental health or safety risks impact. Therefore, with implementation of MM-HAZ-1 and MM-HAZ-2, the proposed project would result in a less-than-cumulatively considerable contribution to cumulatively significant impacts related to hazards and hazardous materials.

4.9.8 References

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4.10 Hydrology and Water Quality

This section describes the existing hydrology and water quality conditions of the project site and vicinity, identifies associated regulatory requirements, evaluates potential impacts, identifies mitigation measures related to implementation of the proposed project, and evaluates cumulative impacts. In addition to the documents listed in Section 4.10.8, References, information contained in this section is based on the following:

- **Appendix F-1:** Water Supply Assessment; prepared by Irvine Ranch Water District; dated April 14, 2025
- **Appendix F-2:** Water Supply Verification; prepared by Irvine Ranch Water District; dated April 14, 2025
- **Appendix F-3:** Preliminary Hydrology Report, Gateway Village, City of Irvine, California; prepared by Fuscoe Engineering Inc.; dated December 2024
- **Appendix F-4:** Preliminary Water Quality Management Plan, Gateway Village, City of Irvine, California (Preliminary WQMP); prepared by Fuscoe Engineering Inc.; dated December 2024
- **Appendix E-1:** Preliminary Geotechnical Subsurface Evaluation, Residential Development, Gateway Village, Irvine, California (Geotechnical Report); prepared by LGC Geotechnical Inc.; dated November 22, 2024

4.10.1 Existing Conditions

Project Site Hydrology

The project site has been farmed for decades and at present consists of unpaved, highly pervious open space. The topography on the upper third of the site generally drains southwest toward Jeffrey Road by two surface ditches, at a gradient of 3.5%. This upper-third site tributary is part of the larger East Hicks Canyon Watershed, which originates off site and upstream of the project site. Stormwater from the upper third of the project site is collected by existing 42-inch, 66-inch, and 96-inch storm drain laterals that feed into Hicks Canyon Facility F27, which is a 102-inch reinforced concrete pipe (RCP) in Jeffrey Road (Figure 4.10-1, Existing On-Site Hydrology). Additionally, off-site run-on conditions (when stormwater flows onto the project site from an adjacent property) occur along the northern project boundary in the form of surface/channel conveyance and along the eastern project boundary in the form of surface and pipe flow conveyance, which in turn feed into the existing 96-inch storm drain lateral (Appendix F-3, Preliminary Hydrology Report).

The topography on the lower two-thirds of the site generally drains in a southerly direction toward Portola Parkway, with a moderate gradient of 2.5% to 3.0%. At Portola Parkway, the flow from the lower two-thirds is collected by two existing storm drain pipes, one on Portola Parkway midway between Jeffrey Road and Bee Canyon Access Road, and one at the intersection of Portola Parkway and Bee Canyon Access Road (Figure 4.10-1). One of the existing storm drain facilities heads northwest along Portola Parkway and turns south at Jeffrey Road, while the second existing storm drain facility heads southeast along Portola Parkway, eventually turning southwest along Paragon. Lastly, run-on conditions from areas east of Bee Canyon Access Road are not present in the lower two-thirds of the site, as existing flows are intercepted and surface-conveyed south before entering a 36-inch RCP and conveyed underground to a connection point with the southern Portola Parkway storm drain (Appendix F-3).

Regional Hydrology

The project site is located within the San Diego Creek Watershed, which is located within the encompassing Central Orange County Watershed Management Area (Figure 4.10-2, Regional Hydrology). The San Diego Creek Watershed covers 112.2 square miles in central Orange County (County) and includes portions of the Cities of Costa Mesa,

Irvine, Laguna Woods, Lake Forest, Newport Beach, Orange, Santa Ana, and Tustin. Smaller tributaries include Serrano Creek, Borrego Canyon Wash, Agua Chinon Wash, Bee Canyon Wash, Peters Canyon Wash, Sand Canyon Wash, Bonita Canyon Creek, and the Santa Ana Delhi Channel. The main tributary to San Diego Creek is Peters Canyon Wash (County of Orange 2007, 2024).

San Diego Creek is the principal watercourse within the larger Newport Bay Watershed, also known as the Central Orange County Watershed Management Area, which encompasses an area of approximately 154 square miles, with overland flows draining toward the Pacific Coast into Newport Bay. The watershed is bounded on the northeast by the Santiago Hills (Loma Ridge), which are part of the Santa Ana Mountains, and on the southeast by the Santiago Hills. The Tustin Plain, a broad alluvial valley, occupies the major portion of the watershed. Major cities within the watershed include Newport Beach, Irvine, Tustin, and portions of Orange, Lake Forest, Laguna Hills, Costa Mesa, and Santa Ana. The watershed has been rapidly urbanizing over the past four decades, with large tracts of agricultural land being transformed into commercial and residential uses. Other land uses include light industrial, county and state open spaces, and federal properties (County of Orange 2007).

Surface Water Quality

The project site is located within the watershed of Reach 1 of San Diego Creek and the downstream Upper Newport Bay. The State Water Resources Control Board (SWRCB) establishes statewide water quality control policy and regulation. SWRCB also coordinates Regional Water Quality Control Boards (RWQCBs), which are responsible for designating beneficial uses, establishing water quality objectives to protect those uses, and identifying programs of implementation to meet objectives through the preparation of a basin plan. The Water Quality Control Plan for the Santa Ana River Basin (Basin Plan) (Santa Ana RWQCB 2019) sets forth policies that address regionwide water quality concerns. Beneficial uses of these water bodies are listed in Table 4.10-1.

Table 4.10-1. Beneficial Use Designations for Water Bodies in the Project Area

Beneficial Use	Water Body	
	San Diego Creek Reach 1	Upper Newport Bay
Municipal and Domestic Supply (MUN)	N/A	N/A
Agriculture Supply (AGR)	N/A	N/A
Industrial Service Supply (IND)	N/A	N/A
Industrial Process Supply (PROC)	N/A	N/A
Groundwater Recharge (GWR)	I	N/A
Navigation (NAV)	N/A	N/A
Hydropower Generation (POW)	N/A	N/A
Water Contact Recreation (REC-1)	X	X
Non-contact Water Recreation (REC-2)	X	X
Commercial and Sport Fishing (COMM)	N/A	X
Warm Freshwater Habitat (WARM)	X	N/A
Limited Warm Freshwater Habitat (LWRM)	N/A	N/A
Cold Freshwater Habitat (COLD)	N/A	N/A
Preservation of Biological Habitats of Special Significance (BIOL)	N/A	X
Wildlife Habitat (WILD)	X	X

Table 4.10-1. Beneficial Use Designations for Water Bodies in the Project Area

Beneficial Use	Water Body	
	San Diego Creek Reach 1	Upper Newport Bay
Preservation of Rare and Endangered Species (RARE)	X	X
Spawning, Reproduction, and/or Early Development (SPWN)	N/A	X
Marine Habitat (MAR)	N/A	X
Shellfish Harvesting (SHEL)	N/A	X
Estuarine Habitat (EST)	X	X

Source: Santa Ana RWQCB 2019.
Note: X = existing or potential beneficial use; I = intermittent beneficial use; N/A = not applicable.

The Peters Canyon Wash and Reach 1 of San Diego Creek are impaired water bodies, as established by SWRCB. These water bodies are impaired with benthic community effects, dichlorodiphenyltrichloroethane (DDT), indicator bacteria, malathion, nutrients, sedimentation/siltation, selenium, toxaphene, pH, and toxicity. In addition, Upper Newport Bay is impaired with chlordane, copper, DDT, and indicator bacteria (SWRCB 2024).

Total maximum daily loads (TMDLs) are defined in federal regulations as "the sum of the individual waste load allocations for point sources and load allocations for nonpoint sources and natural background such that the capacity of the water body to assimilate pollutants (the loading capacity) is not exceeded." TMDLs set limits for the total amount of a particular pollutant that can be discharged to a water body. This limit ensures that pollutant loads from all sources will not impair the designated beneficial uses of the water body. The time frame for compliance with TMDL targets varies but may take many years. TMDLs will often include a compliance schedule, identifying interim and final targets (Orange County Public Works 2024).

A TMDL is developed when a water body has been identified as impaired. Section 303(d) of the federal Clean Water Act (CWA) requires states to establish a listing of all impaired water bodies and to rank those water bodies according to priority for TMDL development. This list, called the 303(d) List, is updated every 2 years and is developed by the Regional and State Water Quality Control Boards and approved by the U.S. Environmental Protection Agency (EPA). TMDLs that have been established or are being developed for all of the pollutants listed above for Peters Canyon Wash, Reach 1 of San Diego Creek, and Upper Newport Bay (SWRCB 2024).

Orange County Groundwater Basin

The project site is underlain by the Irvine Sub-basin of the Orange County Groundwater Basin (Basin). The 350-square mile Basin is bounded on the north by consolidated rocks exposed in the Puente and Chino Hills, on the east by the Santa Ana Mountains, and on the south by the San Joaquin Hills (Figure 4.10-3, Orange County Groundwater Basin). The Basin is bounded on the southwest by the Pacific Ocean and on the northwest by a low topographic divide approximated by the Orange County–Los Angeles County line. The Basin is a three-aquifer system, consisting of shallow, principal, and deep aquifers. The total groundwater storage capacity of the Basin is 38 million acre-feet. The upper aquifer system consists of Holocene alluvium, older alluvium, stream terraces, and the upper Pleistocene deposits represented by the La Habra Formation. The average thickness of the upper aquifer system is 800 feet. The upper aquifer system contains a lower percentage of water-bearing strata in the northwest and coastal areas because clays and clayey silts dominate. Recharge occurs primarily in the northeastern portions of the Basin. The upper aquifer system provides most of the irrigation water for the overlying areas (County of Orange 2007).

The middle aquifer system of the Basin consists of the lower Pleistocene Coyote Hills and San Pedro Formations. The average thickness of the middle aquifer is 1,600 feet, and it is composed of sand, gravel, and minor amounts of clay. The primary recharge of the middle aquifer occurs through a series of recharge basins receiving flows from the Santa Ana River in the northeast portion of the Basin. The middle aquifer system provides 90% to 95% of the groundwater produced from the Basin. The lower aquifer system consists of the Upper Fernando Group of upper Pliocene age and is composed of sand and conglomerate, 350 to 500 feet thick. The lower aquifer system is not widely used because it has colored water issues. Recharge to the Basin originates from percolation of Santa Ana River flow, infiltration of precipitation, and injection into wells. The Santa Ana River flow contains natural flow, reclaimed water, and imported water that is spread in the Basin forebay (County of Orange 2007).

Groundwater Supply

IRWD operates groundwater production facilities in the Basin under the Orange County Water District Act, which empowers the Orange County Water District (OCWD) to impose replenishment assessments and basin equity assessments on production and to require registration of water-producing facilities and the filing of certain reports. However, OCWD is prohibited from limiting extraction unless a producer agrees to such limitation and from impairing vested rights to the use of water. As a result, producers may install and operate production facilities without OCWD approval. However, OCWD is required to annually investigate the condition of the Basin, assess overdraft and accumulated overdraft, and determine the amount of water necessary for replenishment. OCWD has studied the Basin replenishment needs and potential projects to address growth in demand through 2035 in its Final Draft Long-Term Facilities Plan, which was last updated in November 2014 (Appendix F-1, Water Supply Assessment).

A portion of IRWD is outside the jurisdictional boundary of OCWD. IRWD is eligible to annex the Santa Ana River Watershed portion of this territory to OCWD, under OCWD's current annexation policy (OCWD Resolution No. 86-2-15). A September 29, 1998 Superior Court ruling indicates that IRWD is entitled to deliver groundwater from the Basin to the IRWD service area irrespective of whether such area is also within OCWD (Appendix F-1).

The Basin is considered medium priority, with respect to the Sustainable Groundwater Management Act (SGMA) (DWR 2020, 2025). SGMA requires governments and water agencies of high- and medium-priority basins to halt overdraft and bring groundwater basins into balanced levels of pumping and recharge. Under SGMA, these basins should reach sustainability within 20 years of implementing their sustainability plans. In July 2019, the California Department of Water Resources (DWR) approved an alternative to a Groundwater Sustainability Plan (GSP) for the Basin. Alternative plans can be submitted in lieu of GSPs and must demonstrate how water managers have already achieved or will achieve sustainable groundwater management (DWR 2019; OCWD et al. 2017; OCWD 2019).

In April 2023, OCWD and the Orange County Sanitation District completed the final phase of construction of the world's largest indirect potable reuse facility. Located in Fountain Valley, the groundwater replenishment system takes highly treated wastewater that would have been discharged into the Pacific Ocean and purifies it further through a three-step advanced treatment process. The purified water is then injected and percolated into the Basin, where it ultimately becomes part of the County's drinking water supply. The groundwater replenishment system has expanded twice since opening in 2008, completing its final phase in 2023 with a production capacity of 130 million gallons per day of high-quality drinking water (SWRCB 2023).

Groundwater Quality

Groundwater in the Basin is characterized as sodium-calcium bicarbonate, with localized areas of high total dissolved solids due to seawater intrusion along the Pacific Ocean coast, as well as nitrate and volatile organic compounds. Groundwater is recharged naturally from precipitation and injection wells (as discussed above) to

reduce seawater intrusion. OCWD also injects water into the Talbert Barrier and the portion of the Alamitos Barrier Project within the County to prevent seawater intrusion. Water supplies for the seawater barriers include water from the groundwater replenishment system and State Water Project water (DWR 2025).

Project Site Groundwater

Groundwater was not encountered in borings drilled in September 2024, to the maximum explored depth of 30 feet below existing grade. During a previous evaluation in 2023, groundwater was encountered at depths ranging from approximately 64 to 99 feet below existing grade. Regional mapping indicates the historical high groundwater table at a depth ranging from 20 to 40 feet below existing grade. Based on the recently drilled borings and eventual removal of the crops and irrigation from the area, groundwater is not anticipated to occur in the upper 30 feet of sediments. However, groundwater seepage may occur in the bedrock areas on the southern edge of the project site (Appendix E-1, Geotechnical Report).

In general, groundwater levels fluctuate with the seasons, and local zones of perched groundwater may be present within the near-surface deposits due to local seepage or during rainy seasons. Groundwater conditions below the site may be variable, depending on numerous factors including seasonal rainfall, local irrigation, and groundwater pumping, among others

Flooding

The project site is not located in a 100-year floodplain, as designated by the Federal Emergency Management Agency (FEMA). The majority of the site is located within FEMA Zone X, which is an area determined to be outside the 0.2% annual chance floodplain (i.e., 500-year floodplain). However, Hicks Canyon Wash, located along the northern perimeter of the site, is susceptible to a 1% annual chance flood discharge (FEMA 2009, Map Number 06059C03505J, revised December 3, 2009). In addition, the project site is not located in a dam inundation area, as indicated in the 2045 Irvine General Plan Safety Element (City of Irvine 2024).

4.10.2 Relevant Plans, Policies, and Ordinances

Federal

Clean Water Act

The CWA was first introduced in 1948 as the Water Pollution Control Act. The CWA authorizes federal, state, and local entities to cooperatively create comprehensive programs for eliminating or reducing the pollution of state waters and tributaries. The primary goals of the CWA are to restore and maintain the chemical, physical, and biological integrity of the nation's waters and to make all surface waters fishable and swimmable. As such, the CWA forms the basic national framework for the management of water quality and the control of pollutant discharges. The CWA also sets forth a number of objectives to achieve the above-mentioned goals. These objectives include regulating pollutant and toxic pollutant discharges; providing for water quality that protects and fosters the propagation of fish, shellfish, and wildlife; developing waste treatment management plans; and developing and implementing programs for the control of nonpoint sources of pollution.

Since its introduction, major amendments to the CWA have been enacted (e.g., 1961, 1966, 1970, 1972, 1977, and 1987). Amendments enacted in 1970 created EPA, while amendments enacted in 1972 deemed the discharge of pollutants into waters of the United States from any point source unlawful unless authorized by an EPA National

Pollutant Discharge Elimination System (NPDES) permit. Amendments enacted in 1977 mandated development of a "Best Management Practices" Program at the state level and provided the Water Pollution Control Act with the common name of "Clean Water Act," which is universally used today. Amendments enacted in 1987 required EPA to create specific requirements for discharges.

In response to the 1987 amendments to the CWA and as part of Phase I of its NPDES permit program, EPA began requiring NPDES permits for (1) Municipal Separate Storm Sewer Systems (MS4s) generally serving, or located in, incorporated cities with 100,000 or more people (referred to as municipal permits); (2) 11 specific categories of industrial activity (including landfills); and (3) construction activity that disturbs 5 acres or more of land. Phase II of EPA's NPDES permit program, which went into effect in early 2003, extended the requirements for NPDES permits to (1) numerous small MS4s; (2) construction sites of 1 to 5 acres; and (3) industrial facilities owned or operated by small MS4s. The NPDES permit program is typically administered by individual authorized states.

In 2008, EPA published draft Effluent Limitation Guidelines for the construction and development industry. On June 27, 2016, EPA finalized its 2016 Effluent Guidelines Program Plan.

In California, the NPDES stormwater permitting program is administered by SWRCB, which was created by the Legislature in 1967. The joint authority of water distribution and water quality protection allows SWRCB to provide protection for the state's waters, through its nine RWQCBs. The RWQCBs develop and enforce water quality objectives and implement plans that will best protect California's waters, acknowledging areas of different climate, topography, geology, and hydrology. The RWQCBs develop "basin plans" for their hydrologic areas, issue waste discharge requirements, enforce action against stormwater discharge violators, and monitor water quality.

Section 303 of the Clean Water Act (Beneficial Use and Water Quality Objectives)

The Santa Ana RWQCB is responsible for the protection of the beneficial uses of waters within the project area. The Santa Ana RWQCB uses its planning, permitting, and enforcement authority to meet its responsibilities as adopted in the Basin Plan (Santa Ana RWQCB 2019) to implement plans, policies, and provisions for water quality management.

In accordance with state policy for water quality control, the Santa Ana RWQCB employs a range of beneficial use definitions for surface waters, groundwater basins, marshes, and mudflats that serve as the basis for establishing water quality objectives and discharge conditions and prohibitions. The Basin Plan has identified existing and potential beneficial uses supported by the key surface water drainages throughout its jurisdiction (Santa Ana RWQCB 2019). Under CWA Section 303(d), the State of California is required to develop a list of impaired water bodies that do not meet water quality standards and objectives. A TMDL defines how much of a specific pollutant/ stressor a given water body can tolerate and still meet relevant water quality standards. SWRCB has developed TMDLs for select reaches of water bodies.

Section 401 of the Clean Water Act (Water Quality Certification)

Section 401 of the CWA requires that an applicant for any federal permit (e.g., a U.S. Army Corps of Engineers Section 404 permit) obtain certification from the state requiring that discharge to waters of the United States would comply with provisions of the CWA and with state water quality standards. For example, an applicant for a permit under Section 404 of the CWA must also obtain water quality certification per Section 401 of the CWA. Section 404 of the CWA requires a permit from the U.S. Army Corps of Engineers prior to discharging dredged or fill material into waters of the United States, unless such a discharge is exempt from CWA Section 404. For the project area, the Santa Ana RWQCB must provide the water quality certification required under Section 401 of the CWA. Water quality certification under Section 401 of the CWA, as well as the associated requirements and terms, is required to minimize or eliminate the potential water quality impacts associated with the action(s) requiring a federal permit.

Section 402 of the Clean Water Act (National Pollutant Discharge Elimination System)

The NPDES permit program, as authorized by Section 402 of the CWA, was established to control water pollution by regulating point sources that discharge pollutants into waters of the United States (33 USC 1342). In the state of California, EPA has authorized the SWRCB permitting authority to implement the NPDES program. Regulations (Phase II Rule) that became final on December 8, 1999, expanded the existing NPDES Program to address stormwater discharges from construction sites that disturb land equal to or greater than 1.0 acre and less than 5.0 acres (small construction activity). The regulations also require that stormwater discharges from small MS4s be regulated by NPDES General Permit for Storm Water Discharges Associated with Construction Activity, Order No. 99-08-DWQ, also known as the Construction General Permit. See local regulations below for additional information on the Construction General Permit.

Section 404 of the Clean Water Act

Section 404 of the CWA established a permitting program to regulate the discharge of dredged or filled material into waters of the United States, which include wetlands adjacent to national waters (33 USC 1344). This permitting program is administered by the U.S. Army Corps of Engineers and enforced by EPA.

Safe Drinking Water Act

Congress passed the Safe Drinking Water Act in 1974 to protect public health by regulating the nation's public drinking water supply. The act authorizes EPA to set national health-based standards for drinking water to protect against both naturally occurring and human-made contaminants that may be found in drinking water.

Per Section 1424(e) of the Safe Drinking Water Act, EPA established the Sole Source Aquifer Program in 1977 to help prevent contamination of groundwater from federally funded projects. The Sole Source Aquifer Program allows for EPA environmental review of any project that is financially assisted by federal grants or federal loan guarantees to determine whether such projects would have the potential to contaminate a sole source aquifer. The Wellhead Protection Program was developed as a part of the Ground Water Protection Strategy for States and Tribes under the 1986 Amendments to the Safe Drinking Water Act. The Wellhead Protection Program includes delineation of Wellhead Protection Program areas, detection of possible contamination, remediation and monitoring of contamination, contamination prevention, and public education and participation. In March 2021, EPA made a determination to issue drinking water regulations for perfluorooctanoic acid and perfluorooctanesulfonic acid (PFAS), and as part of that process issued a PFAS Strategic Roadmap in October 2021. This roadmap states that EPA will issue drinking water regulations for PFAS under an accelerated time frame.

National Flood Insurance Act

The National Flood Insurance Act of 1968 established the National Flood Insurance Program to provide flood insurance within communities that were willing to adopt floodplain management programs to mitigate future flood losses. The act also required the identification of all floodplain areas within the United States and the establishment of flood risk zones within those areas. FEMA is the primary agency responsible for administering programs and coordinating with communities to establish effective floodplain management standards. FEMA is responsible for preparing Flood Insurance Rate Maps that delineate the areas of known special flood hazards and their risk applicable to the community. The program encourages the adoption and enforcement by local communities of floodplain management ordinances that reduce flood risks. In support of the program, FEMA identifies flood hazard areas throughout the United States on FEMA flood hazard boundary maps.

Executive Order 11988

Under Executive Order 11988 – Floodplain Management, FEMA is responsible for management of floodplain areas defined as the lowland and relatively flat areas adjoining inland and coastal waters subject to a 1% or greater chance of flooding in any given year (the 100-year floodplain). FEMA requires that local governments covered by federal flood insurance pass and enforce a floodplain management ordinance that specifies minimum requirements for any construction within the 100-year floodplain. Executive Order 11988 addresses floodplain issues related to public safety, conservation, and economics. It generally requires federal agencies constructing, permitting, or funding a project in a floodplain to avoid incompatible floodplain development, be consistent with the standards and criteria of the National Flood Insurance Program, and restore and preserve natural and beneficial floodplain values.

State

Porter–Cologne Water Quality Control Act

The Porter–Cologne Water Quality Control Act of 1967 (Porter–Cologne Act)(California Water Code Section 13000 et seq.) is the basic water quality control law for California. The Porter–Cologne Act established the legal and regulatory framework for California's water quality control. The California Water Code authorizes SWRCB to implement the provisions of the CWA, including the authority to regulate waste disposal and require cleanup of discharges of hazardous materials and other pollutants.

As discussed above, the State of California is divided into nine RWQCBs, governing the implementation and enforcement of the California Water Code and CWA. The project site is located within Region 8, also known as the Santa Ana Region (i.e., the Santa Ana RWQCB). Each RWQCB is required to formulate and adopt a basin plan for its region. The Basin Plan is a comprehensive document that reports beneficial uses for surface and groundwaters, defines narrative and numeric parameters to protect water quality, and describes implementation programs to protect waters throughout the region. This plan must adhere to the policies set forth in the California Water Code and established by SWRCB. The RWQCB is also given authority to include within its regional plan water discharge prohibitions applicable to particular conditions, areas, or types of waste. The criteria for the project area are contained in the Basin Plan, adopted by the Santa Ana RWQCB on January 24, 1995, and updated June 2019 (Santa Ana RWQCB 2019).

California Water Code

The California Water Code includes 22 kinds of districts or local agencies with specific statutory provisions to manage surface water. Many of these agencies have statutory authority to exercise some forms of groundwater management. For example, a Water Replenishment District (California Water Code Section 60000 et seq.) is authorized to establish groundwater replenishment programs and collect fees for that service, while a Water Conservation District (California Water Code Section 75500 et seq.) can levy groundwater extraction fees. Through special acts of the legislature, 13 local agencies have been granted greater authority to manage groundwater. Most of these agencies, formed since 1980, have the authority to limit export and even control some in-basin extraction upon evidence of overdraft or the threat of an overdraft condition. These agencies can also generally levy fees for groundwater management activities and for water supply replenishment.

California Toxics Rule

In 2000, EPA promulgated the California Toxics Rule, which establishes water quality criteria for certain toxic substances to be applied to waters in the State. In 1994, a California state court revoked the state's water quality control plans, which contained numeric criteria for water quality. This was in direct violation of the CWA and required EPA action. EPA then implemented the California Toxics Rule. EPA promulgated this rule based on Section 303(c)(2)(B) of the CWA, which dictates that states must adopt numeric criteria to protect human health and the environment. The California Toxics Rule establishes acute (i.e., short-term) and chronic (i.e., long-term) standards for bodies of water, such as inland surface waters and enclosed bays and estuaries, that are designated by the Santa Ana RWQCB as having beneficial uses protective of aquatic life or human health.

Groundwater Management Act

In 1992, Assembly Bill 3030 was passed, which greatly increased the number of local agencies authorized to develop a groundwater management plan and set forth a common framework for management by local agencies throughout California. These agencies could possess the same authority as a water replenishment district to "fix and collect fees and assessments for groundwater management" (California Water Code Section 10754), provided they receive a majority of votes in favor of the proposal in a local election (California Water Code Section 10754.3).

Sustainable Groundwater Management Act

On September 16, 2014, Governor Jerry Brown signed into law a three-bill legislative package—Assembly Bill 1739, Senate Bill 1168, and Senate Bill 1319—collectively known as SGMA. SGMA requires governments and water agencies of high- and medium-priority basins to halt overdraft and bring groundwater basins into balanced levels of pumping and recharge. Under SGMA, these basins should reach sustainability within 20 years of implementing their sustainability plans. For critically overdrafted basins, sustainability should be achieved by 2040. For the remaining high- and medium-priority basins, 2042 is the deadline. Through SGMA, DWR provides ongoing support to local agencies through guidance, financial assistance, and technical assistance. SGMA empowers local agencies to form Groundwater Sustainability Agencies to manage basins sustainably and requires those Groundwater Sustainability Agencies to adopt GSPs for crucial (i.e., medium- to high-priority) groundwater basins in California. The Basin is considered a medium-priority basin with respect to SGMA (DWR 2025).

Local

Water Quality Control Plan for the Santa Ana River Basin

As mentioned above, the Basin Plan was written and implemented by the Santa Ana RWQCB to preserve and enhance water quality throughout northwestern Orange County, parts of San Bernardino County, and western Riverside County. The Basin Plan outlines water quality parameters for both inland surface waters and for groundwaters for a wide variety of water quality constituents. Specifically, the Basin Plan (1) identifies beneficial uses for surface and ground waters; (2) includes the narrative and numerical water quality objectives that must be attained or maintained to protect the designated beneficial uses and conform to the state's anti-degradation policy; and (3) describes implementation programs and other actions necessary to achieve the water quality objectives established in the Basin Plan.

National Pollutant Discharge Elimination System Permit Program

The NPDES permit program was first established in 1972 under authority of the federal government through the CWA to control the discharge of pollutants from any point source into the waters of the United States. As indicated above, in California, the NPDES stormwater permitting program is administered by SWRCB through the nine RWQCBs. For all water-quality-related objectives for CWA purposes, including the NPDES, the state must achieve water quality standards in effect at the state level and the regional level. At the regional level, the effective plan is the Basin Plan.

National Pollutant Discharge Elimination System Construction General Permit

Construction projects that disturb more than 1 acre of land surface are subject to the NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (i.e., the Construction General Permit). The most recent Construction General Permit (Order 2022-0057-DWQ, NPDES No. CAS000002) was adopted by SWRCB on September 8, 2022. The Construction General Permit regulates discharges of pollutants in stormwater associated with construction activity to waters of the United States from construction sites that disturb 1 acre or more of land surface or that are part of a common plan of development or sale that disturbs more than 1 acre of land surface. The permit regulates stormwater discharges associated with construction or demolition activities, such as clearing and excavation; construction of buildings; and linear underground projects, including installation of water pipelines and other utility lines.

The Construction General Permit requires that construction sites be assigned a risk level of 1 (low), 2 (medium), or 3 (high), based both on the sediment transport risk at the site and the receiving waters risk during periods of soil exposure (e.g., grading and site stabilization). The sediment risk level reflects the relative amount of sediment that could potentially be discharged to receiving water bodies and is based on the nature of the construction activities and the location of the site relative to receiving water bodies. The receiving waters risk level reflects the risk to the receiving waters from the sediment discharge. Depending on the risk level, the construction projects could be subject to the following requirements:

- Effluent standards
- Good site management "housekeeping"
- Non-stormwater management
- Erosion and sediment controls
- Run-on and runoff controls
- Inspection, maintenance, and repair
- Monitoring and reporting requirements

The Construction General Permit requires the development and implementation of a stormwater pollution prevention plan (SWPPP) that includes specific best management practices (BMPs) designed to prevent sediment and pollutants from contacting stormwater from moving off site into receiving waters. The BMPs fall into several categories, including erosion control, sediment control, waste management, and good housekeeping, and are intended to protect surface water quality by preventing the off-site migration of eroded soil and construction-related pollutants from the construction area. Each category contains specific BMPs to achieve the goals of the overarching category. Specific BMPs may include the following:

- **Soil stabilizing BMPs:** Use of straw mulch, erosion control blankets or geotextiles, and/or wood mulching
- **Sedimentation control BMPs:** Use of storm drain inlet protection, sediment traps, gravel bag berms, and fiber rolls

- **Waste management BMPs:** Stockpile management, solid waste management, and concrete waste management
- **Good housekeeping BMPs:** Vehicle and equipment cleaning, implementation of water conservation practices and rules for fueling construction vehicles and equipment

The SWPPP must be prepared before the construction begins. The SWPPP must contain a site map(s) that delineates the construction work area, existing and proposed buildings, parcel boundaries, roadways, stormwater collection and discharge points, general topography both before and after construction, and drainage patterns across the project area. The SWPPP must list BMPs and the placement of those BMPs that the applicant would use to protect stormwater runoff. Additionally, the SWPPP must contain a visual monitoring program, a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs, and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment. Examples of typical construction BMPs include scheduling or limiting certain activities to dry periods, installing sediment barriers such as silt fence and fiber rolls, and maintaining equipment and vehicles used for construction. Non-stormwater management measures include installing specific discharge controls during certain activities, such as paving operations and vehicle and equipment washing and fueling. The Construction General Permit also sets post-construction standards (i.e., implementation of BMPs to reduce pollutants in stormwater discharges from the site following construction).

In the project area, the Construction General Permit is implemented and enforced by the Santa Ana RWQCB, which administers the stormwater permitting program. Dischargers are required to electronically submit a Notice of Intent and permit registration documents to obtain coverage under this Construction General Permit. Dischargers are responsible for notifying the Santa Ana RWQCB of violations or incidents of non-compliance and for submitting annual reports identifying deficiencies of the BMPs and how the deficiencies were corrected. The risk assessment and SWPPP must be prepared by a State Qualified SWPPP Developer, and implementation of the SWPPP must be overseen by a State Qualified SWPPP Practitioner. A Legally Responsible Person, who is legally authorized to sign and certify permit registration documents, is responsible for obtaining coverage under the permit.

National Pollutant Discharge Elimination System Municipal Separate Storm Sewer System

The Municipal Stormwater Permitting Program regulates stormwater discharges from MS4s. Stormwater runoff and authorized non-storm flows (conditionally exempt discharges) are regulated under NPDES stormwater permits. Phase I NPDES permits require medium and large cities, or certain counties with populations of 100,000 or more, to obtain NPDES permit coverage for their stormwater discharges. Phase II permits require regulated small MS4s in urbanized areas, as well as small MS4s outside the urbanized areas that are designated by the permitting authority, to obtain NPDES permit coverage for their stormwater discharges. The MS4 permits require the discharger to develop and implement a stormwater management plan/program with the goal of reducing the discharge of pollutants to the maximum extent practicable (the performance standard specified in CWA Section 402[p]), typically through the application of BMPs. The management programs specify what BMPs will be used to address certain program areas. The program areas include public education and outreach, illicit discharge detection and elimination, construction and post-construction, and good housekeeping for municipal operations.

The current County MS4 Permit (Order No. R8-2009-0030, as amended by R8-2010-0062) regulates stormwater runoff and authorized non-storm flows (conditionally exempt discharges) in the Orange County Flood Control District and the incorporated cities of the County within the Santa Ana RWQCB jurisdiction. The MS4 permit contains minimum standards that the Permittees must enforce when construction activities disturb an area greater than 1

acre, such as for the project (see also requirements for the statewide construction permit discussed above, which is a permit that the construction contractor must apply for and adhere to). Compliance with MS4 construction requirements includes implementation of worksite BMPs similar to those described for the Construction General Permit for erosion, sediment, non-stormwater management, and waste management.

During operation of the project, non-stormwater discharges from the project site would be prohibited (with some conditional exceptions). Stormwater discharges must meet water-quality-based effluent limitations or water quality standards for discharges leaving the project site and must not cause or contribute to the exceedance of receiving water limitations (water quality standards for receiving waters). The MS4 permit requires implementation of a water quality management plan (WQMP) for all new development and significant redevelopment projects. In addition, the Permittees shall ensure that the following potential impacts are considered during CEQA reviews:

A. Potential impact of project construction on storm water runoff
B. Potential impact of project's post-construction activity on storm water runoff
C. Potential for discharge of storm water pollutants from areas of material storage, vehicle or equipment fueling, vehicle or equipment maintenance (including washing), waste handling, hazardous materials handling or storage, delivery areas, loading docks, or other outdoor work areas
D. Potential for discharge of storm water to affect the beneficial uses of the receiving waters
E. Potential for significant changes in the flow velocity or volume of storm water runoff to cause environmental harm
F. Potential for significant increases in erosion of the project site or surrounding areas
G. Potential decreases in quality and quantity of recharge to groundwater
H. Potential impact of pollutants in storm water runoff from the project site on any 303(d) listed water bodies

The MS4 permit also requires that volume- or flow-based BMPs be installed as part of the project WQMP. Volume-based BMPs shall be designed to infiltrate, filter, or treat one of the following:

1. The volume of runoff produced from a 24-hour, 85th percentile storm event, as determined from the County of Orange's 85th Percentile Precipitation Isopluvial Map 53
2. The volume of annual runoff produced by the 85th percentile, 24-hour rainfall event, determined as the maximized capture storm water volume for the area, from the formula recommended in Urban Runoff Quality Management, WEF Manual of Practice No. 23/ASCE Manual of Practice No. 87 (1998)
3. The volume of annual runoff based on unit basin storage volume, to achieve 80% or more volume treatment by the method recommended in California Stormwater Best Management Practices Handbook – Industrial/Commercial
4. The volume of runoff, as determined from the local historical rainfall record that achieves approximately the same reduction in pollutant loads and flows as achieved by mitigation of the 85th percentile, 24-hour runoff event
5. The maximum flow rate of runoff produced from a rainfall intensity of 0.2 inches of rainfall per hour, for each hour of a storm event
6. The maximum flow rate of runoff produced by the 85th percentile hourly rainfall intensity, as determined from the local historical rainfall record, multiplied by a factor of two
7. The maximum flow rate of runoff, as determined from the local historical rainfall record, that achieves approximately the same reduction in pollutant loads and flows as achieved by mitigation of the 85th percentile hourly rainfall intensity multiplied by a factor of two

In addition, structural infiltration BMPs shall be constructed such that they are protective of underlying groundwater quality.

Central Orange County Integrated Regional and Coastal Watershed Management Plan

The Central Orange County Integrated Regional and Coastal Watershed Management Plan (IRCWM Plan) (County of Orange 2007) incorporates integrated regional water management planning to address issues related to water quality, habitat protection and enhancement, flood control, water supply, and stormwater management. The IRCWM Plan is a programmatic planning document for the region prepared in accordance with the state's Integrated Regional Water Management Plan Standards, as required per California Water Code Section 79560 et seq. The purpose of the IRCWM Plan is to provide a bridge between existing and developing watershed planning efforts, allowing for more effective collaboration and greater opportunity to leverage agency resources across jurisdictions. Regional planning efforts include the Orange County Stormwater Program; the Nitrogen and Selenium Management Program; an agreement to fund nutrient, fecal coliform, and toxics TMDL studies for the Newport Bay Watershed; the Newport Bay Watershed Sediment Control Monitoring and In-Channel Maintenance Program; and other programs and specific water-resource-related projects.

Basin 8-1 Alternative Plan

As discussed in Section 4.10.1, Existing Conditions, in July 2019, DWR approved an alternative to a GSP for the Orange County Groundwater Basin. Alternative plans can be submitted in lieu of GSPs and must demonstrate how water managers have already achieved or will achieve sustainable groundwater management. DWR designated the Coastal Plain of Orange County Groundwater Basin (Basin 8-1) as a medium-priority basin, primarily due to heavy reliance on the Basin's groundwater as a source of water supply. The agencies within Basin 8-1, including OCWD, IRWD, and the City of La Habra (collectively the Submitting Agencies), agreed to collaborate in order to submit an alternative to a GSP, known as the Basin 8-1 Alternative. In accordance with Water Code Section 10733.6(b)(3), the Basin 8-1 Alternative presents an analysis of basin conditions that demonstrates that the Basin has operated within its sustainable yield over a period of at least 10 years. In addition, the Basin 8-1 Alternative establishes objectives and criteria for management that would be addressed in a GSP and is designed to be "functionally equivalent" to a GSP.

2045 Irvine General Plan

The 2045 Irvine General Plan is composed of elements that address a broad range of issues. Each element of the plan identifies and describes goals, objectives, and implementing actions that provide specific direction for decision-making and formation of public policy through the year 2045. The General Plan contains seven elements required by the State Planning, Zoning, and Development Laws. The Conservation and Open Space Element and the Safety Element are relevant to hydrology and water-quality-related issues.

2045 Irvine General Plan Conservation and Open Space Element

The following goal, objective, and policies in the 2045 Irvine General Plan Conservation and Open Space Element are related to hydrology and water quality (City of Irvine 2024a):

Goal 3. Use and preserve geophysical resources, including, but not limited to, ridgelines, hillsides, and waterways, as part of the City's land use pattern.

Objective COS-3: Effectively utilize and safeguard geophysical resources, encompassing ridgelines, hillsides, and waterways, within the City's land use framework to maintain ecological integrity, enhance aesthetic value, and promote sustainable development practices that harmonize with the natural landscape.

Policy (c): Encourage the creation of flood control channels, preferring natural swale designs where feasible, and promote the development of small lakes for public use while preserving their natural edges.

Policy (d:) Conduct studies on existing drainage channels to determine suitable preservation measures, integrating them into surrounding development designs.

Policy (e): Minimize alterations to major creek courses and ensure no net loss in the quantity or quality of surface and subsurface water flow into the San Joaquin Marsh resulting from development activities.

Policy (h): Ensure proposed development in hillside areas minimize flood hazard and runoff impacts on both lowlands and hillsides.

Policy (i): Minimize the danger to life and property from geophysical hazards, including, but not limited to, unstable soils, liquefaction, steep slopes, and floodways.

2045 Irvine General Plan Safety Element

The following goals, objectives, and policies in the 2045 Irvine General Plan Safety Element are related to hydrology and water quality (City of Irvine 2024b):

Goal 3. Anticipate the risks and mitigate the effects that flood hazards pose to the community.

Objective S-3: Flood Hazards

Policy (a): Work with Orange County Flood Control District to ensure flood control facilities are adequately provided and maintained.

Policy (b): Collaborate with partner agencies and municipalities to align green infrastructure projects (i.e., projects that allow for the infiltration of stormwater where it falls) and develop regulations for watersheds across jurisdictions to reduce impervious hard surfaces.

Policy (c): Support efforts of other organizations and academic institutions to conduct studies of the impact combined riverine and coastal flooding, groundwater intrusion, and increased precipitation has on flood risk and vulnerability.

Policy (e): Develop and update a long-term plan to address current and future flood risk to critical facilities.

Policy (f): Continue to partner with Orange County Public Works to proactively disseminate information from the 'H2OC Stormwater Program' to educate home and small business

owners on regulations and highlight the role that engaged residents can play in assisting with community-based stormwater management.

Policy (g): Ensure resilience and long-term functionality of stormwater and sewer systems.

Policy (h): Encourage the use of climate-smart landscape surfaces (e.g., permeable pavement, stormwater parks, green streets) in new and existing developments to reduce runoff, minimize flood hazards, and maintain existing drainage ways.

Policy (i): Continue to encourage the implementation of low-impact development (e.g., rain gardens and rainwater harvesting) to reduce flood risk, filter pollutants, and replenish groundwater over time.

Policy (k): Coordinate with other agencies to increase the public awareness of flooding, stormwater management, and drought management issues and techniques for residents to mitigate those challenges on their property.

Goal 5. Protect the community from the threat of drought and extreme heat.

Objective S-5: Drought and Extreme Heat

Policy (a): Collaborate with federal, State, and local agencies and organizations to explore alternative water sources (e.g., desalination) and improve capacity in consideration of increased demand and drought.

Policy (b): Continue to support Irvine Ranch Water District's recycled water program and explore opportunities to enhance water recycling.

Policy (c): Continue to support and participate in in the development of a regional and local drought contingency plan.

Policy (d): Encourage drought-tolerant native landscaping, low-flow water fixtures beyond the state minimum code, and daytime watering restrictions on properties throughout the City to reduce water consumption.

Policy (e): Explore the feasibility of recycled water distribution for residential uses on all lot sizes.

Policy (f): Protect groundwater supply against contamination, degradation, or loss due to flooding.

Policy (g): Promote a system for rapidly detecting, reporting, and repairing water leaks in public facilities and the water conveyance system.

Policy (h): Promote nature-based methods and best management practices (BMPs) (e.g., bioswales, rain gardens, natural ground cover) through the City's stormwater program to promote groundwater infiltration and reduce the impacts of drought.

Policy (i): Support regional patterns in education and outreach efforts focused on water conservation measures (e.g., water reuse, water use, and irrigation efficiency) for City residents.

City of Irvine Water Quality Regulatory Requirements

A project WQMP must be submitted for new development and significant redevelopment projects in the City of Irvine (City). Project WQMPs describe how property owners/managers will comply with the post-construction water quality requirements described in the City's NPDES permit (issued by the Santa Ana RWQCB), and the City's Local Implementation Plan. The project WQMP template has been designed to facilitate the expeditious review and approval of project WQMPs by the City's Building and Safety Division and to reduce the number of revisions and resubmittals of project WQMPs before approval is granted. Project plans submitted for plan check must be consistent with the approved project WQMP, and the project WQMP must be approved prior to the issuance of building or grading permits.

City of Irvine Water Quality Ordinance

The Water Quality Ordinance (No. 10-06) gives the City adequate legal authority as may be necessary to carry out the requirements of the NPDES Permit and accomplish the requirements of the CWA.

City of Irvine Hydrology and Hydraulics Regulations

City of Irvine Public Works Standard Plans and Design Manuals, Section 102, Hydrology and Hydraulics, dated August 2013, indicates that drainage design requirements shall be in accordance with the latest edition of the Hydrology Manual published by the Orange County Flood Control District and the Orange County Local Drainage Manual, published by the Orange County Public Works. Design calculations and flow maps for all contributory areas shall be submitted with the plans. As noted in Section 102 (City of Irvine 2013):

> The use of underground storm drain systems shall be required:
>
> - When flooding or street overflow will cause serious damage.
> - When future upstream development will cause drainage problems.
> - When a minimum of one through lane in each direction cannot be maintained above the theoretical design storm frequency.
> - To eliminate the need for cross gutters.
> - To eliminate nuisance water in residential areas (maximum surface flow between catch basins = 750 feet).
> - When median drainage is required.
> - To insure [sic] building protection for the 100-year storm.
>
> Drainage systems shall be designed along with site grading to insure [sic] all building pads are a minimum of one-foot above the elevation of the theoretical 100-year storm flow. In addition, the 25-year design frequency shall be used for all storm drains, unless otherwise approved by the City Engineer.

4.10.3 Thresholds of Significance

The significance criteria used to evaluate the project impacts to hydrology and water quality are based on Appendix G of the CEQA Guidelines. According to Appendix G, a significant impact related to hydrology and water quality would occur if the project would:

1. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality.

2. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.
3. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:
   a. result in substantial erosion or siltation on or off site;
   b. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site;
   c. 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; or
   d. impede or redirect flood flows.
4. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation.
5. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

4.10.4 Impacts Analysis

1. Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Less-Than-Significant Impact. The analysis below discusses construction-related water quality impacts and operations-related water quality impacts.

Construction

The project would require cut-and-fill mass grading, followed by vertical building construction, paving/ concrete, and landscape installation. Construction of the project would have the potential to result in local soil erosion during excavation, grading, trenching, and soil stockpiling. As discussed in Section 4.10.1, Existing Conditions, the project site is located within the San Diego Creek Watershed, which is the principal watercourse within the larger Newport Bay Watershed. Each of these construction-related activities would result in potential siltation of San Diego Creek and its tributaries, including Hicks Canyon Wash, which accepts stormwater runoff from the northern portion of the site. Construction equipment and materials would include fuels, oils and lubricants, solvents and cleaners, cements and adhesives, paints and thinners, degreasers, cement and concrete, and asphalt mixtures, which are all commonly used in construction. During the construction phase of the project, petroleum hydrocarbons in site runoff could result from construction equipment/vehicle fueling or spills. The accidental spill of hazardous materials could adversely affect the water quality of stormwater and/or surface water bodies.

As discussed in Section 4.9, Hazards and Hazardous Materials, of this Draft EIR, construction activities would be required to comply with numerous hazardous materials regulations designed to ensure that hazardous materials are transported, used, stored and disposed of in a safe manner to protect worker safety and to reduce the potential for a release of construction-related fuels or other hazardous materials into the environment, including stormwater and nearby surface water bodies. As discussed in Section 4.9, pursuant to California Health and Safety Code, Division 20, Chapter 6.95, the contractors would be required to prepare and implement a hazardous materials business plan that would require that hazardous materials be properly used and stored in appropriate containers, that spill prevention measures be

implemented, and that spill response procedures be in place to respond to accidental releases. The California Fire Code would also require measures for the safe storage and handling of hazardous materials.

Construction activities must be conducted in compliance with South Coast Air Quality Management District Rule 403 – Fugitive Dust, which would minimize wind and water erosion at the site. Compliance with the SWRCB regulations requires preparation and implementation of a SWPPP, in accordance with the NPDES Construction General Permit. The SWPPP must include BMPs, including erosion control measures and proper handling of petroleum products, such as proper petroleum product storage and spill response practices, to prevent pollution in stormwater discharge. The construction phase BMPs would ensure effective control of sediment discharge and also of pollutants associated with sediments, such as nutrients, heavy metals, and pesticides. The SWPPP would be subject to review and approval by the City Public Works and Sustainability Department. All project construction activities are also required to comply with the Public Works Grading Manual, which requires appropriate BMPs for wet and dry weather applications, desilting and erosion protection facilities necessary to protect adjacent property from sediment deposition, and a plan indicating how access would be provided to maintain desilting facilities during wet weather. Through compliance with these existing regulations, the project would not result in any significant water quality impacts related to soil erosion during the construction phase.

Operation

The project includes the replacement of an existing agricultural area with new residential, recreational, and associated roadway and utility infrastructure. The primary sources of pollution in runoff from these land uses are expected to include oil, grease, petroleum products, and automobile-related pollutants; pathogens/bacteria from pets; pesticides/herbicides/insecticides, nitrogen, and phosphorous from fertilizers for landscaping; and trash, lawn clippings, and debris that can accumulate on impervious surfaces, such as parking lots, driveways, and sidewalks. Other potential pollutants that may be generated by the project include household-type cleaning products, maintenance products (e.g., paints, solvents, cleaning products), and refrigerants associated with building mechanical heating, ventilation, and air conditioning systems.

Excess fertilizers, nutrients, and pathogens/bacteria from pets can impact water quality by promoting excessive and/or rapid growth of aquatic vegetation, which reduces water clarity and results in oxygen depletion. Pesticides/herbicides/insecticides can also enter urban runoff after application on landscaped areas and can be toxic to aquatic organisms and can bioaccumulate in larger species, such as birds and fish. The potential impacts of these substances on biological resources are discussed in Section 4.4, Biological Resources, of this Draft EIR. Oil, grease and heavy metals can enter dry-weather and stormwater runoff from vehicle leaks, traffic, and vehicle maintenance activities, and metals can enter runoff as surfaces corrode, decay, or leach.

These anticipated pollutants would be addressed through project features, as described in Appendix F-4 (Preliminary WQMP) and through compliance with regulatory requirements. During operations, the project site would consist of vegetated open space, landscaped areas, buildings, and hardscapes. Low Impact Development (LID) BMPs are required in addition to site design measures and source controls to reduce pollutants in stormwater discharges. LID BMPs are engineered facilities that are designed to retain or biotreat runoff on the project site. The County MS4 Permit (Order R8-2009-0030) requires the evaluation and use of LID features, using the following hierarchy of treatment: infiltration, evapotranspiration, harvest/reuse, and biotreatment. Biotreatment BMPs are a broad class of LID BMPs that reduce stormwater volume

to the maximum extent practicable, treat stormwater using a suite of treatment mechanisms characteristic of biologically active systems, and discharge water to the downstream storm drain system or directly to receiving waters. Eleven precast Contech Modular Wetlands Systems (MWSs) and one Contech Bioscape vegetated biotreatment system are proposed to treat stormwater runoff due to poor on-site infiltration rates. The biotreatment BMPs would be sized to treat runoff from the Design Capture Storm (85th percentile, 24-hour). Because Contech MWSs and Bioscape systems are sized based on flow rate, they were sized using the methodology for flow-based BMPs (Appendix F-4).

Contech MWSs are proprietary biotreatment systems that use multistage treatment processes including screening media filtration, settling, and biofiltration. The pretreatment chamber contains the first three stages of treatment and includes a catch basin inlet filter to capture trash, debris, gross solids, and sediments, a settling chamber for separating out larger solids, and a media filter cartridge for capturing fine total suspended solids, metals, nutrients, and bacteria. Runoff then flows through the wetland chamber, where treatment is achieved through a variety of physical, chemical, and biological processes. As stormwater passes down through the planting soil, pollutants are filtered, adsorbed, biodegraded, and sequestered by the soil and plants in a manner similar to bioretention systems. The discharge chamber at the end of the unit collects treated flows and discharges back into the storm drain system (Appendix F-4).

Stormwater enters the Bioscape biotreatment system through a pipe, curb inlet, or sheet flow and ponds over the pretreatment mulch layer, capturing heavy sediment and debris. Organics and microorganisms within the mulch trap and degrade metals and hydrocarbons. The mulch also provides water retention for the system's vegetation. Stormwater flows through engineered Filterra media, which filters fine pollutants and nutrients. Organic material in the media removes dissolved metals and acts as a food source for root-zone microorganisms. Treated water exits through an underdrain pipe or infiltrates (if designed accordingly). Root-zone microorganisms digest and transform pollutants into forms easily absorbed by plants. Plant roots absorb stormwater and pollutants that were transformed by microorganisms, regenerating the media's pollutant removal capacity. The roots grow, provide a hospitable environment for the root-zone microorganisms, and penetrate the media, maintaining hydraulic conductivity. The plant trunk and foliage use nutrients such as nitrogen and phosphorus for plant health, sequester heavy metals into the biomass, and provide evapotranspiration of residual water within the system (Appendix F-4).

The project site has been divided into drainage management areas (DMAs) A-1 through A-7, B-1, and C-1 (Figure 4.10-4, Proposed On-Site Hydrology). During storm events, stormwater flows from DMAs A-1, A-2, and A-3 would be collected, treated by an MWS, and conveyed to an underground detention tank or aboveground detention basin for peak flow mitigation. Runoff from these DMAs would be conveyed to the existing 42-inch storm drain lateral, which in turn would feed into the existing 102-inch RCP Hicks Canyon Facility F27. Stormwater runoff in DMAs A-4 through A-7 would similarly be collected, treated by an MWS, and conveyed to the proposed park site, where 2-year peak flow mitigation would occur via an underground detention tank or aboveground detention basin. A pass-through storm drain would be constructed within the proposed "C" Street to intercept off-site flows along the southeast project boundary. The mitigated stormwater flow from DMAs A-4 through A-7 would flow into this proposed storm drain, which in turn would flow into the existing 66-inch storm drain lateral that feeds into the 102-inch RCP Hicks Canyon Facility F27 (Appendix F-4).

Stormwater runoff in DMA B-1 would be collected by a proposed storm drain originating from the intersection of proposed B Street and D Street (Figure 4.10-4). The low flows would be split off and sent to a Contech Bioscape system for treatment. The 2-year and high flows would be sent to a proposed

underground detention tank or aboveground detention basin, which would be provided for peak flow mitigation near the intersection of Bee Canyon Access Road and Portola Parkway. The reduced flow will be connected to an existing 36-inch RCP lateral that connects into the existing 24-inch storm drain on Portola Parkway (Appendix F-4).

Stormwater runoff in DMA C-1 would be collected in a short section of proposed storm drain in E Street and then treated by an MWS (Figure 4.10-4). Because the proposed flow rate would be marginally higher (0.1%) in this DMA than under existing conditions, peak flow mitigation would not be required. After treatment, stormwater would be conveyed to the existing 48-inch storm drain in Portola Parkway that flows northwest toward Jeffrey Road (Appendix F-3, Preliminary Hydrology Report, and Appendix F-4, Preliminary WQMP).

In addition, nonstructural source control BMPs would be employed at the site, including education for property owners, tenants, and occupants; activity restrictions to prevent water quality degradation; common area landscape management; BMP maintenance; common area litter control; employee training; common area catch basin inspections; and street sweeping of private streets and parking lots. In addition to the biotreatment system described above, other structural source control BMPs would be employed at the site, including storm drain system stenciling and signage and use of efficient irrigation systems and landscape design, water conservation, smart controllers, and source controls (Appendix F-4).

The project's LID water quality BMPs and compliance with applicable laws and regulations would ensure that operation of the project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface water or groundwater quality, and impacts would be less than significant.

2. Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

Less-Than-Significant Impact. The analysis includes a discussion of whether the project would substantially decrease groundwater supplies or interfere with groundwater recharge.

Groundwater Supplies

IRWD has been identified by the City as a public water system that will supply water service (both potable and nonpotable) to the project. As the public water system, IRWD is required by Section 10910 et seq. of the California Water Code to provide the City with an assessment of water supply availability for defined types of projects. The project has been found by the City to be a project requiring an assessment. As a result, a Water Supply Assessment (Appendix F-1) and a Water Supply Verification (Appendix F-2, which includes the Water Supply Assessment as Exhibit C), have been completed for the project.

As discussed in Section 4.10.1, in July 2019, DWR approved an alternative to a GSP for the Orange County Groundwater Basin. Alternative plans can be submitted in lieu of GSPs and must demonstrate how water managers have already achieved or will achieve sustainable groundwater management. DWR designated Basin 8-1 as a medium-priority basin, primarily due to heavy reliance on the Basin's groundwater as a source of water supply. The Submitting Agencies within Basin 8-1 agreed to collaborate to submit an alternative to a GSP, known as the Basin 8-1 Alternative (Appendix F-1).

Based on the Basin 8-1 Alternative, IRWD's water supplies remain essentially constant between normal, single-dry, and multiple-dry years, as groundwater and Metropolitan Water District (Metropolitan) imported water account for the majority of all of IRWD's potable supply, and recycled water, groundwater, and imported water comprise all of IRWD's nonpotable supply. Groundwater production from the Basin typically remains constant or may increase in cycles of dry years, even if overdraft of the basin temporarily increases, as groundwater producers reduce their demand on imported supplies to secure reliability.

Metropolitan's 2020 Urban Water Management Plan concludes that Metropolitan has supply capabilities sufficient to meet expected demands from 2025 through 2045 under a single-dry-year condition and a period of drought lasting five consecutive years, as well as in a normal water year condition. Recycled water production also remains constant and is considered "drought-proof" as a result of constant sewage flows, including years with low precipitation. This diversity of water supplies results in relatively constant groundwater production levels and minimizes adverse impacts to groundwater supplies. Based on the Water Supply Assessment and Water Supply Verification, adequate water supplies are available to meet the proposed project water demands (including peak flow demands) under normal year, single-dry-year, and multiple-dry-year conditions through the year 2045 (Appendices F-1 and F-2).

In accordance with California Water Code Section 10733.6(b)(3), the Basin 8-1 Alternative presents an analysis of basin conditions that demonstrates that the Basin has operated within its sustainable yield over a period of at least 10 years. In addition, the Basin 8-1 Alternative establishes objectives and criteria for management that would be addressed in a GSP and is designed to be "functionally equivalent" to a GSP. Basin 8-1 has been operated within its sustainable yield for more than 10 years without experiencing significant and unreasonable (1) lowering of groundwater levels; (2) reduction in storage; (3) water quality degradation; (4) seawater intrusion; (5) inelastic land subsidence; or (6) depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water. Pursuant to the Basin 8-1 Alternative, the Submitting Agencies will ensure the entire Basin 8-1 continues to be sustainably managed and data reported as required by SGMA (Appendix F-1). As a result, the project would not substantially decrease groundwater supplies such that the project may impede sustainable groundwater management of the Basin. Impacts would be less than significant.

Groundwater Recharge

The project site has been farmed for decades and at present consists of unpaved open space overlying the Irvine Sub-basin of the Orange County Groundwater Basin. Following grading and construction, the project site would consist of vegetated open space, landscaped areas, buildings, and hardscapes. The buildings and hardscapes would result in a substantial increase in impervious surfaces, which in turn would impede absorption of rainfall into on-site soils. However, based on the WQMP completed for the project (Appendix F-4), on-site soils have low infiltration rates, thus precluding the use of infiltration basins as water quality LID features (see Section 4.10.4[1]). Based on these low infiltration rates, the project site is not an area of substantial groundwater recharge. As a result, the project would not interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the Basin. Impacts would be less than significant.

3. Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

a. Result in substantial erosion or siltation on or off site?

Less-Than-Significant Impact. Project grading and construction would not substantially alter the existing drainage pattern of the site. The topography of the site would generally remain the same, and stormwater runoff would predominantly flow to the same drainage exit points as under existing conditions. However, project grading and construction would result in a substantial increase in impervious surfaces, which in turn would result in increased stormwater runoff. Based on the project-specific Preliminary Hydrology Report (Appendix F-3), hydrologic calculations were prepared for existing conditions throughout the site to establish baseline storm flow rates at project watershed exit points. These baseline storm flow rates were compared to proposed-condition design peak flow rates to determine peak flow rate mitigation requirements. Per the Orange County Hydrology Manual (Orange County Environmental Management Agency 1986, 1996) and the City of Irvine Standards (City of Irvine 2013), a 25-year-frequency storm event was selected for design peak flow rate evaluation because sump conditions are present on site.

As discussed above for water quality during operations, during storm events, stormwater flows would be collected, treated by an MWS, and conveyed to underground detention tanks and/or an aboveground detention basin for peak flow mitigation. With the exception of DMA C-1, per applicable regulations, peak flow mitigation would be designed for a 25-year-frequency storm event. Because the proposed flow rate in DMA C-1 would be marginally higher (0.1%) than under existing conditions, peak flow mitigation would not be required (Appendices F-3 and F-4). With incorporation of stormwater detention tanks and/or aboveground detention basins into the project design, the project would not result in increased runoff and associated on-site or off-site erosion and siltation of downstream drainages. Impacts would be less than significant.

b. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site?

Less-Than-Significant Impact. As previously discussed, with incorporation of stormwater detention tanks and/or aboveground detention basins into the project design, in compliance with County and City stormwater standards, the project would not result in a substantial increase in the rate or amount of surface runoff in a manner that would result in flooding on or off site. Impacts would be less than significant.

c. 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?

Less-Than-Significant Impact. As previously discussed, with incorporation of stormwater detention tanks and/or aboveground detention basins into the project design, in compliance with County and City stormwater standards, the project would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems. In addition, as previously discussed, the project's LID water quality BMPs and compliance with applicable water quality laws and regulations would ensure that operation of the project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface water or groundwater quality. Impacts would be less than significant.

d. Impede or redirect flood flows?

No Impact. The project site is not located in a 100-year floodplain, as designated by FEMA. The majority of the site is located within FEMA Zone X, which is an area determined to be outside the 0.2% annual chance floodplain (i.e., 500-year floodplain). However, Hicks Canyon Wash, located along the northern perimeter of the site, is susceptible to a 1% annual chance flood discharge (FEMA 2009). In addition, the project site is not located in a dam inundation area, as indicated in the 2045 Irvine General Plan Safety Element (City of Irvine 2024b). Because the project site is not located within a potential flood zone, the project would not impede or redirect flood flows. No impacts would occur.

4. In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation?

No Impact. As previously discussed, the project site is not located within a FEMA-designated flood zone. The project site is not located in proximity to the coastline and would therefore not be susceptible to tsunamis. The project site is not located in a dam inundation area (City of Irvine 2024) and is not located adjacent to an enclosed body of water that could be susceptible to seiches. The closest reservoir, the Syphon Reservoir, is located approximately 2,000 feet southeast of the project site, and a large hill is located between the reservoir and the project site. A potential seiche in this reservoir would only affect areas immediately adjacent to the reservoir (generally, within 100 feet). As a result, the project would not risk release of pollutants due to project inundation. No impacts would occur.

5. Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Less-Than-Significant Impact. As discussed below, the project would not conflict with or obstruct with implementation of a water quality control plan or sustainable groundwater management plan.

Construction

The project would be required to comply with the Construction General Permit requiring preparation and implementation of a SWPPP to control runoff from construction worksites. The SWPPP must include BMPs to address transport of sediment and to protect properties from erosion, flooding, or the deposition of mud, debris, or construction-related pollutants. Implementation of BMPs, including physical barriers to prevent erosion and sedimentation, construction of sedimentation basins, limitations on work periods during storm events, use of infiltration swales, protection of stockpiled materials, and a variety of other measures, would substantially reduce the potential for impacts to surface water quality from occurring during construction. Therefore, the project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan, and impacts from construction would be less than significant.

Operations

The project is subject to the requirements of the Basin Plan with respect to surface water quality and the Basin 8-1 Alternative with respect to the Irvine Sub-basin of the Orange County Groundwater Basin. The Basin Plan outlines water quality objectives for all surface water resources within the Basin Plan area, including San Diego Creek and Upper Newport Bay. Compliance with the Basin Plan is ensured through waste

discharge requirements for all surface water discharges, including stormwater. The Orange County Flood Control District and the incorporated cities of the County within the Santa Ana RWQCB jurisdiction, as Permittees under the County NPDES MS4 Permit, are required to implement stormwater BMPs that comply with water quality objectives, including capturing and treating stormwater runoff.

A WQMP (Appendix F-4) has been developed for the project as required under the County NPDES MS4 Permit and in accordance with the Orange County Hydrology Manual (Orange County Environmental Management Agency 1986, 1996) and the City of Irvine Standards (City of Irvine 2013). The WQMP includes biofiltration for water quality treatment, as described previously. Compliance with the NPDES MS4 permit and LID requirements would ensure that the project is consistent with the Basin Plan's water quality objectives. The Basin 8-1 Alternative outlines sustainability criteria and management actions needed to avoid undesirable results from groundwater extraction, including (1) lowering of groundwater levels, (2) reduction in storage, (3) water quality degradation, (4) seawater intrusion, (5) inelastic land subsidence, or (6) depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water. Pursuant to the Basin 8-1 Alternative, the Submitting Agencies will ensure the entire Basin 8-1 continues to be sustainably managed and data reported as required by SGMA (Appendix F-1, Water Supply Assessment). As a result, the project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan, and impacts would be less than significant.

Impact Summary

Through compliance with applicable state and local regulations, the project would not result in any significant water quality impacts related to soil erosion during the construction phase.

The project's LID water quality BMPs and compliance with applicable laws and regulations would ensure that operation of the project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface water or groundwater quality, and impacts would be less than significant.

The project would not substantially decrease groundwater supplies such that the project may impede sustainable groundwater management of the Basin. Impacts would be less than significant.

The project would not interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the Basin. Impacts would be less than significant.

With incorporation of stormwater detention tanks and/or aboveground detention basins into the project design, the project would not result in increased runoff and associated on-site or off-site erosion and siltation of downstream drainages. Impacts would be less than significant.

With incorporation of stormwater detention tanks and/or aboveground detention basins into the project design, in compliance with County and City stormwater standards, the project would not result in a substantial increase in the rate or amount of surface runoff in a manner that would result in flooding on or off site. Impacts would be less than significant.

The project's LID water quality BMPs and compliance with applicable water quality laws and regulations would ensure that operation of the project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface water or groundwater quality. Impacts would be less than significant.

Because the project site is not located within a potential flood zone, the project would not impede or redirect flood flows. No impacts would occur.

The project would not risk release of pollutants due to project inundation. No impacts would occur.

The project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. Impacts from construction and operation would be less than significant.

4.10.5 Mitigation Measures

No significant hydrology and water quality impacts were identified in the analysis in this section; therefore, no mitigation measures are required.

4.10.6 Level of Significance After Mitigation

No mitigation is required; hydrology and water quality impacts would remain less than significant.

4.10.7 Cumulative Impacts

Water Quality – Construction

The geographic area under consideration for the topic of water quality includes the boundaries of the Central Orange County Watershed Management Area (Figure 4.10-2), as stormwater throughout this area feeds into Upper Newport Bay. During construction activities, the project site, in addition to other activities within the watershed, would use hazardous materials (e.g., fuel, oil, paint), and an accidental spill of hazardous materials could result in inadvertent releases to surface waters, which could adversely affect surface water or groundwater quality. In addition, construction would have the potential to result in local soil erosion during excavation, grading, trenching, and soil stockpiling. Erosion could result in sediment and other pollutants entering surface water bodies and adversely affecting water quality. However, the project and the cumulative projects would be subject to the same regulatory requirements discussed above.

Any cumulative project that has the potential to impact hydrology and water quality would also be required to comply with the NPDES Construction General Permit and its required SWPPP, the NPDES MS4 BMP requirements, and the Unified Hazardous Waste and Hazardous Materials Management Regulatory Program and its required hazardous materials business plan (see Section 4.9, Hazards and Hazardous Materials, of this Draft EIR), all designed to prevent impacts to water quality and have procedures in place for responding to spills. While it is possible that the cumulative projects that contribute flows to Upper Newport Bay could result in releases of sediment and/or pollutants that could adversely affect water quality, the responsible parties associated with the project and the other cumulative projects would be required to control runoff and respond to spills to the same or similar established regulatory standards from the City, as discussed both in this section and in Section 4.9. Therefore, compliance with water quality regulations would ensure that the cumulative impacts would not be considerable.

Water Quality – Operations

Once constructed, the design of the project and the cumulative projects would result in the drainage systems for each site incorporating the requirements of the regulations discussed above during operations. As a result, the cumulative projects would incorporate on-site runoff management infrastructure, water quality BMPs, and adequate

connections to the existing stormwater drainage system. Therefore, with compliance with these regulations and implementation of stormwater management measures, the project would not cause or contribute to a cumulatively significant impact to hydrology and water quality.

Groundwater Supplies – Construction

The geographic area under consideration for the topic of groundwater supplies and recharge includes boundaries of the Irvine Sub-basin of the Orange County Groundwater Basin (see Figure 4.10-3). The Irvine Sub-basin underlies the City and receives infiltration from the entire Central Orange County Watershed Management Area. Based on the Basin 8-1 Alternative, diversity of water supplies results in relatively constant groundwater production levels and minimizes adverse impacts to groundwater supplies. In general, water use during construction is not substantial, mostly due to the relatively low quantities required and the duration of water supply needs, which is for relatively short time periods. During construction, most, if not all, cumulative projects would require grading and excavation that would likely require water for dust suppression. However, the source of water for dust suppression could come from a variety of sources and, again, would only be required on a temporary basis. Therefore, considering that the Irvine Sub-basin has a sustainable yield that includes future growth impacts from construction activities, along with the relatively minimal amount of water supplies needed, the potential impacts related to groundwater supplies and sustainable management of the Irvine Sub-basin would not be cumulatively considerable.

Groundwater Supplies and Recharge – Operations

Based on the Basin 8-1 Alternative, IRWD's water supplies remain essentially constant between normal, single-dry, and multiple-dry years. Groundwater production from the Basin typically remains constant, and Metropolitan's 2020 Urban Water Management Plan concludes that Metropolitan has supply capabilities sufficient to meet expected demands from 2025 through 2045 under a single-dry-year condition and a period of drought lasting five consecutive years, as well as under a normal water year condition. Recycled water production also remains constant and is considered "drought-proof" as a result of constant sewage flows, including years with low precipitation. This diversity of water supplies results in relatively constant groundwater production levels and minimizes adverse impacts to groundwater supplies. Based on the Water Supply Assessment (Appendix F-1) and Water Supply Verification (Appendix F-2), adequate water supplies are available to meet (1) the existing and committed demand (i.e., without the project); (2) the existing and committed demand, plus the project; and (3) the full buildout associated with IRWD's Water Resources Master Plan, which includes all cumulative projects within the City.

In addition, Basin 8-1 has been operated within its sustainable yield for more than 10 years without experiencing significant and unreasonable (1) lowering of groundwater levels; (2) reduction in storage; (3) water quality degradation; (4) seawater intrusion; (5) inelastic land subsidence; or (6) depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water. Pursuant to the Basin 8-1 Alternative, the Submitting Agencies will ensure the entire Basin 8-1 continues to be sustainably managed and data reported as required by SGMA (Appendix F-1). As a result, cumulative project development would not substantially decrease groundwater supplies such that the project may impede sustainable groundwater management of the basin. Therefore, groundwater supply impacts would not be cumulatively considerable.

On-site soils are not conducive to stormwater infiltration and, as a result, do not substantially contribute to groundwater recharge beneath the site. Regardless, increases in impervious surfaces, such as would occur with the project and likely other cumulative projects, could contribute to a cumulative reduction in natural recharge within the Basin. However, as described above for the project, cumulative projects are required to implement LID drainage control features that encourage as much on-site infiltration of stormwater runoff as feasible. As a result, blocked recharge potential associated with cumulative project development would not be cumulatively considerable.

Changes in Stormwater Runoff

The geographic area under consideration for the topic of changes in stormwater runoff that could result in substantial erosion/siltation, flooding on site or off site, exceeding stormwater drainage system capacity or generating polluted runoff, or result in possible loss or damage due to flooding, includes the watershed for the Central Orange County Watershed Management Area, or Upper Newport Bay (see Figure 4.10-2). The project and other proposed developments within the watershed would be subject to storm flow management designs imposed by the City and the County to ensure that cumulative development does not result in excessive runoff that could overwhelm regional flood control facilities. Per the Orange County Hydrology Manual and the City of Irvine Standards, a 25-year-frequency storm event was selected for design peak flow rate evaluation because sump conditions are present on site (Appendix F-2). The designs of the project and other proposed development would result in the drainage systems of each site incorporating either City, County, and/or FEMA requirements to avoid downstream flood impacts. As a result, cumulative projects would also be required to incorporate on-site runoff management measures, water quality BMPs, and adequate connections to the existing City and County stormwater drainage system. In addition, each project would be required to comply with NPDES MS4 BMP requirements and LID practices, along with City Municipal Code or County Code requirements, that would minimize pollutants in stormwater runoff. Therefore, reducing project flows to County and City standards would ensure that project effects on drainage would not be cumulatively considerable.

Flooding

The geographic area under consideration for the topic of flood hazards includes the watershed for the Central Orange County Watershed Management Area, or Upper Newport Bay (see Figure 4.10-2). Areas within the watershed, especially low-lying areas within proximity to San Diego Creek, the San Joaquin Marsh, and Mason Park, include flood hazard areas. In general, flood hazards are site-specific and do not become cumulatively considerable unless they are all within the same flood hazard area. The project site is not located within a FEMA floodplain, dam inundation area, potential seiche area, or potential tsunami area. Each cumulative project would be evaluated with respect to flooding impacts and would comply with FEMA regulations. As a result, flood-related impacts would not be cumulatively considerable.

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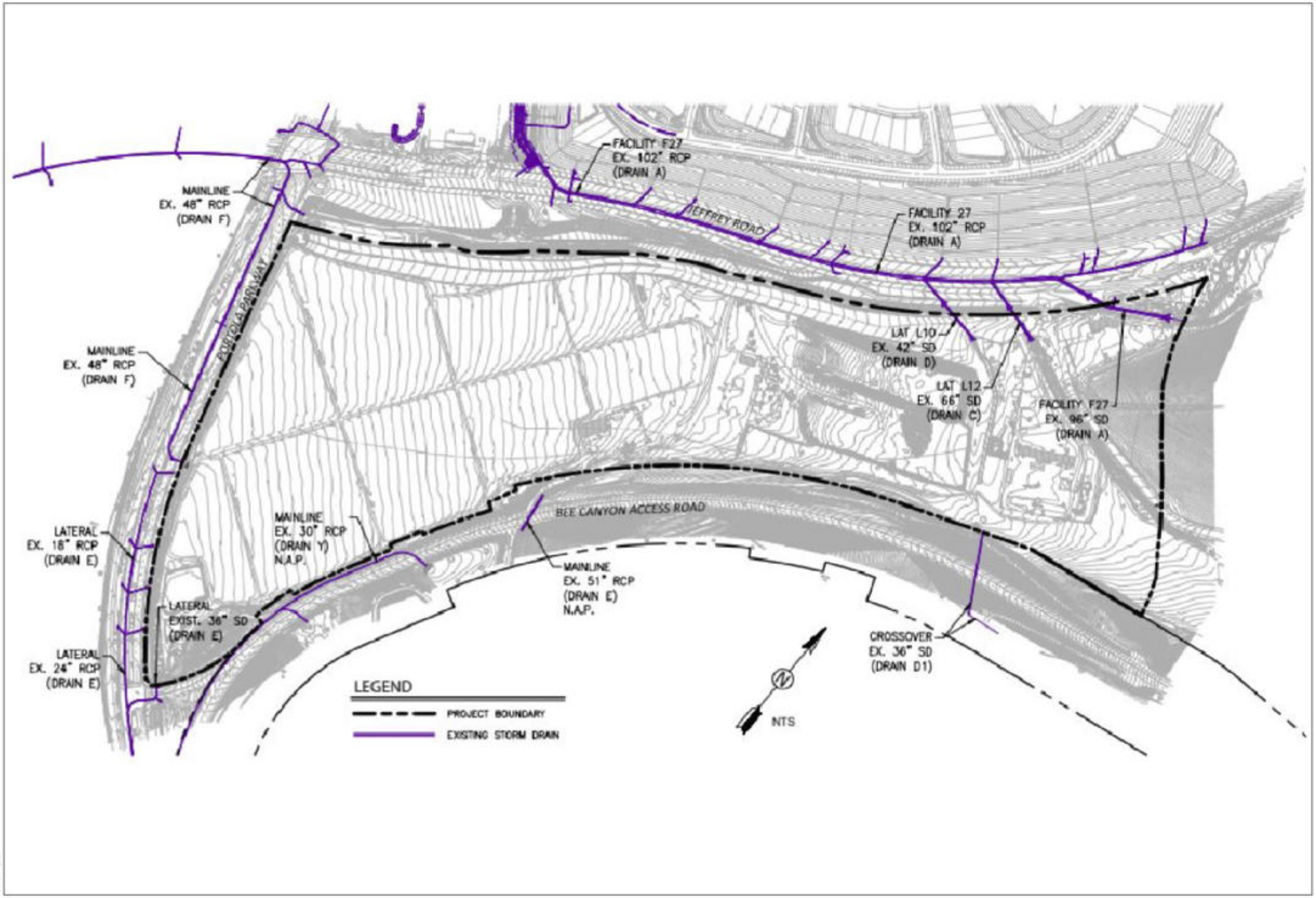
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SOURCE: Fuscoe 2024a

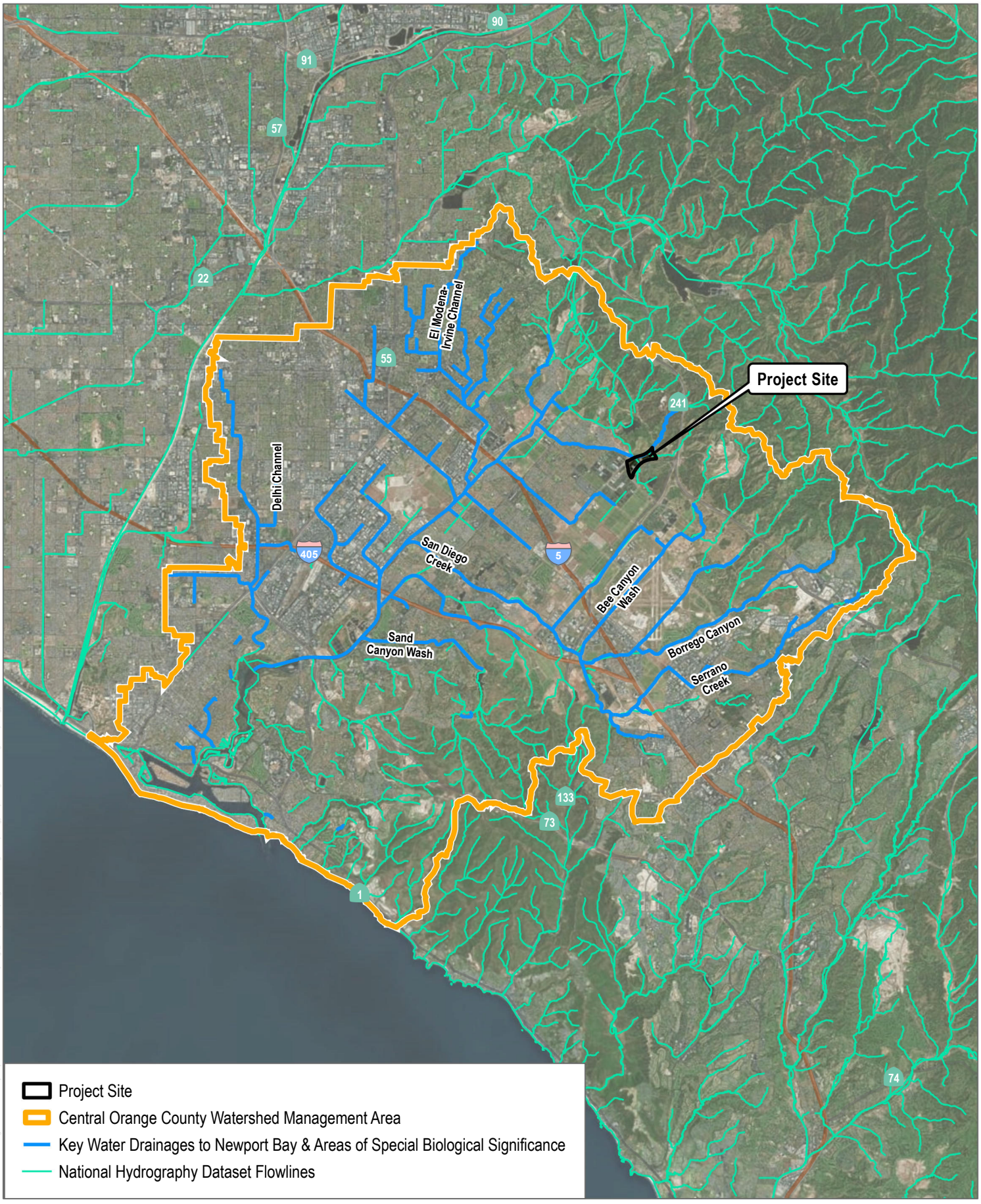
FIGURE 4.10-1

Existing On-Site Hydrology

Irvine Gateway Village Project EIR

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SOURCE: Bing Maps (Accessed: 2025); County of Orange 2007

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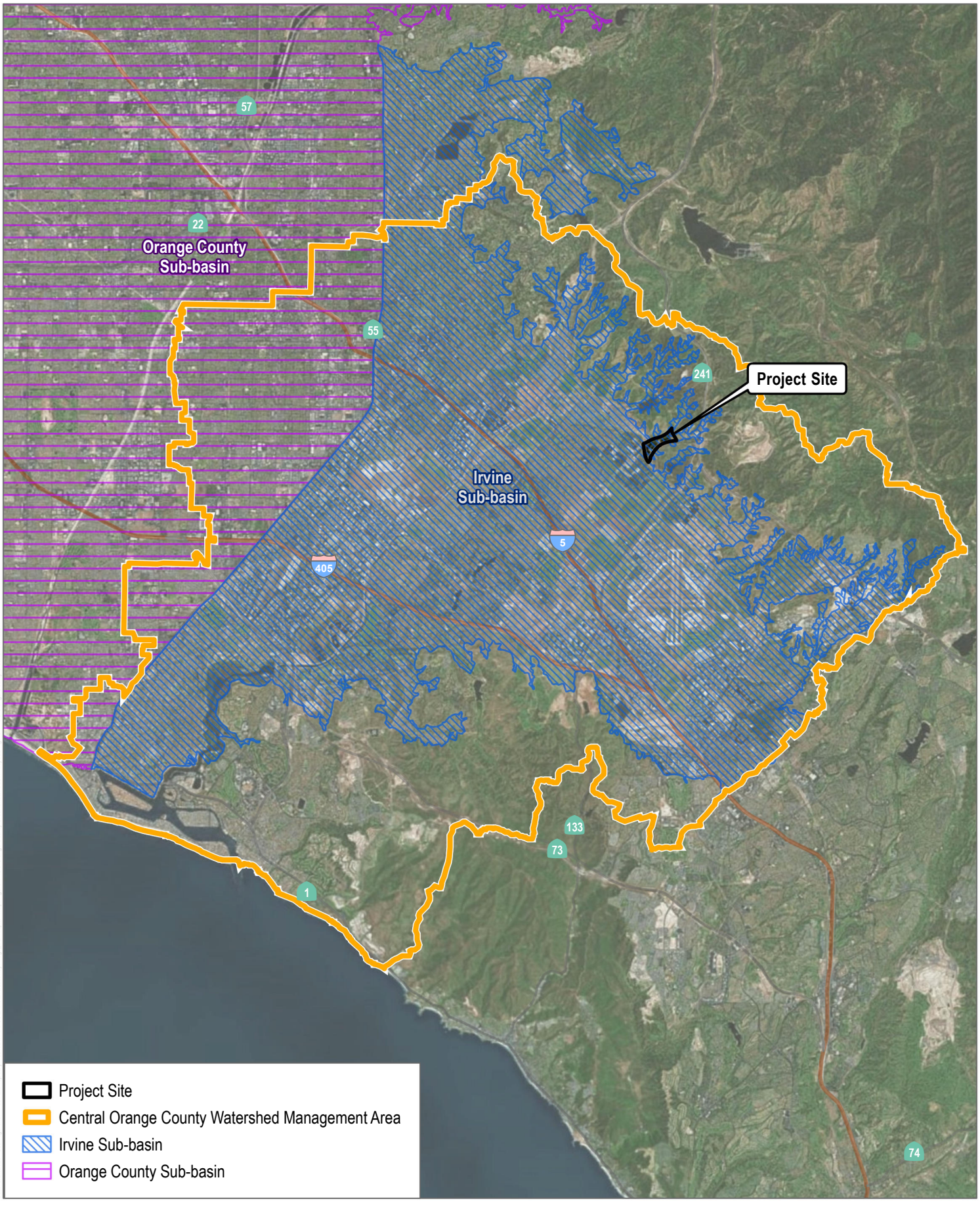
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FIGURE 4.10-2

Regional Hydrology

Irvine Gateway Village Project EIR

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SOURCE: Bing Maps (Accessed: 2025); County of Orange 2007

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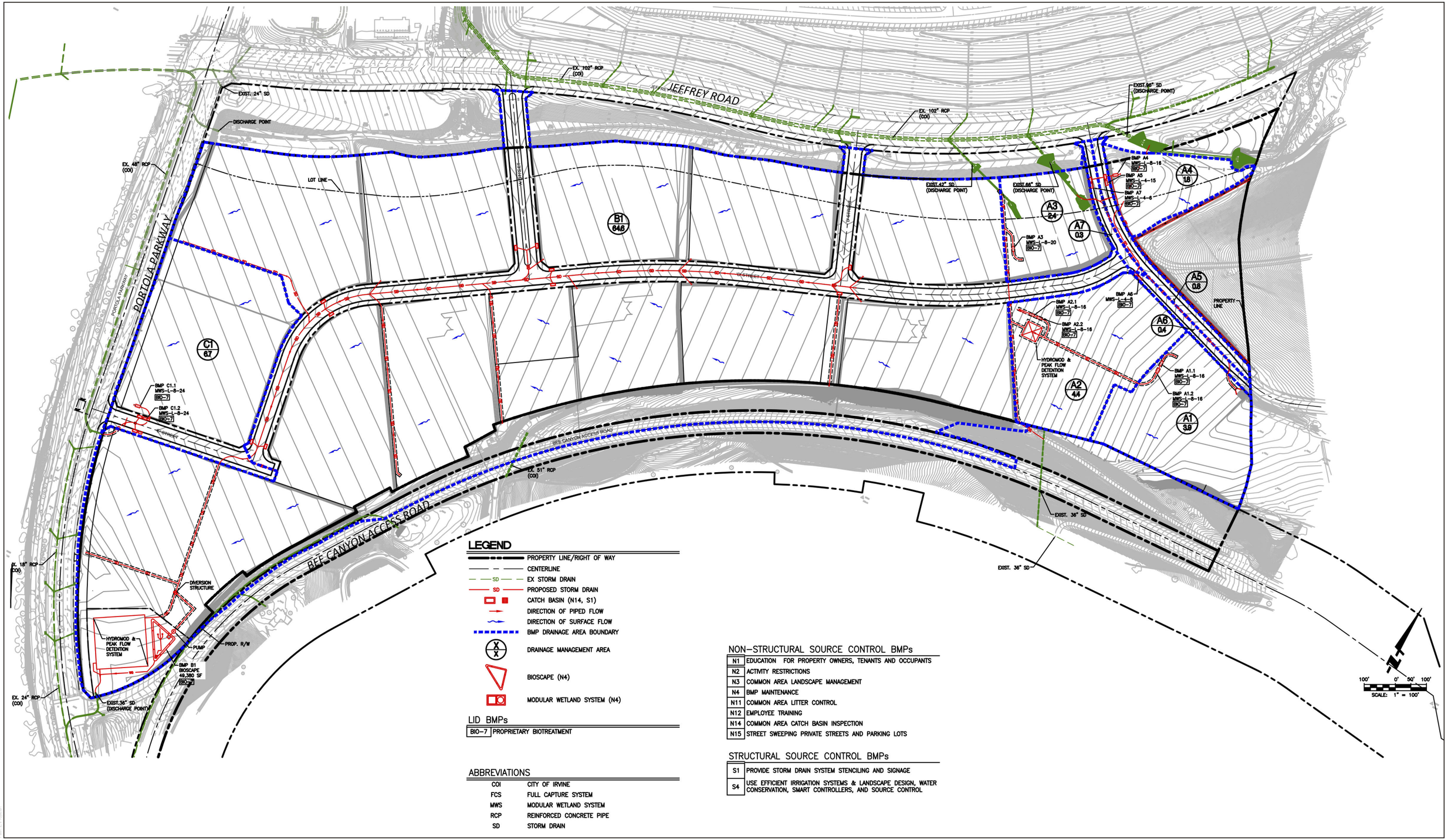
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FIGURE 4.10-3

Orange County Groundwater Basin

Irvine Gateway Village Project EIR

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LEGEND

- PROPERTY LINE/RIGHT OF WAY
- CENTERLINE
- EX STORM DRAIN
- PROPOSED STORM DRAIN
- CATCH BASIN (N14, S1)
- DIRECTION OF PIPED FLOW
- DIRECTION OF SURFACE FLOW
- BMP DRAINAGE AREA BOUNDARY
- DRAINAGE MANAGEMENT AREA
- BIOSCAPE (N4)
- MODULAR WETLAND SYSTEM (N4)

LID BMPs

BIO-7	PROPRIETARY BIOTREATMENT

ABBREVIATIONS

COI	CITY OF IRVINE
FCS	FULL CAPTURE SYSTEM
MWS	MODULAR WETLAND SYSTEM
RCP	REINFORCED CONCRETE PIPE
SD	STORM DRAIN

NON-STRUCTURAL SOURCE CONTROL BMPs

N1	EDUCATION FOR PROPERTY OWNERS, TENANTS AND OCCUPANTS
N2	ACTIVITY RESTRICTIONS
N3	COMMON AREA LANDSCAPE MANAGEMENT
N4	BMP MAINTENANCE
N11	COMMON AREA LITTER CONTROL
N12	EMPLOYEE TRAINING
N14	COMMON AREA CATCH BASIN INSPECTION
N15	STREET SWEEPING PRIVATE STREETS AND PARKING LOTS

STRUCTURAL SOURCE CONTROL BMPs

S1	PROVIDE STORM DRAIN SYSTEM STENCILING AND SIGNAGE
S4	USE EFFICIENT IRRIGATION SYSTEMS & LANDSCAPE DESIGN, WATER CONSERVATION, SMART CONTROLLERS, AND SOURCE CONTROL

SOURCE: Fuscoe 2024b

FIGURE 4.10-4

Proposed On-Site Hydrology

Irvine Gateway Village Project EIR

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4.11 Land Use and Planning

This section describes the existing land use and planning conditions of the project site and vicinity, identifies associated regulatory requirements, evaluates potential impacts, and identifies mitigation measures related to implementation of the proposed project.

4.11.1 Existing Conditions

Regional Setting

Orange County

Orange County (County) is a coastal Southern California county bordered by Los Angeles County to the north, San Diego County to the south, and Riverside and San Bernardino Counties to the east. The County is approximately 798 square miles in size, with a population of approximately 3,137,164 (County of Orange 2023). The County encompasses 34 cities and various unincorporated areas.

Local Setting

City of Irvine

The City of Irvine (City) is located in central Orange County, with a population of approximately 318,629 (City of Irvine 2025a). The City encompasses 47,128 acres (nearly 74 square miles). Nearly 33% of the land in the City is designated as conservation/open space; 34% is designated as residential; 22% is designated as commercial, institutional, and industrial uses; 10% is composed of the Orange County Great Park (Great Park), and 1% is designated as multi-use (City of Irvine 2024a).

North Irvine

North Irvine is an area of recent development within the City, including the development of the residential communities of Woodbury, Portola Springs, Stonegate, and Orchard Hills. The residential community of Orchard Hills is currently in its final phase of development. State Route (SR) 261 and SR-241 provide highway access to the area. The developed areas of north Irvine sit adjacent to a large swath of open space called the Northern Open Space Preserve, which includes Limestone Canyon and Blackstar Canyon and extends to the Cleveland National Forest.

Existing Land Uses

The project site consists primarily of active agricultural fields, with equipment storage and laydown areas in the northern portion of the site. According to the California Department of Conservation, the site is designated as prime farmland, with small areas of unique farmland (DOC 2025). The current General Plan designation for the project site is Recreation, and the current zoning is 1.5 – Recreation (City of Irvine 2024a).

Surrounding Land Uses

North: Hicks Canyon Wash forms the northern boundary of the project site. Just north of Hicks Canyon Wash is a road that stretches east to the Irvine Ranch Conservancy Native Seed Farm and various other special use sites

leased to third parties, including a landscape designer, a pump supplier, and an excavating contractor. Following Hicks Haul Road to the north are avocado groves, undeveloped open space, and the former All American Asphalt (AAA) plant.

South: The residential neighborhoods of Eastwood Village and Stonegate are located to the south of the project site across Portola Parkway.

East: Bee Canyon Access Road forms the eastern boundary of the project site. To the east of Bee Canyon Access Road is open space, Syphon Reservoir, and the Crean Lutheran High School Athletic Complex.

West: The final neighborhood (Summit) of the Orchard Hills development, a single-family residential development, is under construction directly to the west of the project site.

4.11.2 Relevant Plans, Policies, and Ordinances

State

California Planning and Zoning Law

The legal framework in which California cities and counties exercise local planning and land use functions is provided in the California Planning and Zoning Law, California Government Code Sections 65000 et seq. Under state planning law, each city and county is required to adopt a general plan "for the physical development of the county or city, and any land outside its boundaries which bears relation to its planning" (California Government Code Section 65300). The general plan expresses the community's development goals and embodies public policy relative to the distribution of future land uses, both public and private. A general plan consists of several elements, including land use, circulation, housing, conservation, open space, noise, and safety; other elements may be included at the discretion of the jurisdiction that relate to the physical development of the county or city.

Local

Irvine 2024 General Plan

The current Irvine 2024 General Plan (General Plan) designation for the project site is Recreation. The proposed project would require a General Plan Amendment to change the land use designation on the project site to Medium-High Density Residential on the site, with High Density Residential to be applied on the affordable housing portion of the site only..

The General Plan consists of the following elements:

- **Circulation Element** – Describes the strategy for fostering a sustainable and efficient transportation network that enhances accessibility, promotes connectivity, and prioritizes the safety and mobility of all residents, workers, and visitors and which evolves in harmony with the City's growth, economic vitality, and environmental stewardship (City of Irvine 2024b).
- **Conservation and Open Space Element** – Describes the strategy for continued sustainable use, management, and preservation of natural resources to assure their continued availability and viability through comprehensive and long-range preservation of open space lands that are important to the conservation of the City's natural resources (City of Irvine 2024c).

- **Environmental Protection and Climate Action** – Describes the strategy to continue environmental stewardship, preservation of open space, protection of the natural environment, and development of a community that fosters well-planned living, recreational, educational, and work environments (City of Irvine 2024d).
- **Housing Element (6th Cycle)** – Identifies and analyzes the City's existing and projected housing needs and contains a detailed outline and work program of the City's goals, policies, quantified objectives, and programs for the preservation, improvement, and development of housing for a sustainable future (City of Irvine 2022).
- **Land Use Element** – Identifies objectives and policies to ensure that the City's high quality of life is maintained and enhanced for residents, businesses, and visitors into the future (City of Irvine 2024a).
- **Noise Element** – Describes the existing noise environment in the City and establishes goals and policies to promote compatible growth and minimize noise exposure (City of Irvine 2024e).
- **Safety Element –** Identifies strategies to safeguard the community from natural and human-caused hazards to help ensure the security of public health and safety, minimize disruption to the economy and protect people and businesses from injury, property damage, and other losses (City of Irvine 2024f).

City of Irvine Zoning Ordinance

The City Zoning Ordinance ensures consistency between the City's General Plan and proposed development by identifying land use categories, boundaries, and development standards (City of Irvine 2024g). The current zoning of the project site is 1.5 – Recreation. The project involves a Zone Change to change the City's Zoning Map from 1.5 – Recreation to 2.4J – Medium High Density Residential.

City of Irvine Parks Master Plan

Adopted in June 2017, the City's Parks Master Plan (PMP) provides guidance for the development, maintenance, and enhancement of Irvine's public parks over a 10-year period. It includes systemwide objectives and recommendations to guide the planning of park projects over the plan period. The PMP recognizes that as the City approaches buildout, future park planning must focus on maintenance and enhancement of existing park resources but it should also identify site opportunities for the construction of new parks. The PMP identifies sites for development of new parks, including three community parks and two neighborhood parks. One of the proposed development sites is Gateway Park, located on the proposed project site (City of Irvine 2017). Updates to the PMP will be made to better reflect the proposed location and acreages of the parks associated with the proposed project.

Local Approvals and Permits

As described in Section 3.6 of the Project Description, the proposed project would require the following local approval and permits by the City of Irvine:

- General Plan Amendment to change the City's Land Use Map from Recreation to Medium-High Density Residential on the project site, with High Density Residential to be applied on the affordable housing portion of the site only. Additionally, text, tables, and figure updates in the Land Use Element would be made to establish Planning Area 2 (Gateway Village). Additional General Plan updates include revisions to the figures in the Circulation Element; updates to figures, tables, and text in the Conservation and Open Space Element; and updates to figures in the Safety Element

- Zone Change to the Irvine Zoning Ordinance is also required to change the zoning classification of the Project site from 1.5 – Recreation to 2.4J – Medium-High Density Residential; add Chapter 9-2, Planning Area 2; and amend Section 3-3-1, Section 3-37-15, and Chapter 9-6 for consistency purposes
- Approval of Master Plans
- Approval of Tentative Tract and Parcel Maps
- Approval of Master Landscape and Trails Plan
- Approval of Park Plan
- Approval of Park Design Plans
- Approval of annexation for County of Orange land parcels
- City Council approval of the proposed project and certification of the Draft EIR

4.11.3 Thresholds of Significance

The significance criteria used to evaluate the project impacts to land use and planning are based on Appendix G of the CEQA Guidelines. According to Appendix G, a significant impact related to land use and planning would occur if the project would:

1. Physically divide an established community.
2. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

4.11.4 Impacts Analysis

1. Would the project physically divide an established community?

No Impact. The proposed project would develop a new residential community adjacent to existing residential development on land that is currently mostly vacant and does not contain an established community. The project site is on the northern edge of existing development within the City of Irvine, adjacent to the proposed Gateway Preserve (a separate project), which would create a 700-acre open space preserve in the hills above north Irvine adjacent to the proposed project site. The newly proposed public park at the northern edge of the project site, South Park, would act as a transitional space and entry point to the Gateway Preserve.

The proposed project would include an extension of the Jeffrey Open Space Trail (JOST), which is an important element in the City's overall Open Space system, linking the conservation and open space lands within the City. The existing JOST runs south to north along Jeffrey Road from Walnut Avenue to Portola Parkway. The proposed project would extend the JOST north, including constructing a pedestrian bridge over Portola Parkway, to terminate at the future Gateway Preserve (a separate project). As such, the proposed project would further connect existing communities and no impact would occur related to physically dividing an established community.

2. ***Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?***

Significant and Unavoidable Impact. To evaluate the proposed project's impacts related to land use and planning, this analysis examines the project's potential to conflict with both regional and local plans, policies, and regulations that regulate land uses within the project site's vicinity. These plans are as follows:

- Connect SoCal (SCAG 2024–2050 RTP/SCS)
- City of Irvine Parks Master Plan (PMP)
- Irvine 2045 General Plan and City of Irvine Zoning Ordinance

Connect SoCal (SCAG 2024–2050 RTP/SCS)

SCAG's Connect SoCal (the Regional Transportation Plan [RTP]/Sustainable Communities Strategy [SCS]) is a regional growth-management strategy that targets per capita greenhouse gas reduction from passenger vehicles and light-duty trucks in the Southern California region. Connect SoCal incorporates local land use projections and circulation networks from city and county general plans. Typically, a project would be consistent with the RTP/SCS if the project would not exceed the underlying growth assumptions within Connect SoCal. SCAQMD's 2022 AQMP incorporated the updated regional growth projections contained in Connect SoCal. As discussed in Section 4.13, Population and Housing, of this Draft EIR, the project would accommodate up to approximately 3,604 residents. SCAG's Demographics and Growth Forecast Technical Report estimates that the City will have a total population of 327,664 in 2050 (SCAG 2024). The project's 3,604 future residents would equate to approximately 1.10% of the 2050 SCAG estimate for the City's projected total population, which is not significant and would not exceed the underlying growth assumptions in Connect SoCal. Additionally, it is likely that the proposed residential units would accommodate a combination of new City residents and residents that currently reside within the City.

Table 4.8-5, Project Potential to Conflict with Key Project Attributes of CARB 2022 Scoping Plan's Appendix D and Connect SoCal, in Section 4.8, Greenhouse Gas Emissions, of this Draft EIR details an analysis of the project's potential to conflict with Connect SoCal. As detailed in Table 4.8-5, the proposed project would be consistent with many of the key project attributes. In addition to the mitigation measures detailed in Table 4.8-5, Mitigation Measure (MM) GHG-3 (Water Use Efficiency and Water Conservation) and MM- GHG- 4 (Solid Waste Reduction) would also reduce GHG emissions. However, the proposed project would not clearly satisfy the vehicle miles traveled (VMT) reduction, natural or working lands conservation, or transit density project attributes. The project's residential land uses would not conflict with the building decarbonization key project attribute. However, the ancillary residential uses, including the amenity building and swimming pools and spa, would use natural gas for HVAC systems and would thus conflict with the building decarbonization attribute uses by requiring natural gas connections to the project site. Therefore, the proposed project would conflict with certain key attributes of the 2022 CARB Scoping Plan Update, Appendix D.

City of Irvine Parks Master Plan

The PMP states that the "City should continue to develop extensions to the JOST, perhaps exploring Gateway Park as a connection between the JOST and the Northern Open Space" (City of Irvine 2017). The proposed project includes extension of the JOST to South Park at the northern edge of the project site, which would act as a connection between the JOST and the adjacent Northern Open Space. As such,

although the connecting park would be significantly smaller than described in the PMP, the intent of the park as a connection point between the JOST and the Northern Open Space would be preserved.

The PMP identifies the project site as a development opportunity site for a 70.5-acre Gateway Community Park. It describes Gateway Community Park as a "gateway to the JOST and surrounding open space, supporting both active and passive recreation opportunities including trails, disc golf, flexible fields, nature play and a possible indoor gymnasium." It also states that "Gateway may also be an ideal setting for an outdoor classroom, and/or art space, atelier, nature trails, universal or thematic playground or a large reservable picnic shelter/pavilion for events and programs" (City of Irvine 2017). The proposed project anticipates the construction of five parks totaling approximately 7.2 acres, including South Park, which would be adjacent to the open space to the north. There would also be connectivity to the North Irvine Open Space Preserve, with South Park acting as a transitional linkage. However, most of the project site would be developed with residential uses. As such, the proposed project would require updates to the PMP to revise the description of the park space that would be constructed on the project site and would result in a net loss of approximately 64 acres of planned park space, which would be mitigated through payment of park in-lieu fees by the developer. The PMP states that "new parks will be needed to meet the increasing demand for park land, particularly in new residential areas and villages in the northern part of Irvine." The project site represents one of the last remaining undeveloped sites within the City, and although there are no sites available to make up for the lost park space that had been planned for the site, the developer would pay in-lieu park fees that would contribute to the development and maintenance of parks throughout the City. Furthermore, since the publication of the City's PMP in 2017, the Great Park has undergone development that offers the City (and surrounding jurisdictions) various park and recreational opportunities. As noted in the PMP, the Great Park planning process is independent of the PMP (City of Irvine 2017) as it is envisioned as a regional park for Orange County. To date, more than 500 acres of park space has been developed, composed of the Great Park Balloon, the Great Park Carousel, the Great Park Farm and Food Lab, 24 soccer fields, 24 tennis courts, 10 baseball diamonds, 4 volleyball courts, a soccer stadium, an amphitheater, a children's play area, and other community space (City of Irvine 2025b). Furthermore, an additional 300 acres of development is planned for the Great Park. The Great Park, as built, is approximately 2.2 miles south of the project site and provides ample park and recreation space to the City's residents and visitors; therefore, although the project's proposed amendment to the PMP would result in a loss of planned park space, this impact would be reduced by the increased availability of park and recreational amenities near the project site since publication of the PMP in 2017. For these reasons, although the project would result in a net loss of planned park space in the northern part of Irvine and the introduction of more residential uses than anticipated in the General Plan and PMP, with the amendment to the PMP and General Plan land use and zoning amendments, project impacts would be less than significant.

Irvine 2045 General Plan and City of Irvine Zoning Ordinance

The proposed project would conflict with the current General Plan land use (Recreation) and zoning (1.5 – Recreation) designations for the site. However, as described previously in this section and in Chapter 2, Introduction, of this Draft EIR, the project would include a General Plan Amendment to change the land use from Recreation to Medium High Density Residential on the project site, with High Density Residential to be applied on the affordable housing portion of the site only and a Zone Change to change the Zoning designation from 1.5 – Recreation 2.4J – Medium High Density Residential. Upon City approval of the General Plan Amendment and Zone Change, the proposed project would be required to comply with the

requirements of the General Plan and Irvine Zoning Ordinance. However, although the proposed project would amend the land use designation, the concurrent process of amending the General Plan designation does not necessarily equate to consistency with the document. As such, a consistency analysis with the City's General Plan goals is included in Table 4.11-1.

Table 4.11-1 outlines the applicable policies identified in each element of the General Plan (Circulation, Conservation and Open Space, Environmental Protection and Climate Action, Housing, Land Use, Noise, and Safety) and the project's potential to conflict with each applicable policy.

Table 4.11-1. General Plan Consistency

Applicable General Plan Goals, Objectives, and Policies	Project Consistency with Policy
Circulation Element	
Goal 1: To facilitate the planning, provision, and maintenance of a well-integrated roadway network that effectively meets the anticipated demands of both local communities and the broader regional transportation system. ***Objective C-1: Plan, provide, and maintain an integrated vehicular circulation system to accommodate projected local and regional needs and growth.***	
Policy (c): Evaluate transportation impacts in terms of vehicle miles traveled (VMT) to ensure compliance with Senate Bill 743 and to minimize trip lengths to, from, and within the City.	**Consistent.** The proposed project's VMT impacts have been assessed in Section 4.16, Transportation, of this Draft EIR. As explained in that section, a VMT analysis was prepared in accordance with the City's adopted Traffic Study Guidelines, which provides screening criteria and VMT thresholds for evaluating a project's potential significant transportation impact. As determined by that analysis, the proposed project would result in a significant and unavoidable impact related to VMT even with implementation of mitigation measures (MM-TRA-1 through MM-TRA-3). The proposed project's VMT rate exceeds the City's VMT threshold, resulting in a significant VMT impact.
Policy (d): Evaluate the incremental additions to the roadway system through use of the City transportation forecasting model.	**Consistent.** The proposed project's impacts on roadway systems have been evaluated in Section 4.16, Transportation, of this Draft EIR. As evaluated in that section, the proposed project would not conflict with a plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. Furthermore, as discussed under Policy (c), the proposed project's VMT impacts were evaluated; although these impacts do not directly measure the project's strain on roadway systems, it does provide a measure for roadway usage.
Policy (e): Support programs and infrastructure that promote non-vehicular travel (e.g., walking/biking), increase vehicle occupancy, and/or reduce VMT.	**Consistent.** The proposed project would involve improvements for pedestrians and bicyclists that would enhance access to public transit, parks, and open space. The project would include extension of the Jeffrey Open Space Trail (JOST), which is an important element in the City's overall Open Space system, linking the conservation and open space lands within the City. It also links provides pedestrian and cyclist access to public transit stops that parallel the trail, thereby allowing for a more connected public transit system. The extension also includes construction of a pedestrian bridge over Portola Parkway. It would further connect residents to this open space area as well as the three proposed parks as part of the project. Further, as

Table 4.11-1. General Plan Consistency

Applicable General Plan Goals, Objectives, and Policies	Project Consistency with Policy
	discussed under Policy (c), the proposed project would implement MM-TRA-1 through MM-TRA-3, which are intended to reduce VMT. These measures require the project to include affordable and below-market housing into design, pedestrian network improvements, and an expanded bikeway network.
Policy (f): Cooperate with state, county, and local governments to assure orderly development.	**Consistent.** The proposed project's impacts related to transportation design hazards and emergency access have been evaluated in Section 4.16, Transportation, of this Draft EIR. As evaluated in that section, the proposed project would result in a less-than-significant impact with mitigation related to design hazards and less-than-significant impact related to emergency access. The proposed project would implement MM-TRA-4, requiring the installation of a traffic signal at "A" Street on Jeffrey Road if and when the extension of Jeffrey Road to SR-241 is built.
Policy (j): Traffic studies completed for proposed developments shall demonstrate that the proposed circulation is adequate to accommodate traffic demand at build out of the General Plan. As part of any traffic evaluation, travel demand reduction measures shall be analyzed to determine if they can be implemented and/or provide funding towards a mitigation program in lieu of any arterial augmentation. Arterial augmentations may include, but not limited to, additional intersection through or turn lanes, signal synchronization, auxiliary lanes, or intersection grade separations.	**Consistent.** As discussed above, proposed project transportation and circulation impacts have been assessed in Section 4.16, Transportation, of this Draft EIR. Analysis contained in this section is based on a VMT analysis prepared in accordance with the City's adopted Traffic Study Guidelines as well as a comprehensive traffic study performed for the project.
Policy (k): Travel reduction measures and augmentation proposals shall be evaluated and approved by the Transportation Commission and/if required, the Planning Commission.	**Consistent.** As discussed under Policy (c), the proposed project would implement MM-TRA-1 through MM-TRA-3. These measures, which are intended to reduce VMT, require the project to include affordable and below-market housing, pedestrian network improvements, and an expanded bikeway network in the project design. These measures would be reviewed by the City's approval body prior to adoption.
Goal 2: To design a circulation system that adheres to the highest standards of transportation engineering safety while considering the surrounding land uses and their sensitivities. ***Objective C-2: Maintain and enhance a circulation system consistent with high standards for transportation engineering safety and with sensitivity to adjoining land uses.***	
Policy (e): Ensure safe and efficient traffic flow while providing adequate and convenient access.	**Consistent.** The project proposes roadway and pedestrian improvements that would ensure safe and efficient traffic flow. The proposed project's impacts related to transportation design hazards have been evaluated in Section 4.16, Transportation, of this Draft EIR. As evaluated in that section, the proposed project would result in a less-than-significant impact with mitigation related to design hazards.

Table 4.11-1. General Plan Consistency

Applicable General Plan Goals, Objectives, and Policies	Project Consistency with Policy
Policy (h): Proposed developments shall include measures to minimize negative impacts of additional vehicular traffic and aim to reduce vehicle miles traveled (VMT).	**Consistent.** See response to Goal 1, Policy (c).
Policy (i): Encourage intersections and public right of ways to be designed to provide adequate and safe access for all users including pedestrians, bicyclists, and motorists of all ages and abilities.	**Consistent.** See response to Goal 2, Policy (e).
Policy (l): Incorporate American with Disabilities Act (ADA) requirements throughout the City, and especially within high-volume pedestrian areas.	**Consistent.** The project proposes roadway and pedestrian improvements that would be built to specifications compliant with ADA requirements.
Policy (m): Encourage safe and accessible routes to school for children and families walking, bicycling, and taking public transportation to schools in the community. Improvements may include but are not limited to, high visibility crosswalks, island refuges, pavement markings, rapid flashing beacons, pedestrian signals, traffic delineators, enhanced bikeways, defined bus stops, and roundabouts.	**Consistent.** The project includes an extension of the JOST, with a pedestrian bridge over Portola Parkway. Additionally, the cross-section measurement for the extension of Jeffrey Road would be approximately 33 feet in each direction, which is wide enough to provide two through lanes with on-street bike lanes. The project would also provide bicycle parking amenities that meet the zoning ordinance update that was recently approved, including meeting minimum design and location specifications for short- and long-term bicycle parking.
Policy (n): Encourage development projects to support the principles of the Complete Streets principles and engage stakeholders and local community affected by proposed design.	**Consistent.** The purpose of this Draft EIR is to evaluate the potential environmental impacts, including transportation impacts, associated with implementation of the proposed project. The scope of this Draft EIR includes the potential environmental impacts identified in the Notice of Preparation (NOP) that was available for public review from October 16, 2024, through November 15, 2024, and agency and public written comment received in response to the NOP. The public scoping meeting was held at Irvine City Hall on October 23, 2024. The scoping meeting allowed the local community to comment on the traffic and circulation effects of the proposed design.
Goal 3: To establish a pedestrian circulation system that supports and promotes walking as a viable mode of transportation within the community. ***Objective C-3. Maintain and enhance the pedestrian circulation system to support and encourage walking as a mode of transportation.***	
Policy (a): Link residences with schools, job centers, shopping centers, parks, and other public facilities/destination centers, both within a planning area and to adjacent planning areas, through an internal system consisting of pedestrian facilities (e.g., sidewalks and/or shared-use paths).	**Consistent.** The proposed project includes the extension of the JOST, which is an open space corridor used by pedestrian and cyclists throughout the City; it connects residents to several job centers, shopping centers, and other public facilities/destination centers throughout the City. The JOST is an important element in the City's overall Open Space system, linking the conservation and open space lands within the City. It provides a key linkage extending from the Pacific Ocean to the Santa Ana Mountains and Cleveland National Forest (City of Irvine 2024h). The JOST,

Table 4.11-1. General Plan Consistency

Applicable General Plan Goals, Objectives, and Policies	Project Consistency with Policy
	which currently terminates at Portola Parkway just south of the project site, would be extended to the entrance of the new Gateway Preserve. The extension also includes construction of a pedestrian bridge over Portola Parkway. It would further connect residents to this open space area as well as the three proposed parks as part of the project.
Policy (b): Encourage proposed developments to provide safe, convenient, and direct pedestrian access to surrounding land uses, on-street parking, and transit stops, as applicable, emphasizing active transportation and supporting the Complete Streets Act.	**Consistent.** See response to Policy (a). In addition, the proposed project includes the development of three new parks and paseos that would provide additional safe and convenient pedestrian access.
Policy (c): Design and locate land uses that facilitate access by non-automotive means (e.g., walking and/or bicycling).	**Consistent.** See responses to Policy (a) and Policy (b).
Goal 4: To develop and maintain a comprehensive bicycle network that encourages increased bicycle usage for both commuting and recreational purposes. ***Objective C-4. Plan, provide, maintain, and enhance a comprehensive bicycle network that encourages increased use of bicycles.***	
Policy (a): Encourage proposed developments to provide connectivity to the existing bicycle circulation network, both on- and off-street, and within the proposed planning area. The on-street and off-street trails shall be designed for the safety of all users per approved City plans and documents.	**Consistent.** The project includes extension of the JOST, which is a major off-street shared-use trail designed for the safety of all users, including cyclists.
Policy (b): Accommodate cyclists of all levels of experience and provide for both recreation and functional transportation when designing shared-use pathways.	**Consistent.** The project includes an extension to the shared-use JOST would will be designed consistent with the existing JOST and designed to accommodate all levels of cyclists.
Policy (d): Encourage new developments to include detailed circulation plans for pedestrian and bicycle trails providing access to the subject property, adjacent properties, and community facilities, as applicable.	**Consistent.** A trail and sidewalk diagram was prepared for the proposed project that indicates where new pedestrian and bicycle trails would be provided. It shows where these trails and sidewalks would be connected on the subject property and adjacent properties.
Policy (f): Encourage grade-separated crossings for pedestrians and cyclists, wherever feasible, to increase safety and efficiency.	**Consistent.** The project includes construction of a pedestrian bridge over Portola Parkway as part of the JOST extension.
Policy (g): Encourage separated, off-street bicycle trails and shared-use paths in areas with minimal cross traffic, such as open space spine, flood control and utility easements, where feasible.	**Consistent.** The project includes extension of the JOST, which is a major off-street shared-use trail designed for the safety of all users, including cyclists. The extension includes construction of a pedestrian bridge over Portola Parkway.

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Applicable General Plan Goals, Objectives, and Policies	Project Consistency with Policy
Policy (i): Incorporate, where appropriate, school and park locations within the design of the bicycle network system.	**Consistent.** The project includes construction of South Park at the new northern terminus of the JOST, which would act as a connection between the JOST and the adjacent Northern Open Space.
Goal 5: Foster a culture of active transportation by prioritizing walking, cycling, and other non-motorized modes of travel to improve public health, reduce greenhouse gas emissions, and enhance the quality of life for residents and visitors in Irvine. **Objective C-5. Enhance the City's infrastructure to support and encourage walking, cycling, and other forms of active transportation by developing safe, accessible, and interconnected networks of pathways, bike lanes, and multi-use trails throughout Irvine.**	
Policy (d): Provide secure and convenient bicycle parking facilities, such as bike racks, bike parking and storage, and bike shelters, at key destinations, including transit stops, commercial centers, parks, and employment hubs, to encourage cycling as a viable transportation option and support active commuting.	**Consistent.** The proposed project would include bicycle parking facilities, such as bike racks and storage, that would support the JOST extension as well as its proposed new parks.
Policy (e): Integrate active transportation planning considerations into land use decisions, transportation projects, and development approvals to prioritize pedestrian and cyclist safety, accessibility, and comfort, and ensure that new developments are designed to support active transportation modes.	**Consistent.** The proposed project would improve pedestrian and cyclist access throughout the City through the JOST extension. See responses to Goal 3, Policy (a) and Policy (b).
Goal 6: To plan, develop, and maintain a comprehensive trail network that caters to the needs of cyclists, equestrian riders, and hikers, ensuring accessibility and enjoyment for all. ***Objective C-6. Plan, develop and maintain a trail network to support facilities that support the needs of cyclists, equestrian riders, and hikers.***	
Policy (c): Encourage the development of trail facilities that minimize impacts on existing or planned development and wildlife preservation areas.	**Consistent.** The proposed project includes the extension of the JOST which is a trail facility. See responses to Goal 3, Policy (a) and Policy (b). As discussed in Section 4.4, Biological Resources, the proposed project would not result in significant impacts to wildlife or habitat supporting wildlife. The project would implement several mitigation measures, MM-BIO-1 through MM-BIO-7, to reduce potential wildlife-related impacts to less than significant levels.
Policy (e): Continue to encourage developer dedication and final improvements to the trail system.	**Consistent.** See responses to Goal 3, Policy (a) and Policy (b).

Table 4.11-1. General Plan Consistency

Applicable General Plan Goals, Objectives, and Policies	Project Consistency with Policy
Goal 7: Foster collaboration and coordination with regional transportation agencies to improve connectivity, accessibility, and efficiency of transportation networks serving Irvine and neighboring communities. ***Objective C-7. Maintain a public transit system for trips within the City and to/from adjacent areas.***	
Policy (a): Plan residential, commercial, and industrial areas to enable effective use of public transit	**Consistent.** The project includes extension of the JOST, which is an important element in the City's overall Open Space system, linking the conservation and open space lands within the City. The JOST provides a key linkage extending from the Pacific Ocean to the Santa Ana Mountains and Cleveland National Forest (City of Irvine 2024h). It also links provides pedestrian and cyclist access to public transit stops that parallel the trail, thereby allowing for a more connected public transit system.
Goal 9: Improve transportation efficiency and accessibility by optimizing the circulation system to provide convenient, reliable, and inclusive transportation options for all residents and visitors in the City of Irvine. ***Objective C-9. Maximize transportation efficiency by streamlining traffic flow, reducing congestion, and enhancing connectivity between different transportation modes to facilitate seamless movement within the City.***	
Policy (b): Promote active transportation modes such as walking and biking by developing pedestrian- and bicycle-friendly infrastructure, creating and enhancing bike lanes and trails, and implementing traffic calming measures to improve safety and encourage non-motorized travel.	**Consistent.** The project includes extension of the JOST, which is a major piece of pedestrian- and bicycle-friendly infrastructure in the City.
Policy (d): Prioritize accessibility by ensuring that transportation infrastructure and services are accessible to all residents, including those with disabilities or limited mobility, through the provision of ADA-compliant facilities, accessible transit options, and inclusive transportation planning.	**Consistent.** The project includes a pedestrian bridge over Portola Parkway, which would be designed to be ADA compliant.
Policy (e): Coordinate land use and transportation planning efforts to ensure that transportation infrastructure aligns with development patterns, promoting mixed-use development, transit-oriented development (TOD), and pedestrian-friendly design to enhance transportation efficiency and accessibility.	**Consistent.** See response to Goal 3 Policy (a). The proposed project involves the extension of the JOST, which would enhance pedestrian access and transportation efficiency. In addition, the proposed project includes the development of three new parks and paseos that would provide additional safe and convenient pedestrian access.
Policy (f): Support multimodal connectivity by integrating various transportation modes, including public transit, walking, biking, and shared mobility options, to provide residents and visitors with diverse and convenient transportation choices that meet their needs and preferences.	**Consistent.** See responses to Goal 3 Policy (a) and Goal 7 Policy (a). The proposed project would involve improvements for pedestrians and bicyclists that would enhance access to public transit, parks, and open space.

Table 4.11-1. General Plan Consistency

Applicable General Plan Goals, Objectives, and Policies	Project Consistency with Policy
Goal 10: Foster the transition towards cleaner and more sustainable transportation options to reduce greenhouse gas emissions, improve air quality, and enhance the overall environmental sustainability of the transportation system in Irvine. ***Objective C-10. Reduce emissions from transportation activities by encouraging the adoption of clean and alternative fuel vehicles, promoting the use of nonmotorized transportation modes, and implementing measures to mitigate vehicle emissions.***	
Policy (a): Encourage the adoption of electric vehicles (EVs) by expanding EV charging infrastructure throughout the City, providing incentives for EV purchases, and facilitating partnerships with private stakeholders to increase accessibility to charging stations.	**Consistent.** The proposed project would include EV charging infrastructure, consistent with the requirements of MM-GHG-1. According to that mitigation measure, the project applicant or designee is required to provide EV charging infrastructure that meets or exceeds 2022 California Green Building Standards Code Tier 2 standards.
Goal 12: Ensure Sustainable Transportation Design for Enhanced Mobility and the support of Environmental Conservation. ***Objective C-12. Integrate sustainable transportation principles into the City's planning and development initiatives to reduce environmental impact, enhance livability, and improve mobility for all residents.***	
Policy (a): Require the incorporation of sustainable transportation features in all new development projects, including bike lanes, pedestrian walkways, and transit-oriented designs. Prioritize the use of environmentally friendly transportation modes, such as electric vehicles, public transit, and active transportation options, in City planning and infrastructure development.	**Consistent.** See response to Policy (a) of Goal 10. The proposed project involves the development of new pedestrian and bicycle facilities. The proposed project also includes the development of three new parks and paseos that would provide additional safe and convenient pedestrian access. EV charging stations would also be provided at the proposed South Park.
Policy (b): Implement zoning regulations and design standards that encourage mixed-use development and compact, walkable neighborhoods to minimize reliance on automobiles.	**Consistent.** See response to Policy (a).
Conservation and Open Space Element	
Goal 1. Ensure the permanent protection and preservation of designated conservation and open space areas amidst the development of commercial, industrial, institutional, and residential zones. ***Objective COS-1: Continue the implementation of programs that effectively integrate the protection and preservation of conservation and open space areas with the development of designated zones.***	
Policy (b): Require developers to conduct comprehensive environmental assessments to identify potential impacts on designated conservation and open space areas during project planning.	**Consistent.** The proposed project includes open space enhancements and has considered open space impacts. The proposed project would include the construction of five anticipated parks that would offer open space and passive/active recreation for the proposed residential development totaling approximately 7.2 acres. In addition, the proposed project also includes the extension of the JOST north 2,750 feet from Portola Parkway to the proposed South Park at the entrance to the forthcoming Gateway Preserve (Figure 3-5,

Table 4.11-1. General Plan Consistency

Applicable General Plan Goals, Objectives, and Policies	Project Consistency with Policy
	Conceptual Site Plan) and would include a pedestrian bridge over Portola Parkway. Therefore, the proposed project would integrate open space elements into the proposed residential development. The project would provide accessible connections to open space and parks for its residents and the public.
Goal 3. Use and preserve geophysical resources, including, but not limited to, ridgelines, hillsides, and waterways, as part of the City's land use pattern. ***Objective COS-3: Effectively utilize and safeguard geophysical resources, encompassing ridgelines, hillsides, and waterways, within the City's land use framework to maintain ecological integrity, enhance aesthetic value, and promote sustainable development practices that harmonize with the natural landscape.***	
Policy (d): Conduct studies on existing drainage channels to determine suitable preservation measures, integrating them into surrounding development designs.	**Consistent.** The proposed project's impacts related to drainage patterns of the site and area have been evaluated in Section 4.10, Hydrology and Water Quality, of this Draft EIR. As evaluated in that section, the proposed project would result in a less-than-significant impact related to its potential to alter existing drainage patterns. As determined in that section, the proposed project would not result in substantial erosion or siltation, surface runoff resulting in flooding, or runoff exceeding existing or planned drainage systems, nor would it impede or redirect flood flows.
Policy (f): Prioritize minimal alteration of natural topography during necessary modifications, locating buildings to minimize grading and preserve native vegetation (except for fire trails).	**Consistent.** See response to Policy (d). The project would not alter existing topography in a manner that would significantly impact drainage. As discussed in Section 4.4, Biological Resources, the proposed project would not result in significant direct or indirect impacts to riparian habitat or other sensitive vegetation communities.
Policy (i): Minimize the danger to life and property from geophysical hazards, including, but not limited to, unstable soils, liquefaction, steep slopes, and floodways.	**Consistent.** See Section 4.7, Geology and Soils, of this Draft EIR. As explained in that section, the proposed project would not result in significant impacts related to geophysical hazards, including unstable soils, expansive soils, liquefaction, steep slopes, earthquake faulting, seismic ground shaking, and landslides. The proposed project's impacts related to floodways on the project site and the surrounding area have been evaluated in Section 4.10, Hydrology and Water Quality, of this Draft EIR. As evaluated in that section, the proposed project is not located in a 100-year floodplain and would not impede or redirect flood flows.
Goal 4. Use and maintain societal resources, including, but not limited to, archaeological, historical, and paleontological resources, as part of the City's land use pattern. ***Objective COS-4: To effectively utilize and preserve societal resources, encompassing archaeological, historical, and paleontological assets, within the City's land use framework, ensuring their integration and maintenance in alignment with conservation and open space goals.***	
Policy (a): Continue to coordinate General Plan level resource information to determine the level and type of resource(s)	**Consistent.** See Section 4.5, Cultural Resources, of this Draft EIR. As explained in that section, no historical resources or historic properties were identified within the project site as a result of archival research, a records search, a field survey, and

Table 4.11-1. General Plan Consistency

Applicable General Plan Goals, Objectives, and Policies	Project Consistency with Policy
potentially impacted by proposed development.	significance evaluations. While the project would not have any impacts on known significant or unique archaeological resources, there is a moderate potential for the inadvertent discovery of subsurface archaeological resources during project implementation. Therefore, to address impacts related to the inadvertent discovery of yet unknown archaeological resources, mitigation is required. MM-CUL-1 requires that all project construction personnel participate in cultural resources sensitivity training for the proper identification and treatment of inadvertent discoveries. MM-CUL-2 requires the retention of an on-call qualified archaeologist to address inadvertent discoveries. With implementation of MM-CUL-1 and MM-CUL-2, significant impacts to archaeological resources would be reduced to less than significant. See Section 4.7, Geology and Soils, of this Draft EIR. As explained in that section, no paleontological resources were identified within the project site as a result of the institutional records search or desktop geological and paleontological review (Appendix E-2). Impacts related to paleontological resources would be considered less than significant with mitigation (MM-GEO-1) incorporated during construction. See Section 4.17, Tribal Cultural Resources, of this Draft EIR. As explained in that section, the proposed project would not result in a substantial adverse change to the significance of a tribal cultural resource; potentially significant impacts would be reduced to a less-than-significant level through the implementation of MM-TCR-1, which requires a Native American monitor to be present during grading and excavation activities.
Goal 6. Establish and maintain a network of parks and recreational areas that offer a wide range of leisure opportunities while promoting their sustainable development and maintenance. ***Objective COS-6: Maintain and enhance the City's network of parks and recreational areas that provide a variety of recreational opportunities, and which link and integrate other conservation and open space areas into the land use fabric of the City.***	
Policy (a): Continue to coordinate parks and recreational opportunities through the General Plan and Parks Master Plan to ensure adequate and timely development of parks and recreational areas.	**Consistent.** The proposed project includes parks and recreational components. The proposed project would include the construction of three parks that would offer open space and passive/active recreation its residents and visitors: Gateway Village Park would be 1.4 acres, the linear park would be 0.4 acres, and South Park would be 4.9 acres. In addition, the proposed project also includes the extension of the JOST north 2,750 feet from Portola Parkway to the proposed South Park at the entrance to the forthcoming Gateway Preserve (Figure 3-5) and would include a pedestrian bridge over Portola Parkway. One of the private community parks would include amenities such as a clubhouse, pools, seating, and a playground. South Park would include parking, restrooms, and trail staging. An overarching goal of the project is to provide a transition from urban development to the nature preserve to the north, and

Table 4.11-1. General Plan Consistency

Applicable General Plan Goals, Objectives, and Policies	Project Consistency with Policy
	together with the JOST, South Park would act as that transitional space ("the gateway").
Policy (b): Expand opportunities and places for casual nature-related recreation and leisure (e.g., the Jeffrey Open Space Trail) that are distinct from turf parks and protected wildlands.	**Consistent.** See response to Policy (a). The proposed project includes extension of the JOST and enables the opening of the Gateway Preserve, both of which would offer nature-based recreation opportunities.
Policy (d): Provide for a broad spectrum of recreational opportunities and park facilities, in either public or private ownership, to accommodate a variety of types and sizes of functions and provide safe and easy access for their intended users.	**Consistent.** See response to Policy (a).
Policy (e): Ensure that Irvine's park system is developed, maintained, and rehabilitated in a manner that is cost-effective and consistent with the community's needs and ability to pay.	**Consistent.** The parks described in Policy (a), would be developed and maintained by the City, project proponent, and future homeowners. The public neighborhood park and Gateway Community Park (including the JOST) would be maintained by the City. The internal landscaped areas and paseos, as well as the private neighborhood parks, would be maintained by homeowners through the creation of a new homeowner's association (HOA) and associated fees.
Policy (f): Require developers of residential land to dedicate park land and/or improvements/amenities, and/or pay fees in lieu of dedication, at a rate of five (5) acres per thousand (1,000) population, consistent with the Quimby Act, Subdivision Map Act, Irvine Subdivision and Zoning Ordinances, General Plan standards, and Irvine Park Standards Manual.	**Consistent.** See Section 4.15, Recreation, of this Draft EIR. Pursuant to the Quimby Act (the goal of which is to reduce strain on existing parks and provide adequate park space to accommodate new residential development) and the Subdivision Ordinance (Chapter 10, Section 5-5-1004 of the Irvine Municipal Code), the proposed project's developer is required to dedicate park land and/or improvements/amenities and/or pay fees in lieu of dedication.
Goal 7. Encourage the maintenance of agriculture in undeveloped areas of the City until the time of development, and in areas not available for development. ***Objective COS-7: To promote the preservation and sustenance of agricultural activities in undeveloped areas of the City until their eventual development, and in areas where development is not feasible or permitted, ensuring the continued vitality of agricultural landscapes and practices within the community.***	
Policy (f): Allow for conversion of interim and permanent agricultural uses to development to provide land for the construction of housing units consistent with the Land Use and Housing Elements, and the development of commercial and industrial buildings consistent with the provision of job opportunities as described in the Land Use Element, where such conversion does not conflict with other LU- 10 policies.	**Consistent.** The project site consists primarily of active agricultural fields. As discussed in Section 4.2.4, the proposed project would result in the loss of 67.46 acres of mapped Important Farmland. This conversion of farmland would allow for the construction of 1,360 homes consistent with the Land Use and Housing Elements of the General Plan. The proposed conversion of agricultural land would not conflict with LU-10 policies, as discussed under Land Use Element Goal 10.

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Applicable General Plan Goals, Objectives, and Policies	Project Consistency with Policy
Policy (g): Encourage and support the establishment and maintenance of community gardens within the City by exploring the following: (applicable excerpt included) ▪ Integrating community garden considerations into urban planning and development processes to ensure their inclusion in future neighborhood designs.	**Consistent.** The proposed project includes the provision of a community garden for its residents. It also includes the construction of three parks that would provide community space for residents and visitors. The project site is bordered by the Irvine Ranch Conservancy Native Seed Farm (Seed Farm) to the north. Seed Farm operations include growing and tending to seed-producing plants. The intent of the Seed Farm is to conserve a natural seed bank for the area, with the goal of restoring sensitive habitats. As discussed in Section 4.2.4, the proposed project would not jeopardize the Seed Farm's ongoing operations. Therefore, the proposed project would include community spaces and would be proximate to an ongoing Seed Farm, which is open to the public and promotes similar community benefits.
Goal 9. Enhanced utilization of open space in existing development and new development projects. ***Objective COS-9: Promote and, when suitable, mandate the incorporation of open space areas in multi-family, mixed-use, and office developments to supplement the available open space and recreational facilities in the City. Optimize the utilization of current public open space assets on a neighborhood scale and explore possibilities for private development to enrich neighborhood open space resources.***	
Policy (a): Continue to enforce zoning regulations mandating accessibility to open space for new residential, retail, and commercial developments.	**Consistent.** The proposed project would include the construction of five parks that would offer open space for the proposed residential development totaling approximately 7.2 acres.
Policy (b): Explore the potential for developers to contribute to the enhancement of existing open space accessibility through a fee payment instead of mandatory on-site parks provision for new developments, with the fee going towards enhancing access to existing open space.	**Consistent.** See Section 4.15, Recreation, of this Draft EIR. Pursuant to the Quimby Act (the goal of which is to reduce strain on existing parks and provide adequate park space to accommodate new residential development), the Subdivision Ordinance (Chapter 10, Section 5-5-1004 of the Irvine Municipal Code), and the Irvine Parks Standards Manual, the proposed project's developer is required to dedicate park land and/or improvements/amenities and/or pay fees in lieu of dedication.
Policy (c): Promote the creation of rooftop open areas in denser residential, mixed-use, and commercial developments. Ensure that the design of these spaces minimizes potential impacts on nearby properties, such as noise, privacy, and light concerns.	**Consistent.** The inclusion of rooftop open areas was considered for the proposed project but not selected. The project is not considered a mixed-use project, for which rooftop areas would make sense. The project includes open space areas and amenities at ground level.
Policy (d): Encourage the establishment of incentives for incorporating publicly accessible open space into private development initiatives.	**Consistent.** The proposed project includes the extension of the JOST, which is a publicly accessible open space corridor used by pedestrian and cyclists. The extension of the JOST would include a new pedestrian bridge over Portola Parkway. The total acreage of the JOST extension under the proposed project would be 9.5 acres. The proposed project would include the construction of three parks that would offer open space for the proposed residential development.
Policy (f): Promote enhancements to open spaces, whether on public or private land,	**Consistent.** See response to Policy (a).

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Applicable General Plan Goals, Objectives, and Policies	Project Consistency with Policy
when opportunities arise. This could involve dedicating areas not able to be developed due to building purposes or lot size, or improving sites for green spaces, as well as upgrading pathways and connections to function as neighborhood landscaping and recreational amenities.	
Goal 10. Enhanced open space accessibility and utilization, and conservation efforts of resources. ***Objective COS-10: The City commits to creating and fostering well-integrated and sustainable open space resources available to City residents and visitors.***	
Policy (a): Provide a variety of public and private parks to meet residents' needs.	**Consistent.** See response to Policy (a), Goal 9, of the Community and Open Space Element.
Policy (b): Ensure that the City's park, recreation, and open space system is accessible to all residents, including users of different abilities and demographic characteristics.	**Consistent.** See responses to Goal 9 of the Community and Open Space Element. The project would provide accessible connections to open space and parks for its residents and general public, including the extension of the JOST and the bridge over Portola Parkway
Policy (c): Encourage the creation of dynamic parks as special and unique places, adding or incorporating art and historic resources, innovative features, diverse landscaping, nature, varied color palettes, and welcoming amenities.	**Consistent.** The proposed project includes the construction of two private community parks and a public neighborhood park (South Park). One of the private community parks would include amenities such as a clubhouse, pools, seating, and a playground. South Park would include parking, restrooms, and trail staging. The project also includes extension of the JOST northward from its existing northern terminus at Portola Parkway to South Park at the entrance to the forthcoming Gateway Preserve. The proposed project would also include public art that harkens back to Irvine's agrarian past.
Policy (f): Ensure that choices related to future development, capital projects, and resource management align with the City's climate objectives, encompassing goals for reducing greenhouse gas emissions and fostering adaptation.	**Consistent.** See Section 4.8, Greenhouse Gas Emissions. As discussed in that section, the project attributes to reduce operational greenhouse gas (GHG) emissions identified CARB's 2022 Scoping Plan. Per the Scoping Plan, empirical evidence shows that residential and mixed-use development projects that are consistent with these attributes to reduce GHG emissions will accommodate growth in a manner that aligns with the GHG emissions and equity goals.
Policy (g): Coordinate conservation efforts in alignment with Environmental Protection and Climate Action Elements objectives and against the degradation of soil that supports open spaces and passive and active recreational use, the sustainability of water resources, and preservation of cultural and historical resources.	**Consistent.** The proposed project would not result in the degradation of soil that supports open spaces and passive and active recreational use. The project would include an extension of the JOST and creation of three new parks for active and passive recreational use. See response to Goal 4, Policy (a), above. With implementation of MM-CUL-1 and MM-CUL-2, significant impacts to archaeological resources would be reduced to less than significant. See Section 4.5, Cultural Resources, of this Draft EIR. Also, no historical resources or historic properties were identified within the project site as a result of archival research, a records search, a field survey, and significance evaluations.

Table 4.11-1. General Plan Consistency

Applicable General Plan Goals, Objectives, and Policies	Project Consistency with Policy
Policy (i): Coordinate conservation of water resources in alignment with Environmental Protection and Climate Action Elements objectives and policies to encourage the integration of existing and future water sources (reservoirs, lakes, and drainage courses) into development.	**Consistent.** See Section 4.18, Utilities and Service Systems, of this Draft EIR. As discussed in that section, sufficient water supplies would be available to serve the project. The project would obtain its water from the Irvine Ranch Water District, which implements published water conservation policies, practices, and procedures. A Water Supply Assessment (Appendix F-1) and Water Supply Verification (Appendix F-2) were completed for the project. Based on these documents, adequate water supplies are available to meet the project's water demands. Further, the project would implement MM-GHG-3, which requires the project applicant or its designee to provide evidence to the City that the residential and recreational building design plans include water use efficiency and conservation measures.
Environmental Protection and Climate Action Element	
Goal 3: Reduce greenhouse gas emissions and mitigate climate change impacts in Irvine to create a more sustainable and resilient community. ***Objective EPCA-3: Achieve significant reductions in greenhouse gas emissions across all sectors within Irvine by implementing targeted policies and initiatives.***	
Policy (a): Promote the transition to renewable energy sources, such as solar, wind, and geothermal, for electricity generation within Irvine.	**Consistent**. As discussed in Section 4.6, Energy, the proposed project would be required to include solar power infrastructure and adhere to other building efficiency standards pursuant to Title 24. See Section 4.3, Air Quality; Section 4.6, Energy; and Section 4.8, Greenhouse Gas Emissions. The project would include implementation of the following mitigation measures that would benefit energy efficiency: ▪ MM-AQ-2: Additional Construction Equipment Emission Reductions ▪ MM-AQ-4: Limit Truck and Equipment Idling During Construction ▪ MM-GHG-1: Electrical Vehicle Charging Infrastructure ▪ MM-GHG-2: Energy Conservation ▪ MM-GHG-3: Water Use Efficiency and Water Conservation
Policy (b): Encourage the adoption of energy-efficient technologies and practices in buildings, transportation, and industries to reduce reliance on fossil fuels**.**	**Consistent.** See responses to Policy (a), above. The proposed project includes energy-efficient technologies for its proposed residential development that would reduce reliance on fossil fuels. Homes would be all electric and would not include natural gas components. Homes would also be powered through new solar systems and energy storage systems that are sized specifically to the home's specific square footage and available roof area. All homes will be compliant with Title 24 of the California Building Code by a minimum 10% and would comply with the latest California Green Building standards; appliances would also be Energy Star certified. Further, landscaping would be composed of native and drought-tolerant plant and tree species and would comply with water conservation measures.

Table 4.11-1. General Plan Consistency

Applicable General Plan Goals, Objectives, and Policies	Project Consistency with Policy
Policy (c): Prioritize investments in public transit infrastructure, walking and biking paths, and electric vehicle charging stations to reduce emissions from transportation.	**Consistent.** The proposed project involves the development of new pedestrian and bicycle facilities. In addition, the proposed project includes the development of three new parks and paseos that would provide additional safe and convenient pedestrian access. See response to Policy (a), Goal 10, of the Circulation Element; the project includes the development of new EV infrastructure.
Policy (d): Promote energy conservation measures, such as retrofitting buildings with energy-efficient appliances, insulation, and lighting systems.	**Consistent.** See response to Policy (b).
Goal 4: Improve air quality and protect public health in Irvine by reducing air pollution and minimizing harmful emissions from various sources. ***Objective EPCA-4: Achieve and maintain compliance with air quality standards set by regulatory agencies, such as the Environmental Protection Agency (EPA) and the California Air Resources Board (CARB), to ensure a healthy and sustainable environment for residents.***	
Policy (a): Promote the adoption of low-emissions and alternative fuel vehicles through incentives, rebates, and infrastructure development.	**Consistent.** The proposed project would include EV charging infrastructure, consistent with the requirements of MM-GHG-1. According to that mitigation measure, the project applicant or designee is required to provide EV charging infrastructure that meets or exceeds 2022 California Green Building Standards Code Tier 2 standards.
Policy (c): Encourage the use of clean and renewable energy sources, such as solar, wind, and geothermal, to reduce emissions from energy generation and promote a transition away from fossil fuels.	**Consistent**. See responses to Policy (a) and Policy (d) of Goal 2, above.
Goal 5: Protect and enhance water quality in Irvine through policy implementation and measures to prevent pollution, conserve water resources, and ensure access to safe and clean water. ***Objective EPCA-5: Achieve and maintain compliance with water quality standards set by regulatory agencies, such as the Environmental Protection Agency (EPA) and the California State Water Resources Control Board (SWRCB), to safeguard public health and the environment.***	
Policy (a): Continue to implement measures to prevent and control pollution from various sources, including industrial discharges, stormwater runoff, agricultural activities, and wastewater treatment plants.	**Consistent.** The proposed project's impacts related to water quality have been evaluated in Section 4.10, Hydrology and Water Quality, of this Draft EIR. As evaluated in that section, the proposed project would result in less-than-significant impacts related to potential conflict with water quality standards or implementation of water quality control plans. As detailed in that section, the project would comply with applicable state and local regulations, implementing low impact design (LID) and best management practices (BMPs).
Policy (e): Continue to implement water efficient landscaping standards, irrigation technology upgrades, and leak detection programs to optimize water use and reduce wastage.	**Consistent.** The proposed project's landscaping would comply with water conservation measures and be composed of native and drought-tolerant plant and tree species. During operations, the project site would consist of vegetated open space, landscaped areas, buildings, and hardscapes. LID BMPs are required in addition to site design measures and source controls

Table 4.11-1. General Plan Consistency

Applicable General Plan Goals, Objectives, and Policies	Project Consistency with Policy
	to reduce pollutants in stormwater discharges. Furthermore, the project would implement MM-GHG-3, which requires the project applicant or its designee to provide evidence to the City that the residential and recreational building design plans include water use efficiency and conservation measures.
Goal 6: Reduce energy consumption and promote energy efficiency in Irvine. ***Objective EPCA-6: Achieve significant reductions in per capita energy consumption across residential, commercial, and municipal sectors while promoting the adoption of renewable energy sources and energy-efficient technologies.***	
Policy (a): Continue, through the efforts of CALGreen (California Green Building Standards Code), to enforce energy efficiency standards and building codes for new construction and major renovations to improve the energy performance of buildings and reduce energy demand.	**Consistent.** See response to Goal 3, Policy (b).
Policy (b): Continue to require energy efficient building design, insulation, HVAC systems, lighting, and appliances to minimize energy consumption and lower utility costs for residents and businesses.	**Consistent.** See response to Goal 3, Policy (b).
Policy (c): Continue to promote the adoption of renewable energy systems, such as solar photovoltaic (PV) panels, wind turbines, and geothermal heat pumps, to generate clean and sustainable electricity for onsite consumption or grid injection.	**Consistent.** See response to Goal 3, Policy (b).
Goal 8: Mitigate the impacts of climate change, enhance resilience, and transition to a climate-resilient community in Irvine. ***Objective EPCA-8: Reduce greenhouse gas emissions, adapt to the effects of climate change, and promote climate resilience through comprehensive policies, programs, and initiatives that engage stakeholders, foster innovation, and prioritize equitable and sustainable solutions.***	
Policy (a): Implement strategies to achieve significant reductions in greenhouse gas emissions across all sectors, including energy, transportation, buildings, waste, and land use, in alignment with state and regional climate goals.	**Consistent**. See responses to Policy (a) and Policy (d) of Goal 2, above.
Goal 9: Preserve and enhance natural open spaces, habitats, and biodiversity in Irvine. ***Objective ECPA-9: Conserve and restore natural ecosystems, protect biodiversity, and expand access to green spaces through comprehensive policies, programs, and initiatives that prioritize ecological integrity, community engagement, and sustainable land management practices.***	
Policy (g): Promote the integration of green infrastructure elements into urban planning, infrastructure design, and land development projects to improve air and water quality,	**Consistent.** The project proposes to develop three new parks, create paseos, and extend the JOST from Portola Parkway to the entrance of the new Gateway Preserve. These project

Table 4.11-1. General Plan Consistency

Applicable General Plan Goals, Objectives, and Policies	Project Consistency with Policy
reduce urban heat island effects, and enhance overall environmental sustainability.	components represent new greenways that would integrate with the proposed residential village.
Goal 10: Continue to promote sustainable land use practices in Irvine. **Objective EPCA-10: Implement policies and initiatives that prioritize sustainable land management, smart growth principles, and equitable development strategies to ensure the efficient use of land while protecting environmental quality and promoting community well-being.**	
Policy (b): Continue to enforce and update zoning regulations, design standards, and development incentives to promote infill development, higher residential densities, and diverse land uses that enhance accessibility, connectivity, and livability for residents of all ages, incomes, and abilities.	**Consistent.** The proposed project involves a mixture of housing types and densities; it also includes three new park/open space areas. The project includes the development of two- to three-story single-family detached homes, attached housing units, and multifamily affordable housing units. In addition, the proposed project also includes the extension of the JOST at the entrance to the forthcoming Gateway Preserve and would include a pedestrian bridge over Portola Parkway. Therefore, the proposed project would integrate open space elements into the proposed residential development. The project would provide accessible connections to open space and parks for its residents and the public.
Policy (c): Integrate green infrastructure elements, such as parks, greenways, and open spaces, into land use planning and development projects to manage stormwater runoff, improve air and water quality, and enhance ecological connectivity and biodiversity.	**Consistent.** The project proposes to develop three new parks, create paseos, and extend the JOST from Portola Parkway to the entrance of the new Gateway Preserve. These project components represent new greenways that would integrate with the proposed residential village.
Policy (e): Incorporate climate-responsive design principles and resilient landscape strategies into land use planning, site design, and infrastructure development to mitigate climate risks, such as flooding, heat islands, and sea-level rise, and enhance community resilience to climate-related hazards	**Consistent.** See response to Goal 9, Policy (g).
Policy (f): Encourage and incentivize the adoption of Leadership in Energy and Environmental Design (LEED) building standards for new construction and major renovations within the City.	**Consistent.** See Section 4.3, Air Quality, Section 4.6, Energy, and Section 4.8, Greenhouse Gas Emissions. Although the proposed project would not be LEED certified, it would include implementation of the following mitigation measures that would benefit energy efficiency: ▪ MM-AQ-2: Additional Construction Equipment Emission Reductions ▪ MM-AQ-4: Limit Truck and Equipment Idling During Construction ▪ MM-GHG-1: Electrical Vehicle Charging Infrastructure ▪ MM-GHG-2: Energy Conservation ▪ MM-GHG-3: Water Use Efficiency and Water Conservation
Policy (g): Explore the adoption of green building standards, energy-efficient design guidelines, and sustainable construction	**Consistent.** See response to Goal 3, Policy (b) and responses to Policy (a) and Policy (d) of Goal 2, above.

Table 4.11-1. General Plan Consistency

Applicable General Plan Goals, Objectives, and Policies	Project Consistency with Policy
practices to reduce greenhouse gas emissions, promote energy conservation, and minimize environmental impacts associated with new development and redevelopment projects.	
Goal 11: Foster a sustainable transportation system in Irvine that promotes air quality and enhances community resilience to climate change impacts. ***Objective EPCA-11: Implement policies and initiatives that promote active transportation, public transit, and low-emission vehicles to reduce reliance on single-occupancy vehicles, minimize traffic congestion, and enhance mobility options for residents of all ages and abilities.***	
Policy (a): Develop and maintain a comprehensive network of pedestrian-friendly sidewalks, bicycle lanes, and multiuse trails that connect residential neighborhoods, commercial districts, employment centers, and public amenities.	**Consistent**. The proposed project includes the extension of the JOST, which is an open space corridor used by pedestrian and cyclists throughout the City; the JOST connects residents to several job centers, shopping centers, and other public facilities/destination centers throughout the City. The JOST is an important element in the City's overall Open Space system, linking the conservation and open space lands within the City. It provides a key linkage extending from the Pacific Ocean to the Santa Ana Mountains and Cleveland National Forest (City of Irvine 2024h). The JOST, which currently terminates at Portola Parkway just south of the project site, would be extended to the entrance of the new Gateway Preserve. The extension also includes construction of a pedestrian bridge over Portola Parkway. It would further connect residents to this open space area as well as the three parks proposed as part of the project.
Policy (b): Implement complete streets policies and design standards that prioritize safe and accessible walking, biking, and rolling infrastructure, including ADA-compliant facilities, pedestrian crossings, and bicycle parking facilities, in all transportation projects and street improvements.	**Consistent.** See response to Policy (a). In addition, the proposed project includes the development of three new parks and creation of paseos that would provide additional safe and convenient pedestrian access.
Policy (d): Expand the availability of EV charging stations, particularly in public parking facilities, multi-family residential complexes, commercial areas, and workplaces, to facilitate EV adoption and reduce range anxiety for drivers of electric vehicles.	**Consistent.** The proposed project includes the development of new EV infrastructure; see response to Goal 10, Policy (a), of the Circulation Element.
Housing Element	
Goal 2: Maximize land utilization for residential development. ***Objective C: Encourage the proper utilization of the undeveloped/underdeveloped residential areas of the City.***	
Policy HE-C.2: Promote residential development fully served by public services and utilities.	**Consistent.** This project is located in a built-out city served by a transportation network, water and sewer infrastructure, and public services. See Section 4.14, Public Services, of this Draft EIR. As explained in that section, the proposed project would not

Table 4.11-1. General Plan Consistency

Applicable General Plan Goals, Objectives, and Policies	Project Consistency with Policy
	result in unacceptable service ratios, response times, or other performance objectives for fire protection, police protection, schools, parks, or other public facilities such as libraries.
Goal 4: Encourage more affordable housing units. **Objective F: Leverage publicly owned resources, such as vacant land and underutilized properties.**	
Policy HE-F.1: Leverage available resources, such as vacant land and underutilized properties, to incentivize new affordable housing development.	**Consistent.** The project would consist of developing an underutilized and partially vacant property and would include affordable housing units.
Goal 7: Improve quality of life and promote placemaking. **Objective L: Encourage developments that provide community benefits.**	
Policy HE-L.3: Encourage development that includes active transportation infrastructure, such as new and wider sidewalks, trails, and protected bike lanes.	**Consistent.** The project includes development of active transportation infrastructure. The project would include an extension of the JOST and creation of three new parks for active and passive recreational uses and would support active transportation.
Land Use Element	
Goal 1: Preserve and strengthen Irvines identity as a diverse and innovative community. **Objective LU-1. To develop and implement land use policies that foster the preservation and enhancement of Irvine's diverse and innovative character, ensuring that the City remains a vibrant and inclusive community for all residents, businesses, and visitors.**	
Policy (b): Use building masses and landscaping to create a sense of unity throughout the City.	**Consistent.** The design concept of the proposed project will be "Relaxed Mediterranean" to act as a bridge between Refined Mediterranean (Orchard Hills) and the native landscape of the Gateway Preserve. The proposed project includes construction of 1,360 two- and three-story attached and detached homes over 65.5 acres. Density for different residential development areas would range from 10 to 22 dwelling units per acre (DU/ac) at the lowest density to 30 to 40 DU/ac at the highest density. Regarding landscaping, the project would include the installation of street and screen trees along the project site's southern boundary with Portola Parkway. As proposed, new landscaping would be visually cohesive with existing landscaping along the Portola Parkway corridor, and a sense of landscape unity is envisioned.
Policy (c): Ensure energy efficiency and low maintenance needs through land use planning, building design, and landscaping design.	**Consistent.** See response to Goal 3, Policy (b), of the Environmental Protection and Climate Action Element.
Policy (f): Promote sustainable development through energy and water conservation, reduced reliance on non-renewable resources, and the use of native trees,	**Consistent.** The proposed project's landscaping would comply with water conservation measures and would be composed of native and drought-tolerant plant and tree species. Further, the project would implement MM-GHG-3, which requires the project applicant or its designee to provide evidence to the City that the

Table 4.11-1. General Plan Consistency

Applicable General Plan Goals, Objectives, and Policies	Project Consistency with Policy
shrubs, and grasses with low maintenance costs.	residential and recreational building design plans include water use efficiency and conservation measures.
Policy (g): Distinguish individual planning areas in character and physical appearance by considering the following characteristics during design and development: public art, physical and visual separation, architectural style; and planning area edge.	**Consistent.** See response to Policy (b). Incorporation of the Relaxed Mediterranean style would promote general consistency in style with existing developments in the surrounding Orchard Hills area and would function as a less rigid transition (i.e., less rigid compared to the prevalent Refined Mediterranean style of the Orchard Hills area) to local undeveloped open space. The Planning Area edge would typically feature unprogrammed park spaces or landscaped corridors that would both define the project edge and soften the transition to the residentially developed areas of the project site from perimeter roads and adjacent lands.
Policy (h): Incorporate the following components in each residential planning area: a mixture of housing types and densities, a variety of public and private facilities, activity nodes; and open space areas.	**Consistent.** The proposed project involves a mixture of housing types and densities; it also includes three new park/open space areas. The project includes the development of two- to three-story single-family detached homes, attached housing units, and multifamily affordable housing units.
Goal 3: Preserve the existing job base. **Objective LU-3. To preserve and enhance Irvine's existing job base by implementing land use policies and strategies that support the retention, expansion, and diversification of employment opportunities within the City.**	
Policy (b): Provide housing opportunities for the local and regional employment base that support and complement commercial and industrial uses in the IBC.	**Consistent.** See response to Goal 1, Policy (h). The proposed project would include a mixture of residential unit types that would offer a variety of housing opportunities to the local and regional employment base.
Goal 4: Manage growth to ensure balanced residential and nonresidential development throughout the City. **Objective LU-4. To achieve a balanced and sustainable distribution of land uses throughout the City by implementing equitable and inclusive land use policies that optimize the efficient use of land, promote environmental stewardship, and enhance the quality of life for all residents.**	
Policy (a): Ensure that land uses enable the City to provide necessary municipal services by (applicable excerpt included): ▪ All significant environmental impacts are mitigated to a level of insignificance; and - Infrastructure capacity under existing and future (build out) conditions can accommodate additional development in the areas of circulation, fire, police, water, and flood control services	**Consistent.** See Section 4.14, Public Services, of this Draft EIR. As explained in that section, the proposed project would not result in unacceptable service ratios, response times, or other performance objectives for fire protection, police protection, schools, parks, or other public facilities such as libraries. See Section 4.18, Utilities and Service Systems, of this Draft EIR. As discussed in that section, sufficient water supplies would be available to serve the project. The project would obtain its water from the Irvine Ranch Water District. A Water Supply Assessment (Appendix F-1) and Water Supply Verification (Appendix F-2) were completed for the project. Based on these documents, adequate water supplies are available to meet the project's water demands. Furthermore, as detailed in that section and a Preliminary Hydrology Report (Appendix F-3), the

Table 4.11-1. General Plan Consistency

Applicable General Plan Goals, Objectives, and Policies	Project Consistency with Policy
	project would develop adequate stormwater infrastructure to serve the project.
Policy (c): Achieve a land-use balance through the following methods: ▪ Coordination of land use and circulation patterns to ensure adequate circulation capacity and infrastructure. ▪ Promotion of a diversity of housing types and affordability to meet the development objectives of the Housing Element. ▪ Designation of sufficient institutional land to meet the needs of each planning area. ▪ Provision of adequate housing opportunities to support employment growth. ▪ Preservation of open space areas, and development of retail/commercial to address the increase in housing units required to accommodate the updated housing element.	**Consistent.** The proposed project would be consistent with this policy for the following reasons: ▪ Proposed project transportation and circulation impacts have been assessed in Section 4.16, Transportation, of this Draft EIR. Analysis contained in this section is based on a VMT analysis prepared in accordance with the City's adopted Traffic Study Guidelines as well as a comprehensive traffic study performed for the project. As evaluated in that section, the proposed project would result in a less-than-significant impact with mitigation related to design hazards. ▪ The project would consist of 1,360 two- and three-story attached and detached homes. Density for different residential development areas would range from 10 to 22 DU/ac at the lowest density to 30 to 40 DU/ac at the highest density. The project would also include 25% affordable housing, consistent with the Surplus Land Act. ▪ The project would site additional housing close to existing institutional uses such as schools and day-care centers. ▪ The project would include an extension of the JOST and anticipated creation of five new parks for active and passive recreational use.
Policy (d): Reduce expenditures for public services and facilities by clustering residential development.	**Consistent.** The proposed project would include a mixture of residential unit types and densities throughout the site. The project is the development of a new approximately 105-acre residential village that would result in the clustering of new residential development.
Policy (f): Maintain accurate statistical information and intensity ceilings in the General Plan through the following efforts: (applicable excerpt included) Evaluating land use intensities in conjunction with the review of any zone change to permit development or modify intensity. Factors to be considered include but are not limited to, the following: the maximum intensity allowed under Table A-1 of the General Plan; large infrastructure improvements planned or built in the project area that have reduced land available for development; circulation patterns; environmental constraints; and compatibility with surrounding land uses. If the amount of land available for development is significantly lower than the	**Consistent.** The project includes a General Plan Amendment to change the City's Land Use Map from Recreation to Medium High Density Residential on the project site, with High Density Residential to be applied on the affordable housing portion of the site only. Additionally, text, tables, and figure updates in the Land Use Element would be made to establish Planning Area 2 (Gateway Village). Additional General Plan updates include revisions to the figures in the Circulation Element; updates to figures, tables, and text in the Conservation and Open Space Element; and updates to figures in the Safety Element. A zone change to the Irvine Zoning Ordinance is also required to change the zoning classification of the Project site from 1.5 – Recreation to 2.4J – Medium High Density Residential; add Chapter 9-2, Planning Area 2; and amend Section 3-3-1, Section 3-37-15, and Chapter 9-6 for consistency purposes. In conjunction with these land use and zone changes, the City has evaluated land use intensities, environmental constraints and potential impacts, and compatibility with surrounding land uses by virtue of preparing this project-level Draft EIR.

Table 4.11-1. General Plan Consistency

Applicable General Plan Goals, Objectives, and Policies	Project Consistency with Policy
gross acreage identified in the General Plan, the City shall consider reducing intensity.	
Policy (h): Ensure infrastructure, such as roadways, public facilities, and other services, is provided to meet demand as development occurs.	**Consistent.** The proposed project would include roadway and pedestrian improvements that would ensure safe and efficient traffic flow. The proposed project's impacts related to transportation design hazards have been evaluated in Section 4.16, Transportation, of this Draft EIR. As evaluated in that section, the proposed project would result in a less-than-significant impact with mitigation related to design hazards. As explained in Section 4.14, Public Services, of this Draft EIR, the proposed project would not result in unacceptable service ratios, response times, or other performance objectives for fire protection, police protection, schools, parks, or other public facilities such as libraries. Further, as discussed in Section 4.18, Utilities and Service Systems, the proposed project would have sufficient utilities and service systems (i.e., water, wastewater treatment, stormwater drainage, electrical power, natural gas, and telecommunication facilities) to serve the project.
Goal 5: Promote economic prosperity by ensuring City revenues meet expenditures and provide quality services without burdensome levels of fees or taxes. ***Objective LU-5. To optimize the fiscal sustainability of the City by aligning land use policies with economic development strategies to ensure that City revenues meet expenditures, provide quality services, and maintain fiscal stability without imposing burdensome levels of fees or taxes on residents and businesses.***	
Policy (a): Maintain or improve existing service levels while extending services to newly developed areas.	**Consistent.** The proposed project involves the development of a new approximately 105-acre residential village. It includes the development of parks, a community garden, paseos, and extension of the JOST on undeveloped agricultural land.
Policy (e): Encourage maintenance of common areas by community associations and/or maintenance districts rather than the City.	**Consistent.** See response to Goal 6, Policy (e), of the Conservation and Open Space Element.
Policy (h): Require the preparation of a fiscal analysis for boundary adjustments and General Plan amendments, if necessary, to evaluate the long-term fiscal impact on the City.	**Consistent.** On May 9, 2023, the City Council adopted a resolution to authorize the project site's ground lease and issue financing authority for the proposed project. This decision was based on fiscal analysis, City staff report, and considered alternatives. In accordance with Section 6586.5 of the California Government Code, the City held a duly noticed public hearing and considered public testimony concerning the possible issuance, sale, and delivery of the financing (Bonds) (City of Irvine 2023).
Policy (i): Evaluate the relationship between projected City revenues and expenditures in conjunction with proposed land use changes.	**Consistent.** See response to Policy (h), above. The City evaluated the relationship between the projected revenues and expenditures and determined, via resolution that: "it would be in the best interests of the City and residents of the City to authorize the preparation, sale and delivery of the "Irvine

Table 4.11-1. General Plan Consistency

Applicable General Plan Goals, Objectives, and Policies	Project Consistency with Policy
	Facilities Financing Authority (Gateway Preserve Land Acquisition Project) Lease Revenue Bonds, Series 2023A" (the "Bonds") for the purpose of financing the project" (City of Irvine 2023).
Goal 6: Achieve harmonious land use patterns throughout the City. ***Objective LU-6. To establish cohesive and harmonious land use patterns throughout the City by implementing integrated planning strategies that promote connectivity, sustainability, and community well-being while respecting the unique character and identity of different neighborhoods.***	
Policy (a): Safeguard the public health, safety, and welfare of sensitive receptors/land uses when placing them near the following land uses: those dealing with hazardous substances, those causing excessive noise or dust, and those creating other conflicts. Simultaneously, ensure that proposed sensitive receptors/land uses do not impede the ongoing operation or expansion of airports, surface utilities, off-site hazardous waste facilities, solid waste facilities, manufacturing, research and development, mining and processing, or any land use involving hazardous substances as defined by federal and state regulations.	**Consistent.** The project site is approximately 1.25 miles west of the Frank R. Bowerman Landfill. There are many federal and state regulations in place to ensure that landfill operations minimize impacts to public health and safety. OC Waste and Recycling, which operates the landfill, is required to obtain multiple permits to operate the facility. There is existing residential development within the Portola Hills neighborhood, which is located closer to the landfill, that is not negatively impacted by operation of the landfill. The project would not be subject to health, safety, or welfare concerns, nor would it impede continued operation of the landfill. The project site is also near the All American Asphalt (AAA) plant, which had long been a concern of local residents and was closed in 2024. The forthcoming Gateway Preserve Project includes a vision for redevelopment of the AAA plant into a park, interpretive center, and staging area for hiking.
Policy (d): Work closely with operator(s) of existing landfill sites to minimize deleterious effects on surrounding land uses including possible impacts generated by rodent and insect populations, odors, and groundwater conditions.	**Consistent.** As described in the response to Policy (a) above, OC Waste and Recycling is subject to many regulations to ensure that landfill operations minimize impacts to public health and safety, as well as to the environment.
Policy (h): Ensure that sensitive uses are allowed in areas with identified hazards only if the hazard has been adequately analyzed and mitigated.	**Consistent.** Contaminated soils are present on the project site, including organochlorine pesticides and possible undocumented or unknown subsurface contamination due to past commercial and agricultural use of the project site. While contamination levels are below residential screening levels for future use, soils do have concentrations that may characterize them as California hazardous waste for disposal purposes. The impacts of this potential hazard have been identified and analyzed in this Draft EIR. Implementation of MM-HAZ-2, Soil Management Plan, requires preparation and implementation of a soil management plan (SMP) that includes procedures for identification, characterization, management, and proper disposal of known and potentially contaminated soils, as well as health and safety measures for construction workers. The SMP will also include procedures for identification and management of unforeseen

Table 4.11-1. General Plan Consistency

Applicable General Plan Goals, Objectives, and Policies	Project Consistency with Policy
	subsurface features or contamination that may be present on the project site due to past operations.
Policy (j): The City is committed to preserving and planning for greenways in conjunction with planned residential and non-residential development projects. Recognizing the vital role that greenways play in enhancing the quality of life for residents, promoting environmental sustainability, and fostering community connectivity, the City will continue to prioritize their integration into development planning processes.	**Consistent.** The project proposes to develop five new parks, create paseos, and extend the JOST from Portola Parkway to the entrance of the new Gateway Preserve. These project components represent new greenways that would integrate with the proposed residential village.
Goal 8: Create a visually attractive and efficiently organized City. ***Objective LU-8. To enhance the visual appeal and functional organization of Irvine by implementing land use policies and design standards that promote high-quality urban design, placemaking, and built environment aesthetics, fostering a sense of identity, pride, and coherence within the cityscape.***	
Policy (a): Emphasize planning areas as important community elements with diverse characteristics within a cohesive and unified city framework.	**Consistent.** The project would be developed as a new planning area with a distinct character that is cohesive with surrounding development.
Policy (b): Implement the concept of a multiple focal point City designed to minimize congestion by conveniently locating facilities and services in each planning area.	**Consistent.** The project would develop a new planning area that would act as its own focal point and would include parks and recreational facilities to serve the population of the planning area. The project site is also near local-serving schools, retail, and other amenities.
Policy (c): Ensure that each planning area contains an internal system of trails linking schools, shopping centers, and other public facilities with residences.	**Consistent.** The project would include greenways, paseos, and an extension of the JOST from Portola Parkway to the entrance of the new Gateway Preserve.
Policy (d): Distinguish planning areas in character and physical appearance from each other, considering the following during design and development: physical, visual separation, and differentiation; physical compatibility with the local environment including topography; mixture of housing types and densities; range of age and income groups; variety of public and private facilities; activity nodes; varied "skyline"; functional relationship among the components of the community; and interface with adjacent planning areas.	**Consistent.** The project would be developed as a new planning area that would include detailed design standards unique to that planning area. These design standards would ensure a distinct, cohesive, and functional character specific to the planning area but harmonious with surrounding planning areas.
Policy (f): Provide visually rich and engaging street scenes along designated local and collector roads, encouraging pedestrian	**Consistent.** See response to Goal 6, Policy (j). New development of parks, paseos, and an extension to the JOST would encourage pedestrian use and add aesthetic value to neighborhoods.

Table 4.11-1. General Plan Consistency

Applicable General Plan Goals, Objectives, and Policies	Project Consistency with Policy
use, and adding aesthetic value to neighborhoods.	
Policy (h): Implement suitable landscape and building treatments along arterial roadways.	**Consistent.** The project would include landscaping along arterial roadways, including landscaping within the JOST extension that would be located along Jeffrey Road.
Policy (i): Be sensitive to existing industrial uses when designing new residential developments.	**Consistent.** The project site is approximately 1.5 miles from the Frank R. Bowerman landfill and would not impact the operations of this existing industrial use.
Policy (j): Encourage variation in building heights and housing types (liners, podium, and towers) to avoid massive "project" appearance within high density residential projects.	**Consistent.** The project's design would include a variation in building heights and types. The project includes the development of two- to three-story single-family detached homes, attached housing units, and multifamily affordable housing units.
Policy (k): Design buildings with articulated massing and roof forms to avoid institutional character and feel.	**Consistent.** The project's design would comply with local design guidelines to ensure that buildings are designed to avoid institutional character and feel. The project's design would feature Relaxed Mediterranean style, with high peaked roofs and Spanish-style architecture, featuring terracotta roofing.
Policy (l): Incorporate architectural detailing that leads to a sense of quality, diversity, and authenticity in design.	**Consistent.** See Policy (k). The project would incorporate architectural detailing that would foster a sense of quality, diversity, and authenticity in design.
Policy (m): Design roof forms with variations that are attractive when seen from both the ground and taller buildings.	**Consistent.** See Policy (k). Roof forms would have variations that are considered attractive both from the ground and from taller buildings.
Goal 9: Develop safe, well-designed neighborhoods. ***Objective LU-9. To create safe and well-designed neighborhoods throughout the City by implementing land use policies and planning strategies that prioritize public safety, accessibility, and community connectivity, fostering environments where residents feel secure, engaged, and empowered.***	
Policy (a): Create a pedestrian-friendly walking environment that is attractive, safe, and engaging.	**Consistent.** The proposed project includes the extension of the JOST, which is an open space corridor used by pedestrian and cyclists. The extension of the JOST would include a new pedestrian bridge over Portola Parkway. The total acreage of the JOST extension under the proposed project would be 9.5 acres. This component of the project would support a pedestrian-friendly walking environment.
Policy (b): Create a safer living and work environment through Crime Prevention Through Environmental Design (CPTED) principles.	**Consistent.** The proposed project includes the following design features that are consistent with CPTED principles: **(1) Natural Surveillance.** Throughout Gateway Village, homes would be front-door-facing to public streets, pedestrian paseos and walkways, common area passive open spaces, and the community's park amenities, which encourages visibility by residents and discourages criminal activity by increasing the risk of its being seen. **(2) Natural Access Control.** Access to the community would be through four public street and sidewalk access points and two

Table 4.11-1. General Plan Consistency

Applicable General Plan Goals, Objectives, and Policies	Project Consistency with Policy
	pedestrian paseo connections to the JOST that would feature access control–enabled gates. All access points would be designated, visible pathways that limit access to potential criminal areas, making it harder for offenders to move around undetected. **(3) Territorial Reinforcement.** Gateway Village would feature perimeter walls around the entire site, which establishes clear boundaries between public and private areas of the community that are owned by residents. Moreover, private patios and yards would be obviously separated from the common open space areas by yard walls and fences. This would foster a sense of ownership and responsibility among residents and users. **(4) Maintenance.** The Gateway Village community would be owned and managed by a resident homeowners association, which would be set up to maintain the community to the level of standards expected within Irvine communities. Keeping the community well maintained signals that the space is actively owned and cared for, aligning with the "broken windows theory" that neglected spaces invite crime. **(5) Activity Support.** A key tenet of Gateway Village's community design is to promote walkability and connectivity to the surrounding amenities, inside and outside the community, with JOST and the Gateway Preserve just steps away. Placing homes on a paseo network encourages connectivity, which engages residents with their community, making it less appealing to criminals.
Goal 10: Encourage land use development that preserves the beauty of the natural environment. ***Objective LU-10. To promote land use development that preserves and enhances the beauty of the natural environment throughout the City of Irvine by implementing sustainable land use policies and practices that protect ecologically sensitive areas, conserve natural resources, and promote biodiversity.***	
Policy (a): Engage in best practices for land use considerations in alignment with efforts set forth in the City's Conservation and Open Space Element.	**Consistent.** See responses to policies under the Conservation and Open Space Element.
Policy (d): Ensure developments occurring near NCCP/HCP implementation areas are consistent with the NCCP plan and/or implementing agreement.	**Consistent.** The project site is immediately adjacent to a Reserve identified in the County of Orange Central & Coastal Subregion NCCP/HCP. The City is a signatory to the Implementing Agreement and the project is subject to all applicable measures outlined in the Implementing Agreement, including those related to impacts to least Bell's vireo.
Goal 12: Promote the implementation of Proximity Villages. ***Objective LU-12. Implement the use of proximity villages through a range of policies that promote sustainable and community-oriented development.***	
Policy (c): Encourage the inclusion of public spaces, such as parks, plazas, and	**Consistent.** The proposed project is a residential village that includes public spaces for its residents and visitors. The project

Table 4.11-1. General Plan Consistency

Applicable General Plan Goals, Objectives, and Policies	Project Consistency with Policy
community gardens, to enhance the sense of community and provide recreational opportunities.	would develop three new parks for active and passive uses, paseos, and a community garden, and would extend the JOST. These components would enhance the sense of community and provide recreational opportunities to the City.
Policy (d): Prioritize pedestrian and bicycle infrastructure to promote active transportation within proximity villages. Create safe and accessible pathways for walking and cycling.	**Consistent.** The proposed project includes the extension of the JOST, which is an open space corridor used by pedestrians and cyclists. The extension of the JOST would include a new pedestrian bridge over Portola Parkway. The total acreage of the JOST extension under the proposed project would be 9.5 acres. This component of the project would support a pedestrian-friendly walking environment.
Goal 13: Promote and encourage the development of housing at all income levels. ***Objective LU-13. Implement the City's Housing Element to meet the housing needs of the community and to ensure a sustainable local talent pool for Irvine businesses.***	
Policy (c): Maintain the Housing Element State compliance status by implementing the policies, programs, and actions contained in the Housing Element.	**Consistent.** The proposed project involves the development of a residential village with 1,360 residential units. The project would create additional housing stock in the City, which would support the City's Housing Element state compliance status. The project also includes 25% affordable housing, consistent with the Surplus Lands Act.
Goal 14: Ensure that residential and non-residential development considers necessary public facilities and support. ***Objective LU-14. Coordinate planning and development of land within the City to allow services to be provided at desired levels while maximizing cost-effectiveness and staying consistent with the City's identity.***	
Policy (a): Establish and implement residential and nonresidential development objectives concurrent with revisions to the Housing Element that facilitate achieving a balanced mix of land uses, including housing, employment, parks and recreation, public services and facilities, and other public amenities.	**Consistent.** The project proposes the development of both single-family and multifamily residential and park and recreation uses that would benefit its residents as well as the general public. The project proposes to develop five new parks, create paseos, and extend the JOST from Portola Parkway to the entrance of the new Gateway Preserve. These project components represent new greenways that would integrate with the proposed residential village. The extension of the JOST would include a new pedestrian bridge over Portola Parkway. The project would provide accessible connections to open space and parks for its residents and the public.
Policy (b): Ensure infrastructure, such as roadways, public facilities, and other services, is provided to meet demand as development occurs.	**Consistent.** The proposed project includes the extension of all utilities to the project site to serve its future residents. The project also includes improvements to Jeffrey Road, which is adjacent to the project site. The project includes the expansion/ widening of the western extent of Jeffrey Road from Portola Parkway to the northern edge of South Park. The roadway segment of Jeffrey Road north of "A" Street would be a two-lane facility, and the intersection of Jeffrey Road/"A" Street would be striped to provide one northbound through lane and one dedicated northbound right-turn lane onto "A" Street. A traffic signal would be included on Jeffrey Road at "A" Street. As

Table 4.11-1. General Plan Consistency

Applicable General Plan Goals, Objectives, and Policies	Project Consistency with Policy
	discussed under Policy (a), the project also proposes parks and an extension of the JOST that would be used by the public.
Noise Element	
Goal 1. Noise Control Through Land Use Planning and Design ***Objective N-1. Maintain healthy and safe noise environments consistent with the standards in Table 1 through site design and location.***	
Policy (a): Require all plans submitted for development review to demonstrate whether the plan area is located within an existing or future Noise Element noise contour, including vehicle, rail, and aircraft noise contours.	**Consistent.** The proposed project is within the following Noise Element noise contours: existing traffic (60 A-weighted decibels [dBA] Community Noise Equivalent Level [CNEL] and 70 dBA CNEL) and future traffic (60 dBA CNEL and 70 dBA CNEL). See Section 4.12, Noise. As explained in that section, construction and operation, including traffic, of the proposed project would not result in significant noise and vibration impacts.
Policy (b): Avoid new residential development within the 65 dBA CNEL contour for aircraft, roadway, or rail noise unless "normally compatible" exterior noise standards can be maintained in private open spaces, and interior noise standards can be achieved through building design.	**Consistent.** As discussed under Policy (a), the proposed project is within traffic noise corridor. However, as explained in Section 4.12, Noise, of this Draft EIR, the proposed project would not result in the exceedance of noise standards; noise impacts were determined to be less than significant without the need for mitigation or modification in building design.
Policy (c): Require noise studies to be prepared in accordance with the City's environmental review procedure for all projects that are not "clearly compatible" with the future noise level at the site. Require proposed development projects located in areas that are not "clearly compatible" to demonstrate the incorporation of adequate noise attenuation techniques to achieve compatible interior noise levels.	**Consistent.** As described in Section 4.12, Noise, the Draft EIR describes the existing noise conditions of the project site and vicinity, identifies associated regulatory requirements, evaluates potential impacts, and identifies mitigation measures related to implementation of the proposed project. Analysis is based on measurements taken on the project site and vicinity, and data from the project traffic study. See Appendix H-1, Ambient Noise Measurement Data, and Appendix H-2, Construction Noise Modeling Data.
Policy (d): Require noise attenuation for private usable outdoor spaces (backyards and single-family housing developments, and balconies or recreation areas in multifamily housing developments) in all developments where projected exterior noise levels exceed "normally compatible" exterior noise standards.	**Consistent.** See response to Policy (b). The proposed project would not result in the exceedance of noise standards; noise impacts were determined to be less than significant without the need for noise attenuation for private usable outdoor spaces.
Policy (e): Require the following Single Event Noise Standard for noise-sensitive land uses within the 60 CNEL of aircraft and railroad noise sources:	**Not Applicable.** According to Figure 3 and Figure 4 of the Noise Element, the project site is not within aircraft or railroad noise contours.

Table 4.11-1. General Plan Consistency

Applicable General Plan Goals, Objectives, and Policies	Project Consistency with Policy
▪ The maximum interior noise levels of the loudest 10% of single noise events [$L_{max(10)}$] shall not exceed 65 dBA between 7 a.m. and 7 p.m. nor 55 dBA between 7 p.m. and 7 a.m. for typical occupancy. Noise monitoring conducted to determine maximum single-event noise must include representative aircraft operation.	
Policy (f): Require noise studies conducted per Policy (c) to identify all the measures necessary to reduce noise levels to meet the interior and exterior noise compatibility standards (Table 1) and Single Event Noise Standard (Objective N -1, Policy e), as applicable.	**Consistent.** See responses to Policy (a), Policy (c), and Policy (d).
Policy (i): Require that new development plans demonstrate that implementation would maintain clearly or normally compatible noise levels at existing receptors. In areas where existing ambient noise levels exceed acceptable noise criteria, require that the project demonstrates that implementation would not result in a more than 3 dBA CNEL change in ambient conditions, including from project-generated vehicle noise sources.	**Consistent.** See responses to Policy (a), Policy (c), and Policy (d).
Goal 2. Stationary Noise Sources ***Objective N-2. Reduce noise from non-transportation sources such that City residents are not exposed to stationary noise levels that exceed City Noise Ordinance standards.***	
Policy (a): Require any new construction to meet the City Noise Ordinance standards. The project applicant will be required to submit construction-related noise reduction strategies for review and approval prior to the issuance of grading permits.	**Consistent.** See Section 4.12, Noise. As explained in that section, construction of the proposed project would not result in significant noise impacts. As discussed in Section 4.12, construction of the proposed project would be done in compliance with the City's Noise Ordinance standards
Policy (b): Require project applicants to depict, on any appropriate development application review (including, but not limited to, zone change, subdivisions, conditional use permit, site plan, and building plans), any potential noise sources known at the time of submittal and reduction measures that ensure these noise sources meet the City Noise Ordinance standards. Such sources include, but are not limited to, the following:	**Consistent.** See Section 4.12, Noise, of this Draft EIR. As explained in that section, construction and operation of the proposed project would not result in significant noise and vibration impacts. Analysis in Section 4.12 reviewed potential noise sources, such as the ones listed in this policy. That analysis concluded that the proposed project would not result in the exceedance of noise standards; noise impacts were determined to be less than significant without the need for mitigation or modification in building design.

Table 4.11-1. General Plan Consistency

Applicable General Plan Goals, Objectives, and Policies	Project Consistency with Policy
▪ Truck pickup and loading areas. ▪ Mechanical and electrical equipment such as air conditioning, swimming ▪ Pool pumps and filters, and spa pumps. ▪ Exterior nuisances such as speaker boxes and outdoor public address systems.	
Policy (c): Limit the hours of operation for portions of parks and active recreation uses adjacent to residential areas to daytime hours to minimize disturbance to residents.	**Consistent.** Community amenities will be open from 8 a.m. to 8 p.m. and subject to change per the residents and their homeowners association's discretion.
Goal 3. Noise Abatement ***Objective N-3. Achieve maximum efficiency in noise abatement efforts through establishing minimum standards, intergovernmental coordination, and public information programs.***	
Policy (g): Minimize the use of noise barriers to reduce noise exposure. Consider other attenuation strategies, such as alternative development siting, soundproofing sensitive receptors, building orientation and setbacks, providing buffer areas or landscape berms, modifying source operating hours, modifying roadway design, or utilizing quieter pavement strategies, as applicable, prior to proposing noise barrier installation.	**Consistent.** See responses to Goal 2 policies of the Noise Element. The proposed project would include landscaped areas around the project site perimeter, which would serve as noise barriers/buffers.
Policy (h): Consider the following in the design of new highways and streets to minimize noise exposure: ▪ Alignment: The three-dimensional position of the road, as it relates to distance from sensitive receptors. ▪ Barriers: Any solid material that shields a receiver from a given source of noise. Types of barriers include walls, berms, hills, and intervening structures. ▪ Lateral separation: The horizontal distance between the road and a receiver, which may position an alignment to maximize the distance to the receiver. ▪ Vertical profile: The path of a roadway in the vertical direction, either below-grade (depressed), above-grade (elevated), or at-grade relative to areas adjacent to the road. Generally, traffic noise levels along depressed roadways are substantially	**Consistent.** See response to Policy (g). The proposed project includes improvements to Jeffrey Road and Bee Canyon Access Road. These roadways would be separated from the proposed residential village by intervening landscaping that would provide noise reduction.

Table 4.11-1. General Plan Consistency

Applicable General Plan Goals, Objectives, and Policies	Project Consistency with Policy
▪ lower than those along roadways that are at grade.	
Goal 4. Ground-Borne Vibration ***Objective N-4. Minimize exposure to ground-borne vibration such that City residents are not exposed to nuisance vibration or potential building damage.***	
Policy (b): Require all plans submitted for development review that include the use of pile-driving and blasting during construction to consider alternative methods to minimize the potential for building damage and temporary nuisance exposure.	**Not applicable.** See Section 4.12, Noise, of this Draft EIR. As explained in that section, pile driving is not an anticipated method of construction; construction and operation of the proposed project would not result in significant vibration impacts.
Policy (c): Require all plans submitted for development review to utilize vibration standards published by the Federal Transit Administration to evaluate the potential effects of vibration exposure from new vibration sources, such as construction, or siting of new receptors near existing vibration sources, such as rail operations.	**Consistent.** See Section 4.12, Noise, of this Draft EIR. As explained in that section, construction and operation of the proposed project would not result in significant vibration impacts. Analysis and impact conclusions in this section related to vibration relied on vibration standards published by the Federal Transit Administration to evaluate the potential effects.
Safety Element	
Goal 3: Anticipate the risks and mitigate the effects that flood hazards pose to the community. ***Objective S-3: Flood Hazards***	
Policy (h): Encourage the use of climate, smart landscaped surfaces (e.g., permeable pavement, stormwater parks, green streets) in new and existing developments to reduce runoff, minimize flood hazards, and maintain existing drainage ways.	**Consistent.** The proposed project's impacts related to drainage patterns of the project site and surrounding area have been evaluated in Section 4.10, Hydrology and Water Quality, of this Draft EIR. As evaluated in that section, the proposed project would result in a less-than-significant impact related to its potential to alter existing drainage patterns. As determined in that section, the proposed project would not result in substantial erosion or siltation, surface runoff resulting in flooding, or runoff exceeding existing or planned drainage systems, nor would it impede or redirect flood flows.
Policy (i): Continue to encourage the implementation of low-impact development (e.g., rain gardens and rainwater harvesting) to reduce flood risk, filter pollutants, and replenish groundwater over time.	**Consistent.** The proposed project's landscaping would comply with water conservation measures and would be composed of native and drought-tolerant plant and tree species. During operations, the project site would consist of vegetated open space, landscaped areas, buildings, and hardscapes. LID BMPs are required in addition to site design measures and source controls to reduce pollutants in stormwater discharges.
Policy (j): Continue to promote the application of nature-based solutions (e.g., greenways, tree trenches) to improve resilience and preserve biodiversity.	**Consistent.** The project proposes to develop five new parks, create paseos, and extend the JOST from Portola Parkway to the entrance of the new Gateway Preserve. These project components represent new greenways that would integrate with the proposed residential village.

Table 4.11-1. General Plan Consistency

Applicable General Plan Goals, Objectives, and Policies	Project Consistency with Policy
Goal 4: Safeguard the community from the threat of urban and wildfire hazards. ***Objective S-4: Wildfire Hazards***	
Policy (f): Encourage public and private landowners to minimize the risk of wildfire moving from wildland areas to developed properties or from property-to-property by increasing structural hardening measures (e.g., fire-rated roofing and fire-resistant construction materials and techniques), maintaining and improving defensible space on site, and supporting vegetation management in adjacent undeveloped areas.	**Consistent.** See Section 4.19, Wildfire, of this Draft EIR. A Fire Behavior Analysis report (Appendix J-1), Conceptual Fuel Modification Plan (Appendix J-3), and Alternative Fuel Modification Method (Appendix J-4) were prepared for the project. The proposed project would provide a wide, managed fuel modification zone separating homes from unmaintained fuel. New development is also required to adhere to stricter code requirements for building materials and landscape plan implementation. The landscapes would be managed and maintained to remove non-native fuels that may become established over time. The Fire-Resistant Landscape Plan plant palette restrictions, required by MM-WF-2, combined with HOA maintenance, would minimize the establishment and expansion of non-native plants, including grasses. The proposed project would provide roadside fuel modification throughout the project site, and electrical lines would be subterranean. The project would also adhere to the City's Municipal Code, requiring the low ignitability of the proposed structures in accordance with Chapter 7A of the California Building Code, and implementation of fire-resistant measures.
Policy (h): Encourage removal of highly flammable vegetation with little to no biological value in Very High, High, and Moderate Fire Hazard Severity Zones and replant with fire-adapted specimens.	**Consistent.** See response to Policy (f), above.
Policy (k): Ensure that all new development and redevelopment in the Very High Fire Hazard Severity Zone is developed in compliance with minimum structural fire protection standards in the adopted edition of the California Fire and Building Codes, applicable state or local fire safety and defensible space regulations or standards, and any applicable fire protection or risk reduction measures identified in locally adopted plans.	**Consistent.** See response to Policy (f), above.
Policy (l): Ensure future neighborhoods are designed with adequate fire access and evacuation egress in the event of an emergency.	**Consistent.** See Section 4.19, Wildfire, of this Draft EIR. Emergency evacuation for the proposed project is evaluated in Section 4.19, Wildfire, of this Draft EIR. To support this analysis, a Fire Behavior Analysis (Appendix J-1) and Evacuation Travel Time Analysis (Appendix J-2) were prepared for the project. According to these evaluations, under fire emergency scenarios, all emergency access points would remain accessible and would not be impacted directly by fire flame/heat.

Table 4.11-1. General Plan Consistency

Applicable General Plan Goals, Objectives, and Policies	Project Consistency with Policy
	As concluded in Section 4.19, Wildfire, of this Draft EIR, the most conservative evacuation time for the potential evacuation area (including both existing uses and the proposed project) is projected to be approximately 34 minutes in a worst-case fire scenario. However, as noted in Section 4.19, the actual evacuation time is anticipated to be less, as the evacuation time calculation is based on a conservative vehicle ownership per household estimate, 100% occupancy of all residential units, and the simultaneous departure of all evacuees. In addition, the City's Traffic Management Center would adjust the traffic signals in real-time and emergency personnel could be placed at intersections to guide traffic at Jeffrey Road/Portola Parkway and potentially reduce the evacuation time. As such, emergency evacuation impacts would be less than significant.
Policy (m): Avoid expanding new residential development, essential public facilities, and critical infrastructure in areas subject to extreme threat or high risk, such as Very High Fire Hazard Severity Zones, or areas classified by the California Department of Forestry and Fire Protection as having an Extreme Threat classification on Fire Threat Maps, unless all feasible risk reduction measures have been incorporated into project designs or conditions of approval. Example risk reduction measures include, but are not limited to, fuel modification zones or defensible space, structure hardening, enclosed foundations, and highly visible street signs and property addresses.	**Consistent.** See Section 4.19, Wildfire, of this Draft EIR. Also, see responses to Policy (f) and Policy (l), above. Wildfire impacts would be reduced to less-than-significant levels through the implementation of MM-WF-1 and MM-WF-2. MM-WF-1 would reduce construction-related potential ignition sources to less than significant and MM-WF-2 would reduce the impact of development of a residential land use in a Very High Fire Hazard Severity Zone to less than significant. Implementation of MM-WF-1 would ensure that vegetation be removed from the site prior to the start of construction and the site would be graded to a flat, level surface and other improvements made prior to bringing combustibles on site. Implementation of MM-WF-2 would ensure that the proposed fuel modification plan would be implemented in accordance with defensible space principles discussed in the project-specific fuel modification plan, and that highly flammable vegetation would not be used in project landscaping.
Policy (o): Ensure future neighborhoods are designed with sufficient water pressure to maintain fire flow.	**Consistent.** See Section 4.19, Wildfire, of this Draft EIR. Also, see responses to Policy (f) and Policy (l), above. As concluded in that section and supporting technical analysis, the project would have a sufficient water supply to serve fire suppression needs and would be constructed with code-compliant fire hydrant systems with adequate water flows to fight fire.
Policy (p): Encourage the use of underground power lines for new developments.	**Consistent.** Southern California Edison (SCE) has existing systems or the ability to upgrade their system to serve the project site. There are existing underground distribution systems in Bee Canyon Access Road, Portola Parkway, and partially up Jeffrey Road north of Portola Parkway. The existing overhead system in Jeffrey Road is part of planned underground conversion with the realignment and widening of Jeffrey Road. The project would be served by SCE from Jeffrey Road.
Policy (q): Ensure that private development subject to the California Environmental Quality Act evaluate hazard impacts to ensure adequate evacuation in the event of	**Consistent.** Emergency evacuation for the proposed project is evaluated in Section 4.19, Wildfire, of this Draft EIR. See response to Policy (l), above.

Table 4.11-1. General Plan Consistency

Applicable General Plan Goals, Objectives, and Policies	Project Consistency with Policy
an emergency, and if required, develop standards for the protection of the community.	
Policy (r): Review development proposals and coordinate with regional transportation agencies to ensure that multiple evacuation routes are available under a range of scenarios and identify alternative routes that are accessible to people without life-supporting resources.	**Consistent.** Emergency evacuation for the proposed project is evaluated in Section 4.19, Wildfire, of this Draft EIR. See response to Policy (l), above. An Evacuation Travel Time Analysis (Appendix J-2) was performed that determined that within the project's vicinity, the evacuation routes are Jeffrey Road, Portola Parkway, Sand Canyon Avenue, State Route 241, and State Route 133, and that no permanent impacts would occur to these roadways that would impede evacuation routes as a result of the project.
Policy (u): Continue the long-term maintenance of fire reduction projects; including but not limited to, a roadside fuel reduction plan, defensible space clearances (including fuel breaks) around structures, subdivisions, and other developments in the Very High Fire Hazard Severity Zone.	**Consistent.** See response to Policy (f), above.
Policy (v): Maintain established response time standards for fire and life safety service.	**Consistent.** See Section 4.14, Public Services. Per City Municipal Code Section 2-9-604, the project would be required to pay a Systems Development Charge that would be used for future facility improvements necessary to ensure contribution of its fair share of the cost of facilities and equipment. Fire Station No. 55, located 0.7 miles west of the project site at 4955 Portola Parkway, serves the project site. Additional fire stations in the City are available to assist Fire Station No. 55 with supplemental resources in an event of great need. Fire Station No. 26 (4691 Walnut Avenue) and Fire Station No. 20 (7050 Corsair) are located 2.5 miles and 2.7 miles, respectively, from the project site. Therefore, the project would maintain established response time standards for fire and life safety service.
Goal 5: Protect the community from the threat of drought and extreme heat. ***Objective S-5: Drought and Extreme Heat***	
Policy (d): Encourage drought-tolerant native landscaping, low-flow water fixtures beyond the state minimum code, and daytime watering restrictions on properties throughout the City to reduce water consumption.	**Consistent.** The proposed project's landscaping would comply with water conservation measures and would be composed of native and drought-tolerant plant and tree species. Further, the project would implement MM-GHG-3, which requires the project applicant or its designee to provide evidence to the City that the residential and recreational building design plans include water use efficiency and conservation measures
Policy (e): Explore the feasibility of recycled water distribution for residential uses on all lot sizes.	**Consistent.** See Section 4.18, Utilities and Service Systems. The project includes the construction of new recycled water infrastructure, consistent with Irvine Ranch Water District's policies. See Appendix K-3, Recycled Water System Facilities.

Table 4.11-1. General Plan Consistency

Applicable General Plan Goals, Objectives, and Policies	Project Consistency with Policy
Policy (f): Protect groundwater supply against contamination, degradation, or loss due to flooding.	**Consistent.** The proposed project's potential to contaminate groundwater is discussed in Section 4.10, Hydrology and Water Quality, of this Draft EIR. Analysis within that section determined that the project would not result in significant groundwater quality impacts due to flooding or other reasons. The project would not conflict with or obstruct with implementation of a water quality control plan or sustainable groundwater management plan.
Policy (h): Promote nature-based methods and best management practices (BMPs) (e.g., bioswales, rain gardens, natural ground cover) through the City's stormwater program to promote groundwater infiltration and reduce the impacts of drought.	**Consistent.** The proposed project's landscaping would comply with water conservation measures and be composed of native and drought-tolerant plant and tree species. During operations, the project site would consist of vegetated open space, landscaped areas, buildings, and hardscapes. LID BMPs are required in addition to site design measures and source controls to reduce pollutants in stormwater discharges.

Impact Summary

Impacts from the proposed project related to land use and planning would be significant and unavoidable because the proposed project would conflict with land use plans, policies, or regulations adopted for the purpose of avoiding or mitigating an environmental effect. Despite implementation of MM-GHG-1 through MM-GHG-4, the project would conflict with certain key attributes of the 2022 CARB Scoping Plan Update, which is intended to avoid or mitigate an environmental effect.

4.11.5 Mitigation Measures

As discussed in Section 4.11.4, and in more detail in Section 4.8, Greenhouse Gases, the project would conflict with key attributes of the 2022 CARB Scoping Plan Update Appendix D and the environmental goals of Connect SoCal. To address this potentially significant impact, the following mitigation measures were identified in Section 4.8, Greenhouse Gases. The following mitigation measures would address project conflicts with the 2022 CARB Scoping Plan and Connect SoCal:

- MM-GHG-1: Electrical Vehicle Charging Infrastructure
- MM-GHG-2: Energy Conservation
- MM-GHG-3: Water Use Efficiency and Water Conservation
- MM-GHG-4: Solid Waste Reduction

Additionally, as described in Table 4.11-1, additional mitigation measures would also address goals, objectives, and policies, of the Irvine 2045 General Plan. Implementation of the following mitigation measures would contribute to the proposed project's consistency with the City's General Plan:

- MM-TRA-1 through MM-TRA-4 (see Section 4.16, Transportation)
- MM-CUL-1 and MM-CUL-2 (see Section 4.5, Cultural Resources)
- MM-GEO-1 (see Section 4.7, Geology and Soils)

- MM-TCR-1 (see Section 4.17, Tribal Cultural Resources)
- MM-AQ-2 and MM-AQ-4 (see Section 4.3, Air Quality)
- MM-WF-1 and MM-WF-2 (see Section 4.19, Wildfire)

4.11.6 Level of Significance After Mitigation

Because the project would conflict with key attributes of the 2022 CARB Scoping Plan Update Appendix D and the environmental goals of Connect SoCal, the project would conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases despite implementation of the mitigation measures noted in Section 4.8, Greenhouse Gas Emissions. Therefore, impacts regarding conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect would be significant and unavoidable.

4.11.7 Cumulative Impacts

The project would have no impacts regarding the potential to physically divide an established community. As previously discussed in Section 4.11.4(2), the project would conflict with an applicable GHG reduction plan (2022 CARB Scoping Plan Update Appendix D). Therefore, cumulative impacts associated with the conflict of any applicable plan, policy or regulation adopted to reduce GHG emissions would be significant and unavoidable despite implementation of MM-GHG-1 through MM-GHG-4. As such, the project would result in a cumulatively considerable impact related to land use and planning.

4.11.8 References

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4.12 Noise

This section describes the existing noise conditions of the project site and vicinity, identifies associated regulatory requirements, evaluates potential impacts, and identifies mitigation measures related to implementation of the proposed project. This section is based on the Irvine 2045 General Plan (City of Irvine 2024a), noise measurements taken on the project site and vicinity, and data from the project traffic study:

- **Appendix H-1:** Ambient Noise Measurement Data, prepared by Dudek, dated February 2025
- **Appendix H-2:** Construction Noise Modeling Data, prepared by Dudek, dated February 2025
- **Appendix I:** Traffic Study – Irvine Gateway Village, Irvine, California, Planning Area 6, Portola Springs; prepared by LSA; dated December 2024

4.12.1 Existing Conditions

Sound Monitoring Survey

Sound pressure level measurements were conducted near the project site on December 5 through 6, 2024, to quantify and characterize the existing outdoor ambient sound levels. Table 4.12-1 provides the location, date, and time period at which these baseline sound level measurements were performed. Measurements were performed using Rion-branded Model NL-62 and SoftdB "Piccolo" model sound level meter (SLM) equipped with 0.5-inch, pre-polarized condenser microphones with pre-amplifiers. The Rion SLM meets the current American National Standards Institute (ANSI) standard for a Type 1 (Precision Grade) SLM. The Piccolo SLM meets the current ANSI standard for a Type 2 (General Use) SLM. The accuracy of both SLMs was verified using a field calibrator before and after the measurements, and the measurements were conducted with the microphone positioned approximately 5 feet above the ground.

Six short-term (ST) sound level measurement locations (ST1 through ST6) that represent existing noise-sensitive receivers were selected on and near the project site. These locations are depicted as receivers ST1 through ST6 on Figure 4.12-1, Project Location and Sound Monitoring Locations, and were selected to characterize the baseline outdoor ambient sound levels at the project site and for nearby noise-sensitive receptors (see Figure 4.12-1). The measured sound levels and primary sound sources at locations ST1 through ST6 are provided in Table 4.12-1.

Table 4.12-1. Measured Baseline Outdoor Ambient Sound Levels, December 5, 2024

Site	Location/Address (Sound Sources)	Date/Time	L_{eq} (dBA)	L_{90} (dBA)	L_{50} (dBA)	L_{10} (dBA)
ST1	Western Site Boundary, near substation (distant traffic, industrial noise, and natural sounds)	15:10 to 15:25	59	46	51	57
ST2	Southern Site Boundary, 30 feet from center of Portola Parkway (local traffic)	15:35 to 15:50	74	56	69	78
ST3	Eastern Site Boundary, 20 feet from center of Bee Canyon Access Road (local traffic and natural sounds)	16:03 to 16:19	67	45	49	66
ST4	Residences south of site (local and distant traffic, natural sounds)	13:59 to 14:14	47	39	45	51
ST5	North of site (industrial noise and distant traffic)	14:50 to 15:05	62	47	57	64

Table 4.12-1. Measured Baseline Outdoor Ambient Sound Levels, December 5, 2024

Site	Location/Address (Sound Sources)	Date/Time	L_{eq} (dBA)	L_{90} (dBA)	L_{50} (dBA)	L_{10} (dBA)
ST6	Center of site (distant traffic, distant industrial, aircraft)	14:28 to 14:43	49	45	47	51

Source: Appendix H-1.
Notes: L_{eq} = equivalent continuous sound level (time-averaged sound level); dBA = A-weighted decibels; L_{90} = sound level exceeded 90% of the time; L_{50} = sound level exceeded 50% of the time; L_{10} = sound level exceeded 10% of the time; ST = short-term sound measurement location.

Additionally, three long-term (LT) sound measurement locations (LT1 through LT3) that represent the project site and existing noise-sensitive receptors were selected on and near the project site (see Figure 4.12-1). The sound measurements at locations LT1 through LT3 spanned a full 24-hour cycle and equivalent continuous sound level (L_{eq}), sound level exceeded 10% of the time (L_{10}), sound level exceeded 50% of the time (L_{50}), and sound level exceeded 90% of the time (L_{90}) metrics were measured.

While L_{eq} provides insight into the overall sound exposure level detected by an SLM, the L_{90} value is a good indicator of the background sound environment, offering a perspective clear of short-lived disturbances. Where the L_{10} value offers the perspective of a higher percentage of fluctuating sound levels, the L_{50} level represents the median sound levels of the measurement period. Beyond the summarized information presented in Table 4.12-1, detailed sound measurement data, such as plots displaying L_{eq}, L_{10}, L_{50}, and L_{90} levels derived from the LT1 through LT3 measurement data, field survey photos, and weather data are included in Appendix H-1, Ambient Noise Measurement Data.

Sensitive Receptors

Noise- and vibration-sensitive land uses are typically locations where people reside or where the presence of unwanted sound could adversely affect the use of the land. Residences, schools, hospitals, guest lodging, libraries, and some passive recreation or open space areas would be considered noise and vibration sensitive and may warrant unique measures for protection from intruding noise. Existing sensitive receptors in the vicinity of the project site consist of the Stonegate residential development located to the south of the project site, across Portola Parkway.

4.12.2 Relevant Plans, Policies, and Ordinances

Federal

Federal Transit Administration

In its Transit Noise and Vibration Impact Assessment guidance manual, the Federal Transit Administration (FTA) recommends a daytime construction noise level threshold of 80 A-weighted decibels (dBA) L_{eq} over an 8-hour period (FTA 2018) when detailed construction noise assessments are performed to evaluate potential impacts to community residences surrounding a project site. Although this FTA guidance is not a regulation, it can serve as a quantified standard in the absence of such noise limits at the state and local jurisdictional levels.

State

California Code of Regulations, Title 24

Title 24 of the California Code of Regulations sets standards that new developments in California must meet. According to Title 24, interior noise levels are not to exceed 45 dBA Community Noise Equivalent Level (CNEL) in any habitable room.

California Department of Health Services Guidelines

The California Department of Health Services has developed guidelines of community noise acceptability for use by local agencies (OPR 2017). Selected relevant levels are listed here:

- **Below 60 dBA CNEL:** normally acceptable for low-density residential use
- **50 to 70 dBA CNEL:** conditionally acceptable for low-density residential use
- **Below 65 dBA CNEL:** normally acceptable for high-density residential use and transient lodging
- **60 to 70 dBA CNEL:** conditionally acceptable for high-density residential, transient lodging, churches, educational, and medical facilities

The normally acceptable exterior noise level for high-density residential use is up to 65 dBA CNEL. Additionally, this exterior noise level limit is consistent with the City of Irvine (City) General Plan Noise Element, which considers multifamily units to be noise-sensitive land uses.

Caltrans Vibration Standards

The California Department of Transportation (Caltrans) conducted extensive research on human annoyance and damage to structures caused by vibration from short-term construction activities and from long-term highway operations and has published criteria for vibration management (Caltrans 2020). These criteria established by Caltrans are commonly used to assess vibration impacts from all types of projects and activities. Caltrans uses a threshold of 0.24 inches per second (in/sec) peak particle velocity (PPV) for annoyance to persons due to a transient source such as construction. For commercial buildings constructed of concrete and steel, Caltrans identifies a damage threshold of 0.5 in/sec PPV. For residential structures employing concrete foundation and wood frame construction, Caltrans identifies a conservative damage threshold vibration level standard of 0.3 in/sec PPV (Caltrans 2020).

Local

City of Irvine Noise Ordinance

Chapter 2 of Division 8 of the City's Municipal Code has adopted noise regulations "in order to control unnecessary, excessive and annoying noise" (City of Irvine 2024b).

The City's Noise Ordinance establishes hourly noise level standards for various land use categories affected by stationary non-transportation noise sources (see Table 4.12-2). The ordinance also regulates the timing of construction activities and establishes noise performance standards for other sources, such as commercial deliveries and landscape equipment.

Table 4.12-2. City of Irvine Exterior Noise Performance Standards

Receiving Land Use	Noise Limit (dBA L_{eq}) (7:00 a.m. to 10:00 p.m.)	Noise Limit (dBA L_{eq}) (10:00 p.m. to 7:00 a.m.)
Residential	60	55
Residential Portions of Properties Zoned for Multi-Use	60	55
Commercial, Industrial, Manufacturing	70	60
Office/Institutional (Hospital, School Classroom, Church, Library)	60	55

Source: Irvine Municipal Code, Title 6, Division 8, Chapter 2, Section 6-8-204.
Notes:
- The noise standards shall be increased by 5 dB for consecutive sound durations less than 15 minutes, by 10 dB for consecutive sound durations less than 5 minutes, and by 15 dB for consecutive sound durations less than 1 minute.
- Each of the noise standards shall be reduced by 5 dB for impact noise, predominant tone noise, or for noises consisting of speech or music.
- In the event the existing ambient noise level exceeds the noise standard, the maximum allowable noise level under said category shall be increased to the ambient noise level.

The City's Noise Ordinance limits construction activities to Monday through Friday from 7:00 a.m. to 7:00 p.m. and Saturday from 9:00 a.m. to 6:00 p.m. No construction activities are permitted outside of these hours or on Sundays and federal holidays, except Columbus Day, unless a temporary waiver is granted by the Chief Building Official or his or her authorized representative. Trucks, vehicles, and equipment that are making or are involved with material deliveries, loading or transfer of materials, equipment service, or maintenance of any devices or appurtenances for or within any construction project in the City must not be operated or driven on City streets outside of these hours or on Sundays and federal holidays unless a temporary waiver is granted by the City. Any waiver granted takes impacts on the community into consideration. No construction activity and agricultural operations are permitted outside of these hours except in emergencies, including maintenance work on the City rights-of-way that might be required.

According to the Noise Ordinance, deliveries to or pickups from any commercial property sharing a property line with any residential property may occur daily from 7:00 a.m. to 10:00 p.m. No deliveries to or pickups from any such properties may occur outside of these hours.

Based on guidance in the City's Noise Ordinance, noise from air-conditioning, refrigeration, or heating equipment for residences or other structures and pumps, filters, or heating equipment for pools or reservoirs may not exceed the higher of the following: (1) the noise standards in Table 4.12-2 or (2) 5 decibels (dB) above the ambient noise level.

City of Irvine General Plan

The City's General Plan Noise Element "contributes to a healthy and safe environment by minimizing noise impacts in the City and is a crucial component of fostering a high quality of life for residents." The Noise Element establishes goals and policies to "promote compatible growth and minimize noise exposure." The City establishes an exterior noise standard of 65 dBA CNEL for residential land uses and parks. The noise standards (hourly noise level standards for stationary noise sources) shown in Table 4.12-3 are from Table 1 of the General Plan Noise Element.

Table 4.12-3. City of Irvine Noise Standards, Stationary Sources

Receiving Land Use	Time of Day	Location	Noise Level (dBA) Not to Be Exceeded for Period out of 1 Hour				
			30 min.	15 min.	5 min.	1 min.	Anytime
1: Hospitals, libraries, churches, schools, and residential properties	7:00 a.m. to 10:00 p.m.	Exterior	55	60	65	70	75
		Interior	—	—	55	60	65
	10:00 p.m. to 7:00 a.m.	Exterior	50	55	60	65	70
		Interior	—	—	45	50	55
2: Professional office and public institutional properties	Anytime	Exterior	55	60	65	70	75
		Interior	—	—	55	60	65
3: Commercial properties excluding professional office properties	Anytime	Exterior	60	65	70	75	80
		Interior	—	—	55	60	65
4: Industrial properties	Anytime	Exterior	70	75	80	85	90
		Interior	—	—	55	60	65

Source: City of Irvine 2024a, Table 1.

The following General Plan policies would also be applicable to the project (City of Irvine 2024a):

Goal 1. Noise Control Through Land Use Planning and Design

Objective N-1. Maintain healthy and safe noise environments consistent with the standards in Table 1 [reproduced as Table 4.12-3 in this EIR section] through site design and location.

Policy (a): Require all plans submitted for development review to demonstrate whether the plan area is located within an existing or future Noise Element noise contour, including vehicle, rail, and aircraft noise contours.

Policy (b): Avoid new residential development within the 65 dBA CNEL contour for aircraft, roadway, or rail noise unless "normally compatible" exterior noise standards can be maintained in private open spaces, and interior noise standards can be achieved through building design.

Policy (c): Require noise studies to be prepared in accordance with the City's environmental review procedure for all projects that are not "clearly compatible" with the future noise level at the site. Require proposed development projects located in areas that are not "clearly compatible" to demonstrate the incorporation of adequate noise attenuation techniques to achieve compatible interior noise levels.

Policy (d): Require noise attenuation for private usable outdoor spaces (backyards and single-family housing developments, and balconies or recreation areas in multifamily housing developments) in all developments where projected exterior noise levels exceed "normally compatible" exterior noise standards.

Policy (e): Require the following Single-Event Noise Standard for noise-sensitive land uses within the 60 CNEL of aircraft and railroad noise sources:

- The maximum interior noise levels of the loudest 10% of single noise events [$L_{max(10)}$] shall not exceed 65 dBA between 7 a.m. and 7 p.m. nor 55 dBA between 7 p.m. and 7 a.m. for typical occupancy. Noise monitoring conducted to determine maximum single-event noise must include representative aircraft operation.

Policy (f): Require noise studies conducted per Policy (c) to identify all the measures necessary to reduce noise levels to meet the interior and exterior noise compatibility standards (Table 1 [refer to Table 4.12-3 in this section]) and Single-Event Noise Standard (Objective N-1, Policy e), as applicable.

Policy (g): Consider conditioning noise-sensitive land uses such as hospitals, libraries, churches, and schools located in areas not "clearly compatible" to demonstrate how exterior noise exposure would be minimized, such as building orientation, shielding, or limiting outdoor programs.

Policy (h): Require that mixed-use and multi-family residential developments demonstrate noise compatibility between uses. Structures will adequately isolate noise between adjacent uses through features such as orientation, window, and building insulation, or separation of common walls. Nuisance noise areas such as loading areas, parking lots, driveways, trash enclosures, mechanical equipment, and other noise sources will be located away from the residential portion of the development when physically feasible.

Policy (i): Require that new development plans demonstrate that implementation would maintain clearly or normally compatible noise levels at existing receptors. In areas where existing ambient noise levels exceed acceptable noise criteria, require that the project demonstrates that implementation would not result in a more than 3 dBA CNEL change in ambient conditions, including from project-generated vehicle noise sources.

Goal 2. Stationary Noise Sources

Objective N-2. Reduce noise from non-transportation sources such that City residents are not exposed to stationary noise levels that exceed City Noise Ordinance standards.

Policy (a): Require any new construction to meet the City Noise Ordinance standards. The project applicant will be required to submit construction-related noise reduction strategies for review and approval prior to the issuance of grading permits.

Policy (b): Require project applicants to depict, on any appropriate development application review (including, but not limited to, zone change, subdivisions, conditional use permit, site plan, and building plans), any potential noise sources known at the time of submittal and reduction measures that ensure these noise sources meet the City Noise Ordinance standards. Such sources include, but are not limited to, the following:

- Truck pickup and loading areas.

- Mechanical and electrical equipment such as air conditioning, swimming pool pumps and filters, and spa pumps.[1]
- Exterior nuisances such as speaker boxes and outdoor public address systems.

Policy (c): Limit the hours of operation for portions of parks and active recreation uses adjacent to residential areas to daytime hours to minimize disturbance to residents.

Policy (d): Require outdoor events with amplified noise to implement best management practices to reduce nuisance noise exposure.

Goal 3. Noise Abatement

Objective N-3. Achieve maximum efficiency in noise abatement efforts through establishing minimum standards, intergovernmental coordination, and public information programs.

Policy (g): Minimize the use of noise barriers to reduce noise exposure. Consider other attenuation strategies, such as alternative development siting, soundproofing sensitive receptors, building orientation and setbacks, providing buffer areas or landscape berms, modifying source operating hours, modifying roadway design, or utilizing quieter pavement strategies, as applicable, prior to proposing noise barrier installation.

Policy (o): Limit "through truck traffic" to designated routes to minimize noise impacts to residential neighborhoods and other noise-sensitive uses.

Goal 4. Ground-Borne Vibration

Objective N-4. Minimize exposure to ground-borne vibration such that City residents are not exposed to nuisance vibration or potential building damage.

Policy (b): Require all plans submitted for development review that include the use of pile driving and blasting during construction to consider alternative methods to minimize the potential for building damage and temporary nuisance exposure.

Policy (c): Require all plans submitted for development review to utilize vibration standards published by the Federal Transit Administration to evaluate the potential effects of vibration exposure from new vibration sources, such as construction, or siting of new receptors near existing vibration sources, such as rail operations

[1] This bulleted item is shown here as a single bulleted item. In the General Plan, it is presented as two separate bulleted items, split into "Mechanical and electrical equipment such as air conditioning, swimming" and "Pool pumps and filters, and spa pumps."

4.12.3 Thresholds of Significance

The significance criteria used to evaluate the project impacts related to noise are based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines. According to Appendix G, a significant impact related to noise would occur if the project would result in:

1. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
2. Generation of excessive ground-borne vibration or ground-borne noise levels.
3. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, exposure of people residing or working in the project area to excessive noise levels.

In light of the above significance criteria, this analysis uses the following standards to evaluate potential noise and vibration impacts.

- **Construction Noise.** The City's Municipal Code limits construction to between the hours of 7:00 a.m. and 7:00 p.m. Monday through Friday and Saturday from 9:00 a.m. to 6:00 p.m. No construction activities shall be permitted outside of these hours or on Sundays and federal holidays, except Columbus Day. Construction occurring within these hours is exempt from the City's noise limits. For informational purposes, this analysis compares project construction-generated sound levels to the FTA construction noise level threshold of 80 dBA L_{eq} over an 8-hour period.
- **Transportation Noise.** In accordance with the City's General Plan Policy N-1(i), a noise impact due to transportation noise would be considered significant if project-generated traffic causes the existing levels to increase by more than 3 dB CNEL at a noise-sensitive location.
- **Stationary Operations Noise.** Project operational sound sources are restricted to the City's limits as shown in Table 4.12-3, City of Irvine Noise Standards, Stationary Sources, which are more conservative than those shown in Table 4.12-2, City of Irvine Exterior Noise Performance Standards. For residential properties, the limit is 55 dBA L_{50} during daytime hours (7:00 a.m. to 10:00 p.m.) and 50 dBA L_{50} during nighttime hours (10:00 p.m. to 7:00 a.m.).
- **Construction Vibration.** Caltrans Vibration Guidance (Caltrans 2020) indicates that a vibration velocity of 0.24 in/sec PPV received at a structure would be considered annoying by occupants and recommends that a vibration level of 0.3 in/sec PPV be used as the threshold for building damage risk to residential structures and 0.5 in/sec PPV be used as the threshold for building damage to modern industrial and commercial structures. These thresholds are used in this analysis to determine vibration impacts.

4.12.4 Impacts Analysis

1. Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Short-Term On-Site Construction Noise

Less-Than-Significant Impact. Construction activities include temporary noise and vibration sources with emission levels varying from hour to hour and day to day, depending on the equipment in use, the operations performed, and the distance between the source and receptor. Construction noise modeling was performed using a Microsoft Excel–based noise prediction model (FHWA 2006, 2008). Input variables include the equipment type (e.g., backhoe, crane, truck), the number of equipment pieces, the duty cycle for each piece of equipment (i.e., the percentage of each hour the equipment typically works), and the distance from the sensitive receptor. Sound source information was obtained from the Noise Source Database developed under National Cooperative Highway Research Program 25-49 (NCHRP 25-49), Development of a Highway Construction Noise Prediction Model (NASEM 2022).

Pile driving is not anticipated as a method of construction. Table 4.12-4 provides a list of the hourly average and maximum sound levels generated by various powered equipment that could be associated with construction of the project, measured at a distance of 50 feet using a "slow" response time constant (1 second). Usually, construction equipment operates in alternating cycles of full power and low power, producing average noise levels over time that are less than the maximum noise level. The average sound level of construction activity also depends on the amount of time that the equipment operates and the intensity of construction activities during that time.

Table 4.12-4. Sound Levels of Typical Construction Equipment

Equipment	Average Sound Level (dBA L_{eq}) – 50 Feet from Source	Maximum Sound Level (dBA L_{max}) – 50 Feet from Source
Air compressor	66	67
Aerial lift (man lift)	72	73
Backhoe	76	84
Compactor – plate	N/D	75
Compactor – roller	82	83
Concrete mixer	81	82
Concrete saw	85	88
Crane – mobile	74	76
Dozer	80	86
Forklift	N/D	88
Generator	67	68
Grader	N/D	79
Horizontal bore drill	87	88
Loader	72	81
Paving – asphalt	N/D	83
Paving – concrete	85	88

Table 4.12-4. Sound Levels of Typical Construction Equipment

Equipment	Average Sound Level (dBA L_{eq}) – 50 Feet from Source	Maximum Sound Level (dBA L_{max}) – 50 Feet from Source
Pump	73	74
Scraper	N/D	92
Flatbed truck	N/D	74
Welding machine	71	72

Source: NASEM 2022.
Notes: dBA = A-weighted decibel; L_{eq} = average noise level equivalent; L_{max} = maximum instantaneous noise level; N/D = no data available. Equipment without average (L_{eq}) noise levels are non-stationary and are best represented by maximum instantaneous noise level (L_{max}), as shown in this table.

Noise emissions from project construction were calculated at the nearest noise-sensitive land uses, residences located about 250 feet to the south of the project site, across Portola Parkway. The anticipated equipment to be used for construction of the project is shown in Appendix H-2, Construction Noise Modeling Data, for each phase of project construction. Aggregate sound emissions from project construction activities, broken down by sequential phase of construction, were predicted for the worst-case construction activity occurring along the closest construction boundary to the residences and at the center of the site. Shielding provided by the berm and sound wall located along the south side of Portola Parkway, which would be anticipated to provide 10 to 15 dB of sound reduction, is not included in these calculations. Additionally, note that as buildings are built on the south side of the site, construction occurring to the north of these structures will be shielded by the existing structures, providing substantial additional reduction that is likewise not included in the calculations. The results are summarized in Table 4.12-5.

Table 4.12-5. Construction Noise Levels, Worst Case

Task/Activity	Closest Residence from Project Boundary (250 Feet)	Closest Residence from Center of Construction (1,900 Feet)
	$L_{eq\ 8hr}$ (dBA)	$L_{eq\ 8hr}$ (dBA)
Land Development and Park Amenity Construction		
Demolition	71	51
Mass grading	80	62
On-site utilities	66	46
Paving	72	52
Building construction	75	55
Architectural coating	50	30
Off-site improvements	64	44
Landscaping	61	41
In-Tract Improvements and Housing Construction (Phases 1A, 1B, 2A, 2B, 2C, 2D, 3A, 3B, 3C, 3D, and 3E)		
Rough grading	80	60
In-tract improvements (on-site utilities)	66	46
In-tract paving	78	58
Site preparation and finish grading for housing construction	65	46
Landscaping	61	41

Table 4.12-5. Construction Noise Levels, Worst Case

Task/Activity	Closest Residence from Project Boundary (250 Feet)	Closest Residence from Center of Construction (1,900 Feet)
	$L_{eq\ 8hr}$ (dBA)	$L_{eq\ 8hr}$ (dBA)
Building construction and architectural coating	75	55

Source: Dudek 2025.
Notes: $L_{eq\ 8hr}$ = average noise level equivalent over an 8-hour period; dBA = A-weighted decibel.

It is anticipated that all construction would occur within the City's allowable hours of 7:00 a.m. to 7:00 p.m. Monday through Friday and Saturday from 9:00 a.m. to 6:00 p.m. Construction activities occurring within the City's allowable hours are exempt from the City's noise limits. For informational purposes, this analysis compares project construction–generated sound levels to the FTA construction noise level threshold of 80 dBA L_{eq} over an 8-hour period (FTA 2018).

As indicated in Table 4.12-5, worst-case construction sound levels would range from 50 to 80 dBA $L_{eq\ 8hr}$ at the nearest residence when construction is located at the project boundary adjoining this residence, not taking shielding into account. Worst-case construction sound levels would range from 30 to 62 dBA $L_{eq\ 8hr}$ at the nearest residence when construction is spread throughout the site. Construction activities would occur during the City's allowable hours and would comply with the FTA-recommended construction noise limit of 80 dBA $L_{eq\ 8hr}$ with best management construction practices only. Shielding provided by the existing berm and sound wall located along the southern side of Portola Parkway and by any intervening project structures would reduce this sound exposure further. Sound levels inside the residence would be anticipated to be about 15 dB lower with windows open and 25 dB lower with windows closed. Temporary noise impacts would be less than significant.

Off-Site Construction Traffic Noise

Less-Than-Significant Impact. The project would result in local, short-term increases in roadway noise as a result of construction traffic. Project-related construction traffic would include workers commuting to and from the project site as well as vendor and haul trucks bringing or removing materials. Table 4.12-6 shows the construction trips by day for each construction phase.

Table 4.12-6. Construction Trip Generation Estimates

Task/Activity	Average Daily Workers	Average Daily Vendor Trucks	Daily Haul Trucks/ Other Trucks[a]
Land Development and Park Amenity Construction			
Demolition	10	0	3
Mass grading	15	0	0
On-site utilities	12	0	0
Paving	12	0	0
Building construction	40	0	1
Architectural coating	6	0	0
Off-site improvements	7	0	1
Landscaping	10	0	1

Table 4.12-6. Construction Trip Generation Estimates

Task/Activity	Average Daily Workers	Average Daily Vendor Trucks	Daily Haul Trucks/ Other Trucks[a]
In-Tract Improvements and Housing Construction (Phases 1A, 1B, 2A, 2B, 2C, 2D, 3A, 3B, 3C, 3D, and 3E)			
Rough grading	14	14	0
In-tract improvements (on-site utilities)	6	6	0
In-track paving	18	18	1
Site preparation and finish grading for housing construction	8	8	1
Landscaping	10	10	0
Building construction and architectural coating	40	40	1

Source: Brookfield, pers. comm., 2025.
Note:
[a] Daily haul trucks were calculated by dividing the total number for the given phase by the duration of the phase and rounding up to the nearest whole number.

As shown in Table 4.12-6, the highest number of average daily construction-related trips to and from the project site for all construction phases would be 40 worker trips, 40 vendor trips, and 1 haul truck trip occurring during the building construction and architectural coating construction phase. However, there are periods in which multiple phases may be occurring simultaneously. During the worst-case period, finish grading and building construction would be occurring for Phases 1B, 2A, 2B, 2C, 3A, 3B, and 3C at the same time as in-tract improvements for Phases 2B, 2C, and 3B. This combination of phasing would result in 478 worker trips, 478 vendor trips, and 17 haul truck trips occurring per day. Because each vehicle would need to make two trips, one to access the site and one to depart, this would result in 956 light vehicles, 956 medium trucks, and 34 heavy trucks per day during the worst-case period.

The only sensitive receptors in the immediate vicinity of the project are residences located along Portola Parkway, which currently carries an average daily traffic (ADT) volume of 17,200 vehicles per day based on the project traffic study (Appendix I, Traffic Study). Using FTA's Traffic Noise Model with traffic volumes provided by the project's traffic study, traffic along Portola Parkway is modeled to generate a peak-hour sound level of 54 dBA L_{eq} under existing conditions at these residences. Assuming a worst-case scenario with all construction traffic occurring during peak hours along this section of Portola Parkway and taking into account the traffic mix, the existing-plus-construction traffic volumes would result in a peak-hour traffic noise level of 56 dBA L_{eq}. More realistic conditions, with construction traffic split along the roadway network, would result in lower increases. The increase in traffic noise levels resulting from project construction traffic would be less than 3 dB at all noise-sensitive locations. Therefore, impacts from project-related construction traffic noise would be less than significant and no mitigation measures are required.

Off-Site Operational Traffic Noise

Less-Than-Significant Impact. Based on the project traffic study (Appendix I), the project is anticipated to generate an ADT of 10,825. Traffic noise levels along roadways in the vicinity of the project site were modeled using FTA's Traffic Noise Model with traffic volumes provided by the project's traffic study. The results of this modeling are provided in Table 4.12-7. The locations of all modeling points are provided on Figure 4.12-2.

Table 4.12-7. Off-Site Traffic Noise Modeling Results

Modeled Receiver Tag: Location Description	2024 Existing Noise Level (dBA CNEL)	Existing Plus Project Noise Level (dBA CNEL)	Project-Related Noise Level Increase (dB)	Existing Noise-Sensitive Location?	Noise Increase Threshold (dB)	Significant Impact?
ST1: West of Jeffrey Road	56	71	14.7	No	N/A	No
ST2: North of Portola Parkway	72	72	0.4	No	N/A	No
ST3: West of Bee Canyon Access Road	43	48	4.6	No	N/A	No
ST4: Residences south of Portola Parkway	51	52	0.7	Yes	3	No
ST5: North end of project site	38	52	14.6	No	N/A	No
ST6: Center of project site	50	52	2	No	N/A	No
M1: Residences south of Portola Parkway	54	55	1	Yes	3	No
M2: Residences east of Jeffrey Road	59	61	1.4	Yes	3	No
M3: Residences southwest of Portola Parkway and project site	61	61	0.7	Yes	3	No
M4: Residences south of Portola Parkway and the Orchard Hills development	62	62	0.5	Yes	3	No
M5: Residences west of Jeffrey Road	54	55	1.5	Yes	3	No
M6: Residences south of Portola Parkway	51	51	0.7	Yes	3	No

Notes: dBA = A-weighted decibel; CNEL = Community Noise Equivalent Level; dB = decibel; ST = short-term; N/A = not applicable; M = modeled location.

As shown in Table 4.12-7, traffic noise increases greater than 3 dB would occur along Bee Canyon Road and Jeffrey Road, north of Portola Parkway. There are no existing noise-sensitive land uses along these roadways. Traffic noise levels along roadways adjacent to residences would increase by up to 1.5 dB as a result of the project. Project-generated traffic would not result in traffic noise level increases of 3 dB or greater at existing noise-sensitive locations; therefore, impacts would be less than significant.

On-Site Operational Noise

Less-Than-Significant Impact. The project would include sound-producing equipment and activities that are associated with normal residential use. Residential air-conditioning condensers will be located at grade in front-yard patios, side yards, and/or rear yards, depending on the product type (single-family attached vs. detached). Roof-mounted air-conditioning equipment and ground-level condensers would be utilized for the multifamily buildings. Typical multifamily or mixed-use building air-conditioning units are anticipated to generate noise levels of 50 to 60 dBA at 50 feet from the equipment, depending on the equipment selected. Single-family residential units are typically quieter. The closest off-site sensitive locations are residences located about 250 feet to the south of the project site, across Portola Parkway, and are shielded by a large berm and solid perimeter walls that would act as a sound barrier. At a distance of 250 feet, air-conditioning units would generate sound levels of 37 to 47 dBA. Shielding from the berm, solid perimeter walls, and intervening buildings would provide an additional 10 to 20 dB of reduction or more, resulting in levels below 37 dBA. As a result, sound from on-site operational equipment would be indistinguishable from the existing background sound environment (see Table 4.12-1).

Additionally, the project proposes three parks: Gateway Village Park, Paseo Park, and South Park. Gateway Village Park, which would be about 1,500 feet from residences to the south, would include a group picnic and outdoor kitchen area, a pool and spa with associated pool equipment, outdoor games, a fire pit, and a children's play area. Paseo Park would include various play elements, a picnic area, and a community garden and would be about 2,400 feet from residences to the south. South Park would be about 3,300 feet from residences to the south. All three of these parks would be located at great distances from existing noise-sensitive areas, with significant shielding provided by intervening project residences and community walls. As a result, any sounds generated in the parks (pool equipment, loud voices, children playing) would be inaudible at existing residences to the south. Impacts would be less than significant.

2. Would the project result in generation of excessive ground-borne vibration or ground-borne noise levels?

Less-Than-Significant Impact. Construction activity can result in varying degrees of ground vibration and ground-borne noise at local receptors, depending on the equipment and methods used, distance to the affected structures, and soil type. For many years, Caltrans has been assembling data for vibration and ground-borne noise levels generated by operation of heavy construction equipment during the building of transportation projects. The vibration and ground-borne noise levels from the use of such equipment are representative for other types of construction efforts, not just transportation projects, and are therefore widely employed to assess vibration and ground-borne noise levels from heavy equipment use for any effort. The project does not propose pile driving, which is one of the highest construction vibration generators, as a method of construction. A list of vibration levels typically generated by construction equipment anticipated to be used for the project, as provided by Caltrans (2020), is illustrated in Table 4.12-8.

Ground-borne vibration attenuates rapidly, even over short distances. The attenuation of ground-borne vibration as it propagates from source to receptor through intervening soils and rock strata can be estimated with expressions found in Caltrans guidance (Caltrans 2020). The following equation is used to calculate PPV at any distance of interest from the operating construction equipment:

$$PPV_{rcvr} = PPV_{ref} * (25/D)^{1.1}$$

In the above equation, PPV_{rcvr} is the predicted vibration velocity at the receiver position, PPV_{ref} is the reference value at 25 feet from the vibration source (as listed in Table 4.12-8), and D is the actual horizontal distance to the receiver.

Table 4.12-8. Vibration Velocities for Typical Construction Equipment

Equipment	PPV at 25 Feet (Inches per Second)
Vibratory roller	0.210
Large bulldozer	0.089
Loaded trucks	0.076
Small bulldozer	0.003

Source: Caltrans 2020.
Note: PPV = peak particle velocity.

The City does not have quantitative thresholds for construction vibration that would be applicable to the project; therefore, it is appropriate to employ a numeric standard adopted by another agency. Caltrans (2020) has established a construction-related damage limit of 0.25 in/sec PPV for historic and old buildings, 0.3 in/sec PPV for older residential structures, and 0.5 in/sec PPV for new residential and modern commercial/industrial structures. The applicable threshold for project-attributed construction vibration would be 0.3 in/sec PPV at the closest residences and 0.5 in/sec PPV at the closest industrial building.

The closest residential structures to the project site are about 250 feet to the south, across Portola Parkway, and the closest nonresidential structure is about 50 feet to the north. Using the vibration source level of construction equipment provided in Table 4.12-8, the distance to the closest structures, and the equation supplied in the Caltrans (2020) construction ground-borne noise assessment methodology, the project construction-related vibration levels were calculated as shown in Table 4.12-9.

Table 4.12-9. Construction Vibration Levels at Nearest Structures

Equipment	In/Sec PPV at Nearest Residencial Structure (250 feet)	In/Sec PPV at Nearest Nonresidential Structure (50 feet)
Vibratory Roller	0.017	0.098
Large Bulldozer	0.007	0.042
Loaded Trucks	0.006	0.035
Small Bulldozer	0.000	0.001

Source: Caltrans 2020.
Notes: in/sec = inches per second; PPV = peak particle velocity.

The applicable damage threshold for project-attributed construction vibration would be 0.3 in/sec PPV at the closest residence and 0.5 in/sec PPV at the nearest nonresidential structure. As shown in Table 4.12-9, project construction would result in vibration levels well below these thresholds and below the Caltrans annoyance level of 0.24 in/sec PPV. Vibration impacts of the project would therefore be less than significant.

3. For a project located within the vicinity of a private airstrip or 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?

No Impact. The closest airport to the proposed project site is John Wayne Airport, which is about 8 miles southwest of the project site. There are no public or private airports within 2 miles of the project site. Therefore, the project would not expose people residing or working in the project area to excessive noise levels; no impact would occur.

Impact Summary

Impacts related to a substantial increase in ambient noise levels in the vicinity of the project in excess of standards and to generation of excessive ground-borne vibration or noise levels would be less than significant. No impacts regarding excessive noise levels in the vicinity of an airport would occur.

4.12.5 Mitigation Measures

No significant noise or vibration impacts were identified in the analysis in this section; therefore, no mitigation measures are required.

4.12.6 Level of Significance After Mitigation

No mitigation is required; therefore, noise and vibration impacts would remain less than significant.

4.12.7 Cumulative Impacts

Short-Term Construction Noise

The project would result in temporary noise increases during construction activities, as discussed in Section 4.12.4, Impacts Analysis. The construction period of future developments under the project has the potential to overlap with the construction of other development projects in the City but would not be anticipated to worsen these construction noise estimates in light of the physical distance between such activities and the different receivers that are closest to the different phase area boundaries. Therefore, cumulative impacts associated with project construction noise would be less than significant.

Off-Site Operational Traffic Noise

Based on the project traffic study (Appendix I), the project is anticipated to generate an ADT of 10,825. Future buildout traffic noise levels with and without the project were modeled along roadways in the vicinity of the project site using FTA's Traffic Noise Model with traffic volumes provided by the project's traffic study. The results of this modeling are provided in Table 4.12-10. The locations of all modeling points are provided on Figure 4.12-2.

Table 4.12-10. Off-Site Traffic Noise Modeling Results

Modeled Receiver Tag: Location Description	Buildout Noise Level (dBA CNEL)	Buildout Plus Project Noise Level (dBA CNEL)	Project-Related Noise Level Increase (dB)	Existing Noise-Sensitive Location?	Noise Increase Threshold (dB)	Significant Impact?
ST1: West of Jeffrey Road	68	72	4.2	No	N/A	No
ST2: North of Portola Parkway	73	74	0.4	No	N/A	No
ST3: West of Bee Canyon Access Road	46	49	2.6	No	N/A	No
ST4: Residences south of Portola Parkway	52	53	0.6	Yes	3	No
ST5: North end of project site	49	53	4.3	No	N/A	No
ST6: Center of project site	52	54	1.4	No	N/A	No
M1: Residences south of Portola Parkway	55	56	0.8	Yes	3	No
M2: Residences east of Jeffrey Road	60	61	1.2	Yes	3	No
M3: Residences southwest of Portola Parkway and project site	62	62	0.6	Yes	3	No
M4: Residences south of Portola Parkway and the Orchard Hills development	63	63	0.4	Yes	3	No
M5: Residences west of Jeffrey Road	54	56	1.3	Yes	3	No
M6: Residences south of Portola Parkway	52	52	0.6	Yes	3	No

Notes: dBA = A-weighted decibel; CNEL = Community Noise Equivalent Level; dB = decibel; ST = short-term; N/A = not applicable; M = modeled location.

As shown in Table 4.12-10, buildout traffic noise increases greater than 3 dB that are attributable to the project would occur only along Jeffrey Road, north of Portola Parkway. There are no existing noise-sensitive land uses along this section of roadway. Buildout traffic noise levels along roadways adjacent to residences would increase by up to 1.3 dB as a result of the project. Because project-generated traffic would not result in buildout traffic noise level increases of 3 dB or greater at existing noise-sensitive locations, the incremental effect of the project

on off-site traffic noise would not be cumulatively considerable. Cumulative off-site traffic noise impacts would be less than significant.

On-Site Operational Noise

Project implementation would include permanent on-site sound sources (e.g., air-conditioning, refrigeration, or heating equipment and park activities), as addressed in Section 4.12.4. A cumulative impact could occur if sound produced from such sources due to implementation of the project were to combine with sound produced from the operation of other unrelated projects in the vicinity to create a cumulatively significant permanent increase in ambient sound levels. However, sound emission from these sources attenuates with distance and is shielded by structures and terrain. As described in Section 4.12.4, sound from on-site operational sources would be indistinguishable from background levels at the nearest sound-sensitive locations. Additionally, the operation of the project, along with the operation of other unrelated projects, would be subject to applicable requirements from the City's Noise Ordinance, which limits the exterior noise levels at residences. Therefore, cumulative impacts to outdoor ambient noise levels resulting from project stationary sources would be less than significant.

Vibration

Construction-related vibration from future development in the vicinity of the project site would not be close enough to create a combined excessive generation of ground-borne vibration; therefore, cumulative impacts associated with excessive ground-borne vibration would be less than significant.

4.12.8 References

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SOURCE: Bing Maps (Accessed: 2025)

DUDEK

0 335 670 Feet

FIGURE 4.12-1

Project Location and Sound Monitoring Locations

Irvine Gateway Village Project EIR

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SOURCE: Esri Imagery

DUDEK

0 335 670 Feet

FIGURE 4.12-2

Traffic Noise Modeling Locations

Irvine Gateway Village Project EIR

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4.13 Population and Housing

This section describes the existing population and housing conditions of the project site and vicinity, identifies associated regulatory requirements, evaluates potential impacts, and identifies mitigation measures related to implementation of the proposed project.

4.13.1 Existing Conditions

Project Site

The project site consists primarily of active agricultural fields with equipment storage and laydown areas in the northern portion of the site. According to the California Department of Conservation, the site is designated as prime farmland, with a small areas of unique farmland (DOC 2024). The current Irvine General Plan designation for the project site is Recreation and the current zoning is 1.5–Recreation (City of Irvine 2022), although no recreational uses are currently occurring on site.

Regional Setting

Population Trends

The City of Irvine (City) is located in the southern portion of Orange County within the Southern California Association of Governments (SCAG) metropolitan planning organization, within the Orange County subregion. As the region's planning organization responsible for growth projections and planning efforts, SCAG develops regional housing, population, and employment growth forecasts for local governments. As shown in Table 4.13-1, both SCAG and the City have experienced an increase in population since 2000. The SCAG region's current population of approximately 19 million (as of 2020, according to the most recent data available) is expected to increase by approximately 8.7% to reach a population of approximately 21 million by 2045.

Table 4.13-1. Irvine and SCAG Population Growth

	Population				Percent Change	
Jurisdiction	2000	2010	2020	2050 Forecast	2000–2010	2010–2020
City of Irvine	143,072	212,375	307,670	327,664	48.4%	44.9%
SCAG Region	16,516,703	18,051,534	18,824,382	20,909,000	9.3%	4.3%

Source: City of Irvine 2024; SCAG 2024a.
Note: SCAG = Southern California Association of Governments.

Housing

The Regional Housing Needs Assessment (RHNA) quantifies the need for existing and future housing for a planning period for each jurisdiction and allocates housing units based on income. The housing need is based on current and expected population, employment, and household growth. Communities use RHNA in land use planning, prioritizing local resource allocation, and deciding how to address identified existing and future housing needs resulting from population, employment, and household growth (SCAG 2025).

Housing production at the regional level is currently not projected to keep pace with population growth in the Orange County subregion. The RHNA identified the need for 183,861 housing units in Orange County from 2021 to 2029, which would necessitate development of approximately 22,983 units per year over the 8-year period. Housing production statistics show the Orange County subregion falling well short of estimated need (Table 4.13-2)

Table 4.13-2. County of Orange Subregional Housing Growth

Jurisdiction	Residential Building Permits Issued (Number of Units)					2021–2029 RHNA Allocation	Average Units Needed Per Year to Meet RHNA	Average Units Permitted Per Year (2016–2020)	Est. Annual Shortfall with Current Trajectory
	2016	2017	2018	2019	2020				
County of Orange	11,523	9,511	7,515	8,989	6,027	183,861	22,983	8,713	14,270

Source: HUD 2025.
Note: RHNA = Regional Housing Needs Assessment.

Local Setting

Population Trends

As of 2023 (the most recent available data), the City has a population of approximately 314,550 people (City of Irvine 2025). As of 2019 (the most recent data available), the City has 108,600 households (SCAG 2024a). As shown in Table 4.13-1, between 2000 and 2010, the City's population increased 48.4%, gaining 69,303 residents. Between 2010 and 2020, the City's population increased 44.9%, gaining 95,295 residents. SCAG and the City's Housing Element estimate that the City's population will reach 327,664 in 2045, a 6.5% increase over the 2020 population (City of Irvine 2024; SCAG 2024a). On an annual basis, the City's population has grown by 3% per year, while the SCAG region as a whole has experienced a growth rate of 0.7% per year (City of Irvine 2022).

Employment Trends

Employment and job growth have a strong influence on population trends and housing needs. Education and social services and professional services are the most common occupations in the City, employing 30% and 19% of employees, respectively, with the University of California, Irvine, being the single largest employer (City of Irvine 2022). Many people who work in Irvine do not live in the City; thus, its daytime population almost doubles during the typical workweek (Monday through Friday) because the City draws workers from other cities in Orange County and nearby San Diego, Los Angeles, and Riverside Counties (City of Irvine 2022).

Overall Projected Growth

Table 4.13-3 shows SCAG growth projections for the City, broken down by population, households, and employment.

Table 4.13-3. SCAG Growth Projections for the City of Irvine

Growth Category	Existing (2019)[a]	SCAG Projected (2050)	Increment
Population	306,900	327,664	20,764 (6.8%)
Households	108,600	135,000	26,400 (24.3%)
Employment	282,600	338,700	56,100 (19.9%)

Source: SCAG 2024a.
Note:
[a] 2019 population data is used in this table for consistency among the growth categories, as SCAG presents population, household, and employment data for 2019 in its Connect SoCal Demographics and Growth Forecast Technical Report (SCAG 2024a).

Housing

As shown in Table 4.13-4, the City currently has a total of 109,300 housing units. The majority of housing in the City is composed of either single-family homes or multi-family homes (5+ units), representing 40.0% and 37.2% of the total housing supply, respectively.

Table 4.13-4. 2020 Housing Units in Irvine by Type

Unit Type	Total Units	
	Number	Percentage[a]
Single-family detached	43,763	40.0
Single-family attached	17,187	15.7
Multi-family (2–4 units)	6,765	6.2
Multi-family (5+ units)	40,692	37.2
Mobile home	893	0.8
Total	**109,300**	**100**

Source: City of Irvine 2022.
Note:
[a] Percentages here are derived mathematically from the "Numbers" column to the left; these differ slightly from the percentages in the Final 2021–2029 Housing Element (City of Irvine 2022).

Housing undersupply is often felt strongly by cost-burdened households, resulting from a lack of available affordable homes. Per SCAG, approximately 41% of households in Irvine are "cost burdened," or spend 30% or more of their gross income on housing costs. Approximately 19% of households, or one in five households, spend more than 50% of their gross income on housing costs and are considered "severely cost burdened" (City of Irvine 2022).

Per the RHNA, for the 2021–2029 planning period, Irvine's fair share of the regional housing growth need is 23,610 added units (SCAG 2021). This equates to approximately 2,951 new units annually during the 8-year planning cycle. The total allocated housing units are distributed by income category as follows: very low, 6,396 units (27.1%); low, 4,235 units (17.9%); moderate, 4,308 units (18.2%); and above moderate, 8,671 units (36.7%) (SCAG 2021). The City's Housing Element concludes that the City can reasonably achieve the RHNA allocation under the City's current land use plans and zoning regulations, or with planned amendments thereto. The 6th Cycle Housing Element of the General Plan was prepared prior to the update of the other elements. The Housing Element states that the City intends to prepare a General Plan update (including an updated Land Use Element and Zoning Ordinance) to increase housing capacity in a manner consistent with the 6th Cycle Housing Element and the updated General Plan as a whole (City of Irvine 2022). The updated Irvine 2045 General Plan designated the project site's land use as Recreation. The project site was not included as a potential housing site in the General Plan.

4.13.2 Relevant Plans, Policies, and Ordinances

Federal

There are no federal regulations regarding population and housing that are applicable to the project.

State

California Housing Element Law

California Housing Element Law, Article 10.6 of the California Government Code Section 65580 et seq., has been established to assure the availability of decent housing and a suitable living environment for all Californians and economic segments of the community. Recognizing the vital role local governments play in the supply and affordability of housing, the California Housing Element Law mandates that local communities plan for enough housing to meet projected growth in California. Each county and city is required to prepare and adopt a housing element demonstrating its planned contribution to the attainment of the state housing goal and regional housing needs. The housing element is one of seven state-mandated elements that every general plan must contain, and it is required to be updated every 5 to 8 years and determined to be legally adequate by the state.

The law acknowledges that in order for the private market to adequately address housing needs and demand, local governments must adopt land use plans and regulatory systems that provide opportunities for, and do not unduly constrain, housing development. The housing element is accordingly required to identify the community's housing needs; identify the community's goals and objectives with regards to housing production, rehabilitation, and conservation to meet those needs; identify housing resources and constraints; project and quantify population, household, and employment trends; and define the policies and programs that the community will implement to achieve the stated housing goals and objectives. The California Housing Element Law also requires that the California Department of Housing and Community Development review local housing elements for compliance with state law and report its written findings to the local government.

California Density Bonus Law

California Density Bonus Law, California Government Code Section 65915, includes requirements for local governments to provide incentives and a density increase over the otherwise maximum allowable residential density under the municipal code and the land use element of the general plan (or bonuses of equivalent financial value) when builders agree to construct housing developments with units affordable to lower- or moderate-income households. The Density Bonus Law incentivizes affordable housing using various tools, including density bonus units, incentives and concessions, waivers or reductions of development standards, and/or reduced parking requirements for projects that incorporate a certain number of affordable units.

The state has recently passed several bills that change the state Density Bonus Law, including but not limited to the following:

- Assembly Bill 1763 (Density Bonus for 100% Affordable Housing) – Density bonus and increased incentives for 100% affordable housing projects for lower-income households
- Senate Bill 1227 (Density Bonus for Student Housing) – Density bonus for student housing development for students enrolled at a full-time college, and to establish prioritization for students experiencing homelessness
- Assembly Bill 2345 (Increase Maximum Allowable Density) – Revision of the requirements for receiving concessions and incentives and the maximum density bonus provided

- Senate Bill 290 (Density Bonus Law Amendments) – Providing concessions for projects that include student housing, provides an environmental impact is no longer a basis for denying a concession or incentive, and imposes reduced parking standards for certain projects proximate to a major transit stop

Regional

SCAG Regional Housing Needs Assessment

A RHNA is mandated by state housing law as part of the periodic process of updating local housing elements of the general plan. The RHNA quantifies the need for housing within each jurisdiction during specified planning periods. The California Department of Housing and Community Development determines each region's housing and affordability needs, and then each region's planning body, known as a council of governments, develops methodology to allocate the housing needed to local governments. Local governments must then update their housing elements based on the schedule of the regional transportation plans prepared by the federally designated metropolitan planning organization for the region.

Communities use the RHNA in land use planning, in prioritizing local resource allocation, and in deciding how to address identified existing and future housing needs resulting from population, employment, and household growth. The RHNA does not necessarily encourage or promote growth, but rather allows communities to anticipate growth, so that collectively the region and subregion can grow in ways that enhance quality of life, improve access to jobs, promote transportation mobility, and address social equity and fair-share housing needs.

SCAG is the nation's largest metropolitan planning organization, representing six counties (Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura), 191 cities, and more than 18 million residents. SCAG is required by state law to complete the RHNA for this region in consultation with the California Department of Housing and Community Development to determine the region's housing needs in four income categories: very low, low, moderate, and above moderate. The adopted 6th Cycle RHNA Allocation Plan was approved on March 22, 2021, and covers the planning period between October 2021 and October 2029. The 6th Cycle identified a need for 1,341,827 additional dwelling units within the SCAG region. Based on a methodology that weighs various factors (e.g., projected population growth, employment, commute patterns, and available sites), SCAG determines quantifiable needs for dwelling units in the region according to various income categories. Once the RHNA allocation is established, local jurisdictions decide how to address their housing needs through the process of updating their general plan housing elements (SCAG 2021).

Of the SCAG RHNA allocation of 183,861 dwelling units for Orange County, 23,610 dwelling units have been assigned to the City (SCAG 2021). The City's projected housing need from 2021 to 2029 consists of the following:

- 6,396 very-low-income units (0%–50% of area median income)
- 4,235 low-income units (51%–80% of area median income)
- 4,308 moderate-income units (81%–120% of area median income)
- 8,671 above-moderate-income units (more than 120% of area median income)

SCAG Regional Transportation Plan/Sustainable Communities Strategy

The Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS) assists in the development of long-range regional plans and strategies that provide efficient movement of people, goods, and information; enhance economic growth and international trade; and improve the environment and quality of life. The RTP/SCS

must set forth a plan to meet the region's transportation, housing, economic, and environmental needs in a way that enables the area to lower greenhouse gas emissions. As part of the RTP/SCS, SCAG develops population and housing forecasts for the SCAG region and for the jurisdictions that make up the SCAG region. SCAG's data were the primary source used in the City's 2021–2029 Housing Element (City of Irvine 2022).

SCAG adopted its current RTP/SCS, Connect SoCal 2024, in April 2024 (SCAG 2024b). Building upon and expanding land use and transportation strategies established over several planning cycles, Connect SoCal seeks to increase mobility options and achieve a more sustainable growth pattern. Connect SoCal identifies goals to create a healthy, prosperous, accessible, and connected region for a more resilient and equitable future (SCAG 2024b).

Local

2045 Irvine General Plan Housing Element

The State of California requires that each city prepare and adopt a comprehensive general plan that provides guidance for the city's growth and development. The City of Irvine revised its Housing Element in 2021, with a 2021–2029 Housing Element certified by the state on May 6, 2022. The Housing Element includes the following goals, objectives, and policies that are relevant to the project (City of Irvine 2022):

Goal 1. Provide for safe and decent housing for all economic segments of the community.

Objective A. Update the Land Use Element and Zoning Ordinance to achieve compliance with current State laws and to facilitate the development of diverse housing options.

Policy HE-A.3. Ensure appropriate land use planning and developer mitigation/improvements are provided for adequate infrastructure, services, and facilities to serve existing and future residents.

Policy HE-A.4. Monitor residential construction and the use of residential and mixed-use designated lands. Ensure adequate residential sites are available to meet the City's housing needs.

Goal 2. Maximize land utilization for residential development.

Objective C. Encourage the proper utilization of the undeveloped/underdeveloped residential areas of the City.

Policy HE-C.2. Promote residential development fully served by public services and utilities.

Goal 4. Encourage more affordable housing units.

Objective F. Leverage publicly owned resources, such as vacant land and underutilized properties.

Policy HE-F.1. Leverage available resources, such as vacant land and underutilized properties, to incentivize new affordable housing development.

Goal 7. Improve quality of life and promote placemaking.

Objective L. Encourage developments that provide community benefits.

Policy HE-L.3. Encourage development that includes active transportation infrastructure, such as new and wider sidewalks, trails, and protected bike lanes.

Program PP-M.5: Reduce Exposure to Environmental Pollution. The City is in the process and has taken several steps to identify climate impacts, reduce pollutants and greenhouse gas emissions (GHG), and prepare for a climate resilient future by completing the following [only applicable sections included]:

- Continuing to require added greenery throughout the City to reduce exposure to environmental pollution such as vehicle emissions through the City's Zoning Ordinance (Section 3-15-4) that requires boundary landscaping for all residential attached (i.e., multi-family) projects. The requirements dictate that a minimum of one 15-gallon tree shall be provided for every 30 feet of interior boundary on all building sites. Schedule of Action: annually.

The City's existing Zoning Ordinance requires that green park space be provided in connection with new residential development. More specifically, the Ordinance contains park dedication requirements (i.e., land, improvements, fees, or any combination thereof) for all standalone multi-family residential projects. The existing development standards require 5 acres of park land for every 1,000 population (3 acres of neighborhood park and 2 acres of community park). When new residential development occurs, the park requirements are prorated for the estimated population added. Affordable housing projects have a reduced requirement of 3.5 acres of park land for every 1,000 population (2 acres of neighborhood park and 1.5 acres of community park.). Park requirements in the Irvine Business Complex are somewhat different due to the urban living environment. These park requirements ensure that as residential development occurs throughout the City, green spaces and trees are planted to help further reduce the City's carbon footprint.

4.13.3 Thresholds of Significance

The significance criteria used to evaluate the project impacts to population and housing are based on Appendix G of the CEQA Guidelines. According to Appendix G, a significant impact related to population and housing would occur if the project would:

1. Induce substantial unplanned 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).
2. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.

4.13.4 Impacts Analysis

1. Would the project induce substantial unplanned 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)?

Less-Than-Significant Impact. As further described in Chapter 3, Project Description, of this Draft EIR, the project includes the development of 1,360 residential dwelling units including medium-high and high-density components and 25% affordable housing units. The project would also include an extension of Jeffrey Road, development of parks, a community garden, paseos, and an extension of the Jeffrey Open

Space Trail (JOST) east from Portola Parkway to the entrance of the new Gateway Preserve. Thus, the project would have the potential to induce population growth on the project site, both directly (in the form of proposing new housing) and indirectly (by installing internal roadways and other infrastructure on site).

Construction

Construction activities at the project site would lead to the temporary need for construction workers, who may come from Orange County or elsewhere within the SCAG region. It is possible that workers/crews may be local to the project site area, and that not all construction workers would have to drive long distances to work at the project site. The project involves fairly common construction requirements that would not require a highly specialized labor force to permanently relocate from other regions. Construction of the proposed project is anticipated to begin in 2026 and end in 2032. Construction would occur in phases and housing would be constructed by multiple developers. Thus, different construction workers would be on site for portions of the construction schedule for shorter periods than the overall construction schedule. Because construction workers would not be needed continuously and only for varying portions of the project phases, it is reasonable to assume that workers/crews would work at the project site on a temporary basis only and therefore would not be likely to relocate their households as a consequence of the construction job opportunities presented by the project. Because the demand for construction workers would be short term and because the project site is in an urban metropolitan region with a high diversity of skilled labor, a permanent need for new workers to relocate to accommodate the project's temporary construction workforce is not anticipated. As such, any changes in population, housing, or employment due to short-term construction activities would be less than significant and no mitigation would be required.

Operation

The proposed project would result in residential uses on a site currently designated as Recreation in the City's General Plan. The project would add an estimated residential population of 3,604 to a site where residential development was not anticipated.[1] The project would include a General Plan Amendment to change the land use designation on the site from Recreation to Medium High Density and High Density Residential. The project has the potential to induce unplanned population growth in the City. However, the following discussion demonstrates that the project's potential population, housing, and employment growth would not be considered substantial.

Population Projections

The Demographics and Growth Forecast technical report in SCAG's 2020–2045 RTP/SCS shows population, housing, and employment growth projections for the City. According to this report, the City is expected to have a population of 327,664 in 2050 (SCAG 2024a). The proposed project would account for an anticipated increase of 3,604 residents to the current (2020) population of Irvine.[2] This increase would be 1.14% of the current population of Irvine of 314,550 (City of Irvine 2025) and 1.10% of the projected 2050 population, as shown in Table 4.13-5. Therefore, the project's residents would represent only a small portion of the planned future population for the City. The project population would represent a 0.02% increase in SCAG's projected population. Therefore, impacts associated with substantial unplanned population growth would be less than significant.

1 Based on the U.S. Census Bureau average household size estimate of 2.65 for the City of Irvine (U.S. Census Bureau 2025).
2 See previous footnote.

Table 4.13-5. Project Population Projections

Location	Existing Conditions (2020)	Project-Related Growth (2032)	Future Year (2050)	Percentage of Growth at Buildout
City of Irvine	314,550	3,604	327,664	1.10%
SCAG	18,824,382	3,604	20,909,000	0.02%

Source: City of Irvine 2025; SCAG 2024a.

Housing Projections

The project includes the development of 1,360 residential dwelling units, with 25% of the units (340 units) designated for affordable units. The project would not be built in the timeframe covered by the 6th Cycle RHNA allocation (2021 through 2029) and would therefore not be available to assist the City in meeting its RHNA allocation for the 6th Cycle.

According to the 2022 Orange County Projections (OCP), the total number of housing units in the City is projected to increase from 117,544 in 2020 to 142,979 in 2050 (City of Irvine 2024). The project's 1,360 units represents 0.9% of the total projected number of housing units in 2050, as shown in Table 4.13-6. As such, the project's anticipated contribution to total housing growth in the City is nominal and would not exceed the housing growth projections for the City.

Table 4.13-6. Project Housing Projections

Location	Existing Conditions (2020)	Project-Related Growth (2032)	Future Year (2050)	Percentage of Growth at Buildout
City of Irvine	117,544	1,360	142,979	0.9%

Source: City of Irvine 2024.

In conclusion, the project would not result in substantial unplanned housing growth; therefore, less-than-significant impacts would occur and no mitigation would be required.

Employment Projections

At buildout, the project would employ three full-time property managers within the affordable housing component. However, these property managers would live on site and are therefore included in the residential population estimate. There would be no other permanent employees on site. As such, the project would not contribute to employment growth in the area and would have no impact related to substantial unplanned employment growth. No mitigation would be required.

Infrastructure Improvements

As mentioned previously, the proposed project would include infrastructure improvements, such as an extension of Jeffrey Road and an extension of the JOST. However, these improvements would constitute a small extension to the planned northern terminus of both Jeffrey Road and the JOST to serve the project and the forthcoming Gateway Preserve, located immediately north of the project site. Because the Gateway Preserve, a dedicated open space, would be located directly north of the Jeffrey Road and JOST extensions that are part of the project, the extensions would not facilitate additional residential development.

Therefore, although the project would include roadway and trail extensions, the extensions would not facilitate indirect growth and no impact would occur.

2. ***Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?***

No Impact. No residential uses are currently present on this project site. Thus, no housing or existing people would be displaced as a result of the proposed project. Therefore, no impacts associated with displacement of existing people or housing would occur.

Impact Summary

Impacts related to substantial unplanned population growth in the project area would be less than significant. No impacts regarding displacement of people or housing would occur.

4.13.5 Mitigation Measures

No significant impacts related to population and housing were identified in the analysis in this section; therefore, no mitigation measures are required.

4.13.6 Level of Significance After Mitigation

No mitigation is required; therefore, impacts related to population and housing would remain less than significant.

4.13.7 Cumulative Impacts

The proposed project would develop housing on a site currently zoned for Recreation and not identified as a potential housing site in the City's 6th Cycle Housing Element. As such, the project would induce some unplanned growth. However, as previously described, the project would contribute to approximately 0.9% of the projected housing growth and 1.01% of the anticipated population growth for the City in 2050 and 0.02% of the anticipated population growth for the SCAG region. As such, the project's contribution to population and housing projections would be nominal and would not exceed the City's approximately 142,979 housing units or 327,664 population projections. Therefore, the project would not result in substantial unplanned population growth. Additionally, the project is not anticipated to add permanent jobs to the City. Given this, the project would not result in a cumulatively considerable impact relative to substantial unplanned growth.

The project would have no impacts regarding the potential to displace existing people or housing. As such, the project would not result in a cumulatively considerable impact related to displacement of people or housing, necessitating the construction of replacement housing elsewhere. Overall, no cumulative impacts would occur.

4.13.8 References

City of Irvine. 2022. "Final 2021–2029 Housing Element." *Irvine 2045 General Plan*. May 6, 2022. Accessed February 21, 2025. https://cityofirvine.org/community-development/current-general-plan.

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4.14 Public Services

This section describes the existing public services conditions of the project site and vicinity, identifies associated regulatory requirements, and evaluates potential impacts related to implementation of the proposed project. This section analyzes potential project impacts related to fire, police, schools, parks, and library services. The analysis included in this section is based on the findings of publicly available information referenced throughout this section.

4.14.1 Existing Conditions

Fire Protection

Fire protection in the City is provided by the Orange County Fire Authority (OCFA). Most of the City is served by Division 2 of OCFA, but other portions of the City are served by Divisions 4, 5, and 6. OCFA serves the unincorporated portions of Orange County (the County) and some cities within the County with which they have service agreements. Table 4.14-1 presents the OCFA fire stations that serve the City and provides their locations.

Table 4.14-1. OCFA Fire Stations That Serve the City

Station	Location
Station 4	2 California Avenue, Irvine, California, 92612
Station 6	3180 Barranca Parkway, Irvine, California, 92606
Station 20	7050 Corsair, Irvine, California, 92618
Station 26	4691 Walnut Avenue, Irvine, California, 92604
Station 27	12400 Portola Springs, Irvine, California, 92618
Station 28	17862 Gillette Avenue, Irvine, California, 92614
Station 36	301 East Yale Loop, Irvine, California, 92604
Station 38	26 Parker, Irvine, California, 92618
Station 47	47 Fossil Road, Irvine, California, 92612
Station 51	18 Cushing, Irvine, California, 92618
Station 55*	4955 Portola Parkway, Irvine, California, 92620

Source: City of Irvine 2024a.
Notes: All stations are in OCFA Division 2.
* Serves the project site.

OCFA has guidelines for the provision of services when an emergency call is received until the first unit is on scene:

- First-in engines should arrive on scene to medical aids and/or fires within 8 minutes and 30 seconds, 90% of the time.
- First-in truck companies should arrive on scene to fires within 11 minutes and 30 seconds, 90% of the time.
- First-in paramedic companies should arrive on scene at all medical aids within 8 minutes and 30 seconds, 90% of the time.

OCFA's goals for responding to incidents is within 8 minutes and 30 seconds, 90% of the time (Schneider, pers. comm., August 26, 2025). It is important to note that the City is currently negotiating with OCFA regarding an amended contract for fire services or a potential cessation of the current contract to allow the City to operate its own fire authority. Details regarding this negotiation are ongoing and have not yet been finalized.

Police Protection

The City of Irvine Police Department (IPD) operates out of the main headquarters at 1 Civic Center Plaza. IPD is composed of six distinct divisions that operate under the direction and management of the Chief of Police. Each division contains unique and specialized bureaus, units, and sections responsible for overseeing and maintaining the programs of IPD (City of Irvine 2024a). These divisions are as follows:

- Administration, including the Office of the Chief of Police, public information officer, and support services
- Business Services, including budget/grant office, communications (9-1-1 dispatch), technology support, regulatory affairs, technical services, property, and custody
- Operations, including patrol and criminal investigations
- Support Services, including emergency management, traffic/special events, and community outreach
- Office of Professional Development, including academy and Peace Officer Standards and Training (POST) section; firearms and range section; and recruitment, personnel, and hiring section
- Office of Professional Standards, including Internal Affairs, risk management, and worker's compensation

Table 4.14-2 describes the three geographic units that are served by IPD, as well as the neighborhoods within each geographic unit. The project site is within the Portola jurisdiction.

Table 4.14-2. Irvine Police Department Stations

Unit	Neighborhoods
Portola	The area encompasses 14 residential communities, including Cypress Village, Lower Peter's Canyon, North Park, North Park Square, Northwood, Northwood Point, Orange County Great Park, Orchard Hills, Portola Springs, Racquet Club, Stonegate, West Irvine, Woodbury, and Woodbury East. This area also includes 13 Irvine and Tustin Unified School District campuses and several private schools and preschools.
Crossroads	This area encompasses 22 residential communities, including College Park, Deerfield, El Camino Glen, Greentree, Harvard Square, Heritage Park, Los Olivos, Oak Creek, Old Towne, Orange Tree, Quail Hill, Shady Canyon, Smoketree, The Colony, The Meadows, The Ranch, The Spectrum, The Willows, Walnut Square, Westpark, Windwood, and Woodbridge. This area also includes 18 Irvine Unified School District campuses and several private schools and preschools.
University	This area encompasses 9 residential communities, including Rancho San Joaquin, Turtle Ridge, Turtle Rock, University Park, University Town Center, West Park Village I, Bommer Canyon Open Space Preserve, Orchard Hills Open Space Preserve, and Quail Hill Open Space Preserve. This area also includes 11 Irvine Unified School District campuses; University of California, Irvine; and several private schools and preschools.

Source: City of Irvine 2024a.

Schools

The City is located within the attendance boundaries of four school districts: Irvine Unified School District (IUSD), Tustin Unified School District, Saddleback Valley Unified School District, and Santa Ana Unified School District. The project site is located within the IUSD boundary.

Irvine Unified School District

The IUSD provides service to students in grades preschool through 12 residing within Irvine, Tustin, and a portion of the unincorporated County of Orange. IUSD schools include 1 early childhood learning center, 24 elementary schools, 5 K–8 schools, 6 middle schools, 5 high schools, 1 alternative high school, and 2 virtual academies (for both middle and high school students) (IUSD 2025a). Table 4.12-3 presents student enrollment at all IUSD schools in the 2022–2023 and 2023–2024 school year (the most current year for which student enrollment data is available) for reference. Table 4.12-4 presents school capacity and student enrollment data from 2022–2023 (the most current year for which student capacity data is available). Based on the total enrollment of 37,535 students during 2023–2024, IUSD schools District-wide currently have excess capacity. This excess capacity is due to projects that IUSD has funded through special tax bonds.

Table 4.14-3. Irvine Unified School District Enrollment

School Name	School Type	Enrollment (2021–2022)	Enrollment (2022–2023)	Enrollment (2023–2024)
Alternative or Virtual School				
Alternative Education–San Joaquin High	Alternative	716	182	111
Irvine Unified School District Virtual Academy (Middle and High School)	Virtual	1,153	188	101
Total Alternative School Enrollment		*1,869*	*370*	*212*
Continuation School				
Creekside High	Continuation	109	82	81
Total Continuation School Enrollment		*109*	*82*	*81*
Elementary School				
Alderwood Elementary	Elementary	739	812	825
Beacon Park K–8	Elementary	938	1,035	1,071
Bonita Canyon Elementary	Elementary	393	404	426
Brywood Elementary	Elementary	499	560	573
Cadence Park K–8	Elementary	1,022	924	964
Canyon View Elementary	Elementary	613	734	781
College Park Elementary	Elementary	573	568	475
Culverdale Elementary	Elementary	560	575	561
Cypress Village Elementary	Elementary	1,004	1,056	1,015
Deerfield Elementary	Elementary	616	640	619
Eastshore Elementary	Elementary	527	534	539
Eastwood Elementary	Elementary	576	624	664
Greentree Elementary	Elementary	433	449	447
Loma Ridge Elementary	Elementary	551	676	755
Meadow Park Elementary	Elementary	550	602	603
Northwood Elementary	Elementary	471	516	518
Oak Creek Elementary	Elementary	853	894	932
Plaza Vista K–8	Elementary	795	795	810

Table 4.14-3. Irvine Unified School District Enrollment

School Name	School Type	Enrollment (2021–2022)	Enrollment (2022–2023)	Enrollment (2023–2024)
Portola Springs Elementary	Elementary	843	887	955
Santiago Hills Elementary	Elementary	530	548	561
Solis Park Elementary K–8	Elementary	0	426	686
Springbrook Elementary	Elementary	483	506	533
Stone Creek Elementary	Elementary	479	460	485
Stonegate Elementary	Elementary	874	1,011	1,029
Turtle Rock Elementary	Elementary	815	835	899
University Park Elementary K–8	Elementary	495	496	495
Vista Verde Elementary	Elementary	759	801	798
Westpark Elementary	Elementary	809	825	863
Woodbury Elementary	Elementary	1,106	1,069	1,089
Total Elementary School Enrollment		*18,906*	*20,262*	*20,971*
Middle School				
Jeffrey Trail Middle	Middle	989	1,077	1,118
Lakeside Middle	Middle	601	635	652
Rancho San Joaquin Middle	Middle	746	807	878
Sierra Vista Middle	Middle	1,097	1,126	1,188
South Lake Middle	Middle	625	601	668
Venado Middle	Middle	554	583	553
Total Middle School Enrollment		*4,612*	*4,829*	*5,057*
High School				
Irvine High	High School	1,795	1,862	1,951
Northwood High	High School	2,200	2,251	2,310
Portola High	High School	2,097	2,293	2,503
University High	High School	2,097	2,164	2,226
Woodbridge High	High School	2,244	2,218	2,224
Total High School Enrollment		*10,433*	*10,788*	*11,214*
Preschool				
Early Childhood Learning Center	Preschool	0	32	N/A
Total Preschool Enrollment		*0*	*32*	*N/A*
Special Education School				
Irvine Adult Transition Programs	Special Education Schools	0	99	N/A
Total Special Education School Enrollment		*0*	*99*	*N/A*
Total District Enrollment		**35,929**	**36,462**	**37,535**

Sources: City of Irvine 2024b; IUSD 2025b.
Note: N/A = not applicable.

Table 4.14-4. IUSD Existing School Facilities Capacity and Student Enrollment

School Level	2022–2023 Facilities Capacity	2023–2024 Student Enrollment	Excess Capacity
Elementary school (grades K–6)	23,614	20,971	2,643
Middle school (grades 7–8	6,058	5,057	1,001
High school (grades 9–12)	12,162	11,214	948
Total	**41,834**	**37,535**	**4,592**

Sources: City of Irvine 2024b; IUSD 2025b.
Note: IUSD = Irvine Unified School District.

IUSD collected developer fees for school facilities from residential and commercial/industrial development to offset impacts to school services. As of June 8, 2024, IUSD collects developer fees in the amount of $5.17 per square foot of residential development (IUSD 2025c).

Parks

The City's public park system provides more than 400 public recreational facilities, including community parks, neighborhood parks, and special use sites. The City maintains 22 community parks, more than 40 neighborhood parks, and 6,500 acres of preserved open space, including the forthcoming Gateway Preserve immediately north of the project site. It also contains regional parks and an extensive network of bike paths and trails, including the Jeffrey Open Space Trail.

The four categories of parks defined by the City are as follows:

- Community Parks are medium to large, multi-purpose parks ranging from 10 to 48 acres in size. They support a variety of recreation opportunities and provide specialized facilities. They support recreation programs, special events, and large-group gatherings.
- Neighborhood Parks are smaller parks that provide access to green space and essential recreation opportunities, ranging from 1 to 10 acres in size. They support playgrounds, picnic areas, and small group gatherings.
- Special Use Sites offer unique amenities and stand-alone facilities, such as the Irvine Animal Care Center and Sepulveda Vista Point.
- Open Space includes natural resources and wildlife habitats with restricted access, as well as some preserves that allow visitor use or are designed as trail corridors for public use.

Libraries

The City of Irvine transitioned library services from the County of Orange to a new Irvine Public Library system in 2025. Three libraries from the Orange County Public Library (OC Public Library) system, including Heritage Park Library, University Park Library, and Katie Wheeler Library, transitioned to the Irvine Public Library system.

4.14.2 Relevant Plans, Policies, and Ordinances

Federal

No federal regulations related to public services are applicable to the proposed project.

State

Assembly Bill 16

In 2002, Assembly Bill 16 created the Critically Overcrowded School Facilities program, which supplements the new construction provisions within the School Facilities Program. The School Facilities Program provides state funding assistance for two major types of facility construction projects: new construction and modernization. The Critically Overcrowded School Facilities program allows school districts with critically overcrowded school facilities, as determined by the California Department of Education, to apply for new construction projects in advance of meeting all School Facilities Program new construction program requirements. Districts with School Facilities Program new construction eligibility and school sites included on a list of source schools may apply.

California Code of Regulations Title 24, Part 2 and Part 9

Part 2 of Title 24 of the California Code of Regulations refers to the California Building Code, which contains complete regulations and general construction building standards of state adopting agencies, including administrative, fire and life safety, and field inspection provisions. Part 2 was updated in 2010 to reflect changes in the base document from the International Building Code. Part 9 refers to the California Fire Code, which contains fire-safety-related building standards referenced in other parts of Title 24.

California Constitution

Section 35 of Article XIII of the California Constitution at Subdivision (a)(2) provides: "The protection of public safety is the first responsibility of local government and local officials have an obligation to give priority to the provision of adequate public safety services." Section 35 of Article XIII of the California Constitution was adopted by the voters in 1993 under Proposition 172. Proposition 172 directed the proceeds of a 0.50% sales tax to be expended exclusively on local public safety services. California Government Code Sections 30051–30056 provide rules to implement Proposition 172. Public safety services include fire protection. California Government Code Section 30056 mandates that cities are not allowed to spend less of their own financial resources on their combined public safety services in any given year compared to the 1992–1993 fiscal year. Therefore, an agency is required to use Proposition 172 to supplement its local funds used on fire protection services, as well as other public safety services. In *City of Hayward v. Board of Trustees of California State University* (2015) 242 Cal. App. 4th 833 (*City of Hayward v. CSU Board of Trustees*), the court found that Section 35 of Article XIII of the California Constitution requires local agencies to provide public safety services, including fire protection and emergency medical services, and that it is reasonable to conclude that the city would comply to ensure that public safety services are provided.

California Department of Education

The California Department of Education administers California's public education system at the state level and the state Board of Education, by statute, is the governing and policy-determining body of the California Department of Education. The Board of Education adopts rules and regulations for the government of the state's public schools. It also adopts curriculum frameworks in core subject-matter areas, approves academic standards for content and student performance in the core curriculum areas, and adopts tests for the Standardized Testing and Reporting program and the California High School Exit Examination.

California Health and Safety Code (Section 13000 et seq.)

State fire regulations are set forth in Section 13000 et seq. of the California Health and Safety Code and include regulations concerning building standards (as also set forth in the California Building Code), fire protection and notification systems, fire protection devices such as extinguishers and smoke alarms, high-rise building and childcare facility standards, and fire suppression training. The state Fire Marshal enforces these regulations and building standards in all state-owned buildings, state-occupied buildings, and state institutions throughout California.

California Public Schools Accountability Act of 1999

This act authorized the creation of an educational accountability system for California public schools. Its primary goal is to help schools improve and to measure the academic achievement of all students. The cornerstone of this act is the Academic Performance Index, which measures the academic performance and growth of schools on a variety of academic metrics.

California Strategic Fire Plan

The Strategic Fire Plan for California reflects the California Department of Forestry and Fire Protection's focus on fire prevention and suppression activities to protect lives, property, and ecosystem services, and natural resource management to maintain the state's forests as a resilient carbon sink to meet California's climate change goals and to serve as important habitat for adaptation and mitigation. The Strategic Fire Plan for California provides a vision for a natural environment that is more fire resilient, buildings and infrastructure that are more fire resistant, and a society that is more aware of and responsive to the benefits and threats of wildland fire, all achieved through federal, tribal, state, local, and private partnerships (CAL FIRE 2018).

Senate Bill 50/California Government Code Section 65995

Senate Bill 50 was signed into law in 1998, imposing limitations on the power of cities and counties to require mitigation of school facilities' impacts as a condition of approving new development. It also authorizes school districts to levy statutory developer fees at a higher rate for residential development than previously allowed. Senate Bill 50 amended California Government Code Section 65995(a) to provide that only those fees expressly authorized by law (Education Code Section 17620 or California Government Code Section 65970 et seq.) may be levied or imposed in connection with, or made conditions of, any legislative or adjudicative act by a local agency involving planning, use, or development of real property.

Other relevant sections of the California Government Code include the following:

- Section 65995(h), which declares that the payment of the development fees authorized by Education Code Section 17620 is "full and complete mitigation of the impacts of any legislative or adjudicative act on the provision of adequate school facilities."
- Section 65995(i), which prohibits an agency from denying or refusing to approve a legislative or adjudicative act involving development "on the basis of a person's refusal to provide school facilities mitigation that exceeds the amounts authorized [by Senate Bill 50]."

Assembly Bill 2926

The State of California has traditionally been responsible for the funding of local public schools. To assist in providing facilities to serve students generated by new development projects, the state passed Assembly Bill 2926 in 1986. Assembly Bill 2926 allowed school districts to collect impact fees from developers of new residential and commercial/industrial building space. Development impact fees were also referenced in the 1987 Leroy Greene Lease-Purchase Act, which required school districts to contribute a matching share of project costs for construction, modernization, or reconstruction.

The applicable school developer fees for new residential and commercial/industrial construction projects in the IUSD, Santa Ana Unified School District, Saddleback Valley Unified School District, and Tustin Unified School District are provided in Table 4.14-5.

Table 4.14-5. School District Developer Fees

School District	Residential (per Square Foot)	Commercial/Industrial (per Square Foot)
Irvine Unified School District	$4.79	$0.78
Santa Ana Unified School District	$4.79	$0.78
Saddleback Valley Unified School District	$4.79	$0.78
Tustin Unified School District	$4.79	$0.78

Sources: City of Irvine 2022.

Local

2045 Irvine General Plan

Land Use Element

The Land Use Element of the 2045 Irvine General Plan (City of Irvine 2024c) includes the following goals, objectives, and policies that are relevant to the proposed project:

Goal 4: Manage growth to ensure balanced residential and nonresidential development throughout the City.

Objective LU-4. To achieve a balanced and sustainable distribution of land uses throughout the City by implementing equitable and inclusive land use policies that optimize the efficient use of land, promote environmental stewardship, and enhance quality of life for all residents.

Policy (a): Ensure that land uses enable the City to provide necessary municipal services by:

- Adjustments to square footage will be included in the development monitoring program and reflected in the statistical tables through annual technical updates. Institutional uses will be considered consistent with the General Plan if the following criteria are met:
  - Infrastructure capacity under existing and future (build out) conditions can accommodate additional development in the areas of circulation, fire, police, water, and flood control services.

Goal 5: Promote economic prosperity by ensuring City revenues meet expenditures and provide quality services without burdensome levels of fees or taxes.

Objective LU-5. To optimize the fiscal sustainability of the City by aligning land use policies with economic development strategies to ensure that City revenues meet expenditures, provide quality services, and maintain fiscal stability without imposing burdensome levels of fees or taxes on residents and businesses.

Policy (a): Maintain or improve existing service levels while extending services to newly developed areas.

Policy (b): Pursue cost-saving measures while maintaining the quality of City services.

Conservation and Open Space Element

The following goals, objectives, and policies from the Conservation and Open Space Element (City of Irvine 2024d) are relevant to the proposed project:

Goal 6: Establish and maintain a network of parks and recreational areas that offer a wide range of leisure opportunities while promoting their sustainable development and maintenance.

Objective COS-6. Maintain and enhance the City's network of parks and recreational areas that provide a variety of recreational opportunities, and which link and integrate other conservation and open space areas into the land use fabric of the City.

Policy (a): Continue to coordinate parks and recreational opportunities through the General Plan and Parks Master Plan to ensure adequate and timely development of parks and recreational areas.

Policy (b): Expand opportunities and places for casual nature-related recreation and leisure (e.g. the Jeffrey Open Space Trail) that are distinct from turf parks and protected wildlands.

Goal 10. Enhanced open space accessibility and utilization, and conservation efforts of resources.

Objective COS-10. The City commits to creating and fostering well-integrated and sustainable open space resources available to City residents and visitors.

Policy (a): Provide a variety of public and private parks to meet residents' needs.

Policy (b): Ensure that the City's park, recreation, and open space system is accessible to all residents, including users of different abilities and demographic characteristics.

Policy (c): Encourage the creation of dynamic parks as special and unique places, adding or incorporating art and historic resources, innovative features, diverse landscaping, nature, varied color palettes, and welcoming amenities.

Policy (d): Balance access to open space for outdoor recreation with conservation needs consistent with City's Open Space management obligations and permit conditions such as the NCCP/HCP [Natural Community Conservation Plan/Habitat Conservation Plan].

Parks Master Plan

The City's Parks Master Plan was adopted in 2017 and serves to guide maintenance, development, and operation of the City's parks and recreation system for 10 years. The plan identifies potential policy changes and opportunities for upgrading the City's 60 public parks. The plan focuses on projects for public parks, park facilities, and recreation programs that may enhance the public experience and respond to evolving needs and expectations. The Master Plan also includes criteria that assists in the identification of projects to include in the annual Capital Improvement Program budget (City of Irvine 2017).

Orange County and Orange County Fire Authority Hazard Mitigation Plan

Orange County and OCFA have partnered since 2010 to produce a Multi-Jurisdictional Hazard Mitigation Plan. Last updated in 2020, the plan outlines strategies for mitigating natural hazards including fire hazards in county unincorporated areas and areas that OCFA services.

Municipal Code

Parks Ordinance (Title 3, Community Services, Division 4 of the Irvine Municipal Code)

The Parks Ordinance establishes use and permitting requirements within City parks and open spaces. The Municipal Code also establishes rules, procedures, policies, and regulations governing the use of parks and open spaces by the public.

Park Dedication (Title 5, Chapter 10, Section 5-5-1004 of the Irvine Municipal Code)

Title 5, Chapter 10, Section 5-5-1004 of the City's Municipal Code outlines the required park dedication/in lieu fee requirements for development of residential subdivisions. Part (C) explains the specific dedication requirements, which are at the rate of 5 acres per 1,000 population, apportioned as 2 acres for community parks and 3 acres for neighborhood parks.

Part (D) outlines how to calculate the required dedication/fee for a development. It states that when the requirements are complied with solely on the basis of providing park land, the minimum amount of land to be provided shall be based on the dedication standard and the density classifications and persons per dwelling unit included in Table 4.14-6. It also states that when the requirements are complied with solely on the basis of the payment of park fees, the amount of such fees shall be computed by multiplying the number of proposed dwelling units by the acres per dwelling unit shown in Table 4.14-6 and by multiplying the resultant acreage amount by the fair market value of land being developed. Lastly, it states that when the requirements are complied with by both the provision of park land and payment of a park fee, the amount of the park fee shall be computed by determining the required amount of park land and subtracting the amount of park land actually provided, with the remainder converted to a fee in accordance with the fee structure described herein.

Table 4.14-6. Park Dedication – Manner of Compliance

Dwelling Units per Net Acre	Average Number of Persons per Dwelling Unit
0 to 1.0	3.10
1.1 to 6.5	2.90
6.6 to 12.5	2.75
12.6 to 31.0	2.25
31.1 and above	1.46

Source: City Municipal Code Chapter 10, Section 5-5-1004.

Planning Commission Resolution No. 09-2968

Standard conditions are adopted by Planning Commission Resolution No. 09-2968. These conditions assist staff in applying standardized wording for frequently used conditions of approval for discretionary and subdivision applications. Standard conditions are applied on a case-by-case basis depending upon the specifics of the application. Companion conditions are cross-referenced and are required to be used together.

Fire Protection

City Standard Condition 2.19 (Open Space Fuel Modification)

Prior to issuance of precise grading permits for any lots adjacent to open space, the applicant shall submit a fuel modification plan prepared to the satisfaction of the Director of Community Development for review and approval, in consultation with the Director of Community Services. The fuel modification plan shall be approved by OCFA. The requirements set forth in this condition do not apply to developed, irrigated park land required or provided as part of the project design for this project.

City Standard Condition 3.14 (HOA/Fuel Modification)

Prior to the issuance of building permits for any dwelling units on lots located adjacent to or within fuel modification zones, the applicant shall provide evidence that there is a requirement included in the covenants, conditions, and restrictions (CC&Rs) that any changes to plant materials located within fuel modification zones must be approved by the Director of Community Development and be consistent with applicable OCFA requirements. For fuel modification zones adjacent to lands designated as Open Space, changes in plant materials shall also be reviewed by the Director of Community Services.

City Standard Condition 4.9 (Emergency Access Inspection)

Prior to authorization to use, occupy, and/or operate, the applicant shall arrange for and have passed an inspection, to be performed by IPD and OCFA, to ensure compliance with the Emergency Access Plan requirements. The inspector shall verify test acceptance and locations of all Knox boxes, key switches, and Click2Enter devices as depicted on the approved plan.

Police Protection

City Standard Condition 3.6 (Site Lighting Requirement)

Prior to the issuance of building permits, the applicant shall demonstrate they have met the Irvine Uniform Security Code requirements for lighting by providing the below-listed items for a complete review by IPD. Failure to provide a complete lighting package will result in the delay of satisfaction of this condition.

A. Electrical plan showing light fixture locations, type of light fixture, height of light fixture, lighting ratio, and point-by-point photometric lighting analysis overlaid onto a tree landscape plan with a legend. The photometric plan should only show those fixtures used to meet the Irvine Uniform Security Code requirements.
B. Site plan demonstrating that landscaping shall not be planted so as to obscure required light levels per the Irvine Uniform Security Code.
C. Site plans that are full-scale and legible.

City Standard Condition 3.17 (Emergency Access Plan)

Prior to the issuance of the first building permit, the applicant shall submit and have approved by the Chief of Police an Emergency Access Plan, which identifies and locates all Knox boxes, Knox key switches, and Click2Enter radio access control receivers per the Irvine Uniform Security Code requirements. Said plan shall be incorporated into the plan set approved for building permits.

City Standard Condition 3.18 (Wayfinding [Directional] Plan)

Prior to the issuance of the first building permit, a Wayfinding (directional) Plan including exterior building numbers, unit numbers, directional building/unit signs, vehicle directional signage, parking structure identification/ directional signage, trail signage, and other signage as required by the Irvine Uniform Security Code, shall be approved by the Chief of Police. Said plan shall be incorporated into the plan set approved for building permits.

City Standard Condition 3.20 (Construction Site Security Plan)

Prior to the issuance of the first building permit, a Construction Site Security Plan, per the Irvine Uniform Security Code, Section 5-9-521, shall be approved by the Chief of Police. Said plan shall be incorporated into the plan set approved for building permits.

City Standard Condition 4.9 (Emergency Access Inspection)

Prior to authorization to use, occupy, and/or operate, the applicant shall arrange for and have passed an inspection, to be performed by IPD and OCFA, to ensure compliance with the Emergency Access Plan requirements. The inspector shall verify test acceptance and locations of all Knox boxes, key switches, and Click2Enter devices as depicted on the approved plan.

Chapter 5. City of Irvine Uniform Security Code

The purpose of this code is to provide minimum standards to safeguard property and public welfare by regulating and controlling the design, construction, quality of materials, use and occupancy, location, and maintenance of buildings and structures subject to the provisions of this code within the City of Irvine, as specified in Section 14051 of the California Penal Code relating to building safety.

4.14.3 Thresholds of Significance

The significance criteria used to evaluate the project impacts to public services are based on Appendix G of the CEQA Guidelines. According to Appendix G, a significant impact related to public services would occur if the project would:

1. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:
   - Fire protection.
   - Police protection.
   - Schools.
   - Parks.
   - Other public facilities.

4.14.4 Impacts Analysis

1. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

Fire protection?

Less-Than-Significant Impact. OCFA is contracted to provide fire protection and emergency services to Irvine. OCFA provides fire suppression services, emergency medical, rescue, and fire prevention services for the City, as well as for 22 additional cities and the unincorporated areas within the County. The City of Irvine is served by Fire Station No. 55, located at 4955 Portola Parkway, approximately 0.7 miles west of the project site. According to the OCFA Statistical Annual Report, the City of Irvine has a population of 303,051 as of 2023. Within the City in 2023 there were 26,635 OCFA unit responses resulting in a total of 20,195 incidents, 225 of which were fire incidents, 13,781 of which were Emergency Medical Service incidents, and 6,189 were other types of incidents (OCFA 2024). This equates to 0.9 calls for every 10 residents in the City. The proposed project involves the development of 1,360 two- to three-story homes, which could support an estimated 3,604 residents. Assuming an approximate generation of 0.9 calls per 10 residents, the proposed project would generate approximately 324 calls per year. It is anticipated that OCFA would be able to accommodate the proposed project without the need for new or physically altered government facilities. Further, the project site is located adjacent to a developed portion of the City that is in the existing service area of OCFA, which eliminates the need to extend the service area of OCFA.

The project would be required to comply with all applicable OCFA codes, ordinances, and standard conditions regarding fire prevention and suppression measures relating to water improvement plans, fire hydrants, automatic fire extinguishing systems, fire access, access gates, combustible construction, water availability, and fire sprinkler systems. Additionally, the project would be required to comply with City Standard Conditions 2.19 (Open Space Fuel Modification), 3.14

(HOA/Fuel Modification), 4.9 (Emergency Access Inspection), and 4.12 (Phased Occupancy of Multi-Building Residential Development) to further reduce impacts related to fire protection (City of Irvine 2009). It is important to note that the City is currently negotiating with OCFA regarding an amended contract for fire services or a potential cessation of the current contract to allow the City to operate its own fire authority. Details regarding this negotiation are ongoing and have not yet been finalized. Should fire services be transferred over to the City, there would be no change to impacts to fire services.

Per City Municipal Code Section 2-9-604, the project would be required to pay a Systems Development Charge that would be used for future facility improvements necessary to ensure contribution of its fair share of the cost of facilities and equipment. Additionally, impacts to fire services are anticipated to be adequately funded by an increase in tax revenue over an extended time, relative to the increase in development intensity. Additional fire personnel and associated facilities and equipment would be provided through the annual Operating Budget and Capital Improvement Program review process (OCFA 2022). Additional fire stations in the City are available to assist Fire Station No. 55 with supplemental resources in an event of great need. Fire Station No. 26 (4691 Walnut Avenue) and Fire Station No. 20 (7050 Corsair) are located 2.5 miles and 2.7 miles away, respectively, from the project site. Therefore, impacts would be less than significant.

Police protection?

Less-Than-Significant Impact. IPD operates out of the main headquarters at 1 Civic Center Plaza. The project would be required to comply with the City of Irvine Uniform Security Code and City Standard Conditions 3.6 (Site Lighting Requirement), 3.17 (Emergency Access Plan), 3.18 (Wayfinding (Directional) Plan), 3.20 (Construction Site Security Plan), and 4.9 (Emergency Access Inspection) to further reduce impacts with respect to police services (City of Irvine 2009). IPD would review the project to ensure it is designed with crime prevention features; territorial enforcement, which includes the appropriate levels of privacy and security; access control; and space management/maintenance to ensure maintenance and monitoring or lighting, access control hardware, and other features of "Crime Prevention Through Environmental Design." Per City Municipal Code Section 2-9-60, the project would be required to pay a Systems Development Charge that would be used for future facility improvements necessary to ensure contribution of its fair share of the cost of facilities and equipment. Additionally, impacts to police services are anticipated to be adequately funded by an increase in tax revenue over an extended time, relative to the increase in development intensity. Further, the project site is in a developed portion of the City that is in the existing service area of IPD, which eliminates the need to extend the service area of IPD. It is anticipated that IPD would be able to accommodate the proposed project without the need for new or physically altered governmental facilities.

Communications with Security Design Concepts Inc., a consultant of IPD's that handles all IPD planning issues, has indicated the following (Ramm, pers. comm., 2025):

> The Department's goals responding to incidents are: respond to "emergency" events within six minutes, 85 percent of the time; respond to "crimes in progress" within 10 minutes, 85 percent of the time; respond to "less serious crimes occurring now" events within 20 minutes, 90 percent of the time; and respond to "routine calls for service" within 60 minutes, 85 percent of the time. The

> authorized number of sworn personnel is 255. Based upon the estimated population for this project, about three more officers would be required to maintain current staffing levels. Existing police facilities are adequate to handle personnel and equipment that may be employed and utilized by the department for the project area. To the extent that police department resources are expanded in an efficient manner in accordance with growth trends, no significant cumulative impacts related to police protection services are anticipated. Through the City's Strategic Business Plan and annual budget review process, police department needs are assessed, and budget allocations are revied accordingly to ensure that adequate levels of service are maintained throughout the City.

As such, the project would have a less-than-significant impact on police services and ability to maintain acceptable service ratios, response times, or other performance objectives.

Schools?

Less-Than-Significant Impact. According to the 2045 General Plan Update EIR (City of Irvine 2024b), the project site is within the IUSD. In accordance with IUSD Student Generation Rates for 2025, the project would have the potential to generate approximately the following:

- 476 elementary school level students (1,360 dwelling units * 0.35)
- 136 middle school level students (1,360 dwelling units * 0.10)
- 231 high school level students (1,360 dwelling units * 0.17)

Communications with IUSD have indicated the following: "Students from this development have not yet been formally assigned to a neighborhood school. While not yet Board approved, students would likely attend a mix of the following schools depending on available capacity: Canyon View Elementary School, Eastwood Elementary School, Stonegate Elementary School, Jeffrey Trail Middle School, and Northwood High School. The schools may require expansion of the respective facilities depending on the number of students generated, timing of development, and available capacity. It is the District's understanding that these developments would be mitigated through fees generated from Community Facilities District 09-1" (Barron, pers. comm., 2025). In compliance with Assembly Bill 2926 and Senate Bill 50, the project would be required to contribute its fair share of the cost of increasing demand for school facilities through payment of development impact fees. According to Section 65996 of the California Government Code, payment of statutory fees is considered full mitigation for new development projects. As such, upon payment of required fees, consistent with existing IUSD and state requirements, a less-than-significant impact to schools would occur.

Parks?

Less-Than-Significant Impact. The proposed project would include 1,360 two- to three-story attached and detached homes that would house approximately 3,604 residents. It is expected that the project population would use various neighborhood parks, regional parks, and other recreational facilities within the City. The proposed project would be subject to the state's Quimby Act (California Government Code Section 66477), which requires development projects to set aside land, donate conservation easements, or pay in-lieu fees for park improvements based on

the existing neighborhood and community parkland area, which can range from 3 to 5 acres per 1,000 residents. The project would also be in accordance with the Conservation and Open Space Element of the General Plan (City of Irvine 2024d) and the Subdivision Ordinance (Chapter 10, Section 5-5-1004 of the Irvine Municipal Code), which requires developers to either dedicate park land and/or improvements, or pay fees in lieu of dedication, at a rate of 5 acres per 1,000 persons, distributed among community parks and neighborhood parks. For the proposed project, this equates to a requirement of approximately 18 acres distributed among community parks and neighborhood parks.

In addition, the proposed project includes approximately 7.2 acres of park space and the JOST. The remainder of the requirements would be paid though in-lieu fees by the individual developers developing the project. This additional park space would provide residents an alternative to off-site public parks and recreational facilities, allowing residents to recreate on the project site while incrementally reducing the project's impacts to off-site public parks and recreational facilities. Therefore, impacts associated with park facilities would be less than significant.

Other public facilities?

Less-Than-Significant Impact. It is reasonable to assume that at least a portion of the approximately 3,604 residents generated by the project would patronize public facilities such as local library branches. As mentioned in Section 4.14.1, Existing Conditions, three libraries from the OC Public Library system, Heritage Park Library, University Park Library, and Katie Wheeler Library, transitioned to the Irvine Public Library system. The closest library to the project site is the Heritage Park Library, which is 2.5 miles from the project site. Katie Wheeler Library and University Park Library are 2.8 miles and 5.9 miles, respectively, from the project site.

Additionally, the OC Public Library system includes a network of 29 libraries accessible to anyone with an OC Public Library card. Books from any branch of the OC Public Library system can be requested for delivery to any other OC Public Library branch. The OC Public Library also has a free program called Books by Mail that delivers books and audiobooks on CD through the U.S. Postal Service to eligible homebound residents in Orange County who are unable to visit the library due to physical disability, long-term illness, or lack of transportation (OC Public Library 2024). In addition, the OC Public Library participates in and provides information on the Libby/Overdrive mobile application (OC Public Library 2025), which allows library cardholders to digitally request and check out electronic books and audiobooks from the OC Public Library catalog for reading on their personal electronic devices. The Irvine Public Library and OC Public Library systems are well-resourced library networks that would be able to accommodate the additional patrons that the project could add. As such, impacts associated with other public facilities, such as libraries, would be less than significant.

Impact Summary

All project impacts relating to public services would be less than significant.

4.14.5 Mitigation Measures

No significant impacts related to public services were identified in the analysis in this section; therefore, no mitigation measures are required.

4.14.6 Level of Significance After Mitigation

No mitigation is required; therefore, impacts related to public services would remain less than significant.

4.14.7 Cumulative Impacts

Cumulative projects listed in Table 3-1 in Chapter 3, Project Description, of this Draft EIR could increase demand for public services in the City due to increases in the population.

Regarding fire and police protection and other public services, per City Municipal Code Section 2-9-604, a Systems Development Charge is imposed on new residential and nonresidential development in the City for the purpose of ensuring that the public facility standards established by the City are met with respect to the additional need created by such development. The proposed project and all cumulative projects in the City would be subject to this fee, which would be used to cover the incremental costs associated with providing police, fire, and library services to cumulative development. As such, impacts associated with fire protection, police protection, and other public facilities would be mitigated to a less-than-significant level on a project-by-project basis. Therefore, the proposed project would not contribute to a cumulatively considerable impact related to a substantial adverse physical impact on fire protection, police protection, and other public facilities.

Regarding school facilities, cumulative development within the IUSD would be subject to applicable developer fees. Per California Government Code Section 65995(h), required payment of the developer fees authorized by Education Code Section 17620 constitutes "full and complete mitigation of impacts of any legislative or adjudicative act on the provision of adequate school facilities." As such, impacts associated with schools would be mitigated to a less-than-significant level on a project-by-project basis. Therefore, the proposed project would not contribute to a cumulatively considerable impact related to a substantial adverse physical impact on school facilities.

Regarding park facilities, all residential cumulative projects would be subject to the state's Quimby Act, the City's General Plan, and the Park Dedication section of the Irvine Municipal Code requiring that developers dedicate park land and/or improvements/amenities and/or pay fees in lieu of dedication, at a rate of 5 acres per 1,000 persons, apportioned at 2 acres to community parks and 3 acres to public and/or private neighborhood parks. As such, impacts associated with parks would be mitigated to a less-than-significant level on a project-by-project basis. Therefore, the proposed project would not contribute to a cumulatively considerable impact related to a substantial adverse physical impact on park facilities.

4.14.8 References

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4.15 Recreation

This section describes the existing recreation conditions of the project site and vicinity, identifies associated regulatory requirements, evaluates potential impacts, and identifies mitigation measures related to implementation of the proposed project. Information for this section's analysis comes from the City of Irvine (City) 2045 General Plan and information provided by Brookfield Residential.

4.15.1 Existing Conditions

Project Site

The project site consists primarily of active agricultural fields with equipment storage and laydown areas in the northern portion of the site. According to the California Department of Conservation, the site is designated prime farmland, with a small area of unique farmland (DOC 2025). The current General Plan designation for the project site is Recreation and the current zoning is 1.5 – Recreation, although no recreational uses are currently occurring on site.

Surrounding Parks, Trails, and Recreational Facilities

The City contains 22 community parks and more than 40 neighborhood parks. Many parks include amenities such as swimming pools, multi-use buildings, child/open play areas, amphitheaters, trail access, barbecues, and picnic areas. Park athletic facilities include soccer fields, tennis courts, pickleball courts, outdoor badminton courts, basketball courts, and volleyball courts (City of Irvine 2024a). The City also includes more than 6,500 acres of preserved open space (City of Irvine 2024b), including the forthcoming Gateway Preserve immediately north of the project site. It also contains regional parks and an extensive network of bike paths and trails, including the Jeffrey Open Space Trail (JOST).

Jeffrey Open Space Trail

The JOST is a recreational resource for the residents of the City. It is an important element in the City's overall Open Space system, linking the conservation and Open Space lands within the City. It provides a key linkage extending from the Pacific Ocean to the Santa Ana Mountains and Cleveland National Forest (City of Irvine 2024b). The existing JOST runs south to north along Jeffrey Road from Interstate (I) 5 to Portola Parkway. The JOST is currently being extended southward and over I-5 from Walnut Avenue to Barranca Parkway. The proposed project would include the extension of the JOST to its planned northern terminus, extending north 2,750 feet from Portola Parkway to South Park at the entrance to the forthcoming Gateway Preserve. A pedestrian bridge would be constructed over Portola Parkway similar to other pedestrian bridges connecting the JOST over freeways and arterial roadways throughout the City.

Gateway Preserve

The City is in the process of planning for the development of a separate project called the Gateway Preserve, which would create a 700-acre open space preserve in the hills above north Irvine adjacent to the proposed project site. The Gateway Preserve Project includes the redevelopment of the All American Asphalt plant, which has long been a concern of local residents, into a park, interpretive center, and staging area for hiking. Funds to acquire the All American Asphalt plant would come from the sale of developable land that the Irvine Company is transferring to

the City. This developable land constitutes the proposed project site. South Park, at the northern edge of the proposed project site, would act as a transitional space and entry point to the Gateway Preserve. Jeffrey Road would end in a cul-de-sac just beyond South Park, and Figure 4.15-1, Conceptual South Park Plan, shows the conceptual plan for the terminus of Jeffrey Road into the Gateway Preserve.

4.15.2 Relevant Plans, Policies, and Ordinances

Federal

There are no federal regulations regarding recreation that would apply to the project.

State

Quimby Act

California allows a city or county to pass an ordinance that requires, as a condition of approval of a subdivision, either the dedication of land, the payment of a fee in lieu of dedication, or a combination of both for park and recreational purposes if certain requirements are met (California Government Code Section 66477). One of these requirements is that the dedicated land or fees, or combination thereof, shall be used only for the purposes of developing or rehabilitating neighborhood or community park or recreational facilities to serve the subdivision for which the land was dedicated or fees were paid. This legislation, commonly called the Quimby Act, establishes a maximum parkland dedication standard of 3 acres of parkland per 1,000 residents for a new subdivision development unless the amount of existing neighborhood and community parkland exceeds that limit.

California Government Code, Section 66000.5 – Mitigation Fee Act

The Mitigation Fee Act complements the Quimby Act by allowing separate impact and recreation facilities fees to be collected so that parks can be improved and recreation facilities can be maintained. The act also allows impact fees to be placed on non-subdivision residential developments.

Local

City of Irvine Parks Master Plan

Adopted in June 2017, the City of Irvine Parks Master Plan (City of Irvine 2017) provides guidance for the development, maintenance, and enhancement of Irvine's public parks over a 10-year period. It includes systemwide objectives and recommendations to guide the planning of park projects over the plan period. The Parks Master Plan recognizes that as the City approaches buildout, the focus of future park planning must focus on maintenance and enhancement of existing park resources but also identify several site opportunities for the construction of new parks. The Parks Master Plan identifies three community and two neighborhood park sites for development of new parks. One of the proposed development sites is Gateway Park, located on the proposed project site.

Irvine 2045 General Plan Conservation and Open Space Element

Adopted in 2024, the General Plan's Conservation and Open Space Element (City of Irvine 2024b) outlines the goals, objectives, policies, and implementation measures for the preservation and conservation of open space and natural resources in the City. It includes various policies related to the establishment and maintenance of parks

and recreational areas. The following provides a summary of the most applicable goal/objective and policies that pertain to the project, and is not a comprehensive list:

Goal 6. Require developers of residential land to dedicate park land and/or improvements/amenities, and/or pay fees in lieu of dedication, at a rate of five (5) acres per thousand (1,000) population, consistent with the Quimby Act, Subdivision Map Act, Irvine Subdivision and Zoning Ordinances and General Plan standards.

Objective COS-6. Maintain and enhance the City's network of parks and recreational areas that provide a variety of recreational opportunities, and which link and integrate other conservation and open space areas into the land use fabric of the City.

Policy (a). Continue to coordinate parks and recreational opportunities through the General Plan and Parks Master Plan to ensure adequate and timely development of parks and recreational areas.

Policy (b). Expand opportunities and places for casual nature-related recreation and leisure (e.g., the Jeffrey Open Space Trail) that are distinct from turf parks and protected wildlands.

Policy (d). Provide for a broad spectrum of recreational opportunities and park facilities, in either public or private ownership, to accommodate a variety of types and sizes of functions and provide safe and easy access for their intended users.

Policy (e). Ensure that Irvine's park system is developed, maintained, and rehabilitated in a manner that is cost-effective and consistent with the community's needs and ability to pay.

Policy (f). Require developers of residential land to dedicate park land and/or improvements/ amenities, and/or pay fees in lieu of dedication, at a rate of five (5) acres per thousand (1,000) population, consistent with the Quimby Act, Subdivision Map Act, Irvine Subdivision and Zoning Ordinances and General Plan standards.

Goal 9. Enhanced utilization of open space in existing development and new development projects.

Objective COS-9: Promote and, when suitable, mandate the incorporation of open space areas in multi-family, mixed-use, and office developments to supplement the available open space and recreational facilities in the City. Optimize the utilization of current public open space assets on a neighborhood scale and explore possibilities for private development to enrich neighborhood open space resources.

Policy (a): Continue to enforce zoning regulations mandating accessibility to open space for new residential, retail, and commercial developments.

Policy (b): Explore the potential for developers to contribute to the enhancement of existing open space accessibility through a fee payment instead of mandatory on-site parks provision for new developments, with the fee going towards enhancing access to existing open space.

Policy (d): Encourage the establishment of incentives for incorporating publicly accessible open space into private development initiatives.

Goal 10. Enhanced open space accessibility and utilization, and conservation efforts of resources.

Objective COS-10: The City commits to creating and fostering well-integrated and sustainable open space resources available to City residents and visitors.

Policy (a): Provide a variety of public and private parks to meet residents' needs.

Policy (b): Ensure that the City's park, recreation, and open space system is accessible to all residents, including users of different abilities and demographic characteristics.

Policy (c): Encourage the creation of dynamic parks as special and unique places, adding or incorporating art and historic resources, innovative features, diverse landscaping, nature, varied color palettes, and welcoming amenities.

City of Irvine Municipal Code

Park Dedication (Chapter 10, Section 5-5-1004 of the Irvine Municipal Code)

Chapter 10, Section 5-5-1004 of the City's Municipal Code outlines the required park dedication/in-lieu fee requirements for development of residential subdivisions. Part (C) explains the specific dedication requirements, which are at the rate of 5 acres per 1,000 population, apportioned as 2 acres for community parks and 3 acres for neighborhood parks.

Part (D) outlines how to calculate the required dedication/fee for a development. It states that when the requirements are complied with solely on the basis of providing park land, the minimum amount of land to be provided shall be based on the dedication standard and the density classifications and persons per dwelling unit included in the table below. It also states that when the requirements are complied with solely based on the payment of park fees, the amount of such fees shall be computed by multiplying the number of proposed dwelling units by the dwelling units shown in Table 4.15-1 and by multiplying the resultant acreage amount by the fair market value of land being developed. Lastly, it states that when the requirements are complied with by both the provision of park land and payment of a park fee, the amount of the park fee shall be computed by determining the required amount of park land and subtracting the amount of park land actually provided, with the remainder converted to a fee in accordance with the fee structure described herein.

Table 4.15-1. Population Calculations for Park Dedication Requirement

Dwelling Units per Net Acre	Average Number of Persons per Dwelling Unit
0 to 1.0	3.10
1.1 to 6.5	2.90
6.6 to 12.5	2.75
12.6 to 31.0	2.25
31.1 and above	1.46

Source: City Municipal Code Chapter 10, Section 5-5-1004.

4.15.3 Thresholds of Significance

The significance criteria used to evaluate the project impacts to recreation are based on Appendix G of the CEQA Guidelines. According to Appendix G, a significant impact related to recreation would occur if the project would:

1. 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.
2. Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

4.15.4 Impacts Analysis

1. Would the project 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?

Less-Than-Significant Impact. The proposed project includes the development of a new residential community with 1,360 two- and three-story attached and detached homes. It is expected that the project population would use existing neighborhood parks, regional parks, and other recreational facilities in the City. However, the incremental impact of this additional population on the use of existing recreational facilities would not result in substantial physical deterioration of these facilities or acceleration thereof, even if the population exclusively used existing facilities. Also, pursuant to the Quimby Act (the goal of which is to reduce strain on existing parks and provide adequate park space to accommodate new residential development), the Conservation and Open Space Element of the General Plan (City of Irvine 2024b), and the Subdivision Ordinance (Chapter 10, Section 5-5-1004 of the Irvine Municipal Code), developers are required to dedicate park land and/or improvements/amenities and/or pay fees in lieu of dedication. Calculated using Table 4.15-1, such dedication would be at a rate of 5 acres per 1,000 persons, apportioned at 2 acres of community parks and 3 acres of neighborhood parks. Affordable housing projects have a reduced requirement of 3.5 acres of park land for every 1,000 population (2 acres of neighborhood park and 1.5 acres of community park). The project would have 1,020 units in the 12.6 to 31.0 range and 340 units in the 31.1 and above range, which equates to a total of 2,791 persons, as calculated using Table 4.15-1. For the proposed project, this equates to a requirement of approximately 5.58 acres of community park and 8.37 acres of neighborhood park. The proposed project includes approximately 7.2 acres of park land. The remainder of the requirements will be paid via in-lieu fees by the individual developers developing the project. Residents would likely most often use the project's recreational facilities close to their places of residence and would therefore not use existing facilities at a rate proportional to the population of the community. Construction of the project would also likely increase the usage of the Gateway Preserve, given the proximity to the trails and the fact that South Park would act as a gateway into the preserve. Furthermore, Jeffrey Road would dead-end into a cul-de-sac just beyond South Park, providing another opportunity for visitors to park and enjoy the preserve. Figure 4.15-1 shows the conceptual plan for this cul-de-sac. There may be additional hikers and off-road bicyclists that would use the trails in the preserve; however, funds collected from in-lieu park fees would help mitigate any physical deterioration to the Gateway Preserve, which would be an off-site impact of the implementation of the project. Additionally, the additional use of existing recreational facilities would be offset by the payment of in-lieu fees. Therefore, the project's impact on existing parks and recreational facilities would be less than significant and no mitigation is required.

2. Would the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

Significant and Unavoidable Impact. The proposed project anticipates the construction of five parks. One of the private parks would include amenities such as a clubhouse, pools, seating, and a playground. South Park would include parking, restrooms, and trail staging. The project also includes extension of the JOST northward from its existing northern terminus at Portola Parkway to South Park at the entrance to the forthcoming Gateway Preserve. Because the parks and JOST extension are part of the project, their potential adverse physical effect on the environment is assessed throughout this Draft EIR. Mitigation is required to reduce impacts in several environmental resource areas, as assessed throughout Chapter 4 of this Draft EIR and summarized in Chapter 1, Executive Summary. As such, those mitigation measures that would reduce an adverse physical effect on the environment are applicable to the construction and expansion of recreational facilities that is a part of the project.

The project would have significant and unavoidable impacts in several resource areas. Therefore, because the construction and expansion of recreational facilities is part of the project, impacts related to physical effects on the environment due to the construction or expansion of recreational facilities would be significant and unavoidable. See Chapter 1 for a summary of all significant and unavoidable impacts.

Impact Summary

The physical effects on the environment due to the construction or expansion of recreational facilities caused by the development of the proposed project would be a significant impact and feasible mitigation must be applied. Other impacts to recreation would be less than significant.

4.15.5 Mitigation Measures

Because the project includes construction and operation of recreational facilities, all mitigation within this document that addresses a physical effect on the environment would be applicable to recreational resource impacts. See Chapter 1, Executive Summary, for a summary of all mitigation measures required for the project.

4.15.6 Level of Significance After Mitigation

Despite implementation of mitigation, impacts relating to the construction or expansion of recreational facilities that might have an adverse physical effect on the environment would remain significant and unavoidable. Impacts related to the physical deterioration of existing recreational facilities do not require mitigation and would remain less than significant.

4.15.7 Cumulative Impacts

Other past, present, and reasonably foreseeable projects that involve the construction of recreational facilities would result in adverse physical effects on the environment due to the construction or expansion of such facilities. Because the project involves the construction and operation of recreational facilities, all significant and unavoidable cumulative impacts that would have a physical effect on the environment, as identified throughout Chapter 4 of this Draft EIR and summarized in Chapter 1, Executive Summary, would be considered cumulative impacts related to adverse physical effects on the environment associated with the construction and operation of recreational facilities.

As with the proposed project, all projects within the City that would increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility could occur or be accelerated would be subject to the requirements of the Quimby Act, the City's General Plan, and the Park Dedication section of the Irvine Municipal Code (Chapter 10, Section 5-5-1004) requiring that developers dedicate park land and/or improvements/amenities and/or pay fees in lieu of dedication, at a rate of 5 acres per 1,000 persons, apportioned at 2 acres of community parks and 3 acres of neighborhood parks. Affordable housing projects have a reduced requirement of 3.5 acres of park land for every 1,000 population (2 acres of neighborhood park and 1.5 acres of community park). As such, impacts to existing recreational facilities would be mitigated to a less-than-significant level on a project-by-project basis. Therefore, the proposed project would not contribute to a cumulatively considerable impact related to the physical deterioration of existing recreational facilities.

4.15.8 References

City of Irvine. 2017. *Parks Master Plan*. Final. June 2017. Prepared by MIG for the City of Irvine. https://cityofirvine.org/community-services-department/parks-master-plan.

City of Irvine. 2024a. "Land Use Element." In *Irvine 2045 General Plan*. Accessed February 19, 2025. https://cityofirvine.org/community-development/current-general-plan.

City of Irvine. 2024b. "Conservation and Open Space Element." In *Irvine 2045 General Plan*. Accessed February 19, 2025. https://cityofirvine.org/community-development/current-general-plan.

DOC (California Department of Conservation). 2025. "Important Farmland Categories." Farmland Mapping and Monitoring Program website. Accessed January 6, 2025. https://www.conservation.ca.gov/dlrp/fmmp/Pages/Important-Farmland-Categories.aspx.

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SOURCE: Brookfield Residential SWA
* Conceptual, not approved and the plan is subject to revision

FIGURE 4.15-1
Conceptual South Park Plan
Irvine Gateway Village Project EIR

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4.16 Transportation

This section describes the existing transportation conditions of the project site and vicinity, identifies associated regulatory requirements, evaluates potential impacts, cumulative impacts, and identifies mitigation measures related to implementation of the proposed project. This section analyzes the potential impacts of the project based on the CEQA Guidelines Section 15064.3(b), which focuses on vehicle miles traveled (VMT) for determining the significance of transportation impacts.

In addition to the documents incorporated by reference (see Section 2.7 of Chapter 2, Introduction, of this Draft EIR), the analysis in this section is based, in part, on the following source:

- **Appendix I:** Irvine Gateway Comprehensive Traffic Study (Traffic Study), prepared by LSA, dated May 2025

4.16.1 Existing Conditions

This section provides a summary of the existing circulation network, bicycle and pedestrian facilities, and transit service in the study area.

Existing Circulation Network

The project site is located north of Portola Parkway, east of Jeffrey Road, south of State Route (SR) 241, and west of Bee Canyon Access Road. Primary access to the site would be provided from three full access driveways along Jeffrey Road. Characteristics of the primary existing road system within the study area are described below. Figure 4.16-1, City of Irvine Master Plan of Highways, provides the City of Irvine (City) Master Plan of Highways from the 2045 Irvine General Plan.

- **SR-241** is a controlled access toll road operated by the Transportation Corridor Agencies. SR-241 begins at its interchange with Oso Parkway near Las Flores. SR-241 continues north through Rancho Santa Margarita and Trabuco Canyon and passes through eastern Mission Viejo and Lake Forest into Irvine. It runs along the eastern edge of Irvine before meeting the eastern terminus of SR-133. The nearest interchange to the project site is located at SR-241 and Portola Parkway.
- **Jeffrey Road** is a north–south roadway west of the project site. Direct project access via three full-access driveways ("A," "B," and "C" Streets) will be provided on Jeffrey Road. Jeffrey Road south of Portola Parkway is a six-lane Major Arterial Highway with a posted speed limit of 55 miles per hour (mph) between Encore and Portola Parkway. Jeffrey Road north of Portola Parkway, as recently constructed, is a four-lane Primary Arterial Highway that terminates near "C" Street (approximately 3,100 feet north of Portola Parkway). The current road provides access to existing uses, including electrical substations on the west side of Jeffrey Road and the Irvine Ranch Conservancy Native Seed Farm and other small businesses on the east side of Jeffrey Road. The proposed extension of Jeffrey Road from "C" Street to SR-241 and farther north to Santiago Canyon Road is classified as a Primary Arterial Highway in the Circulation Element of the City's General Plan. On-street parking is prohibited on both sides of this roadway.
- **Portola Parkway** is an east–west roadway south of the project site. Direct project access via a right-in/right-out driveway ("E" Street) will be provided on Portola Parkway. It is a six-lane Major Arterial Highway west of Jeffrey Road and a four-lane Primary Arterial Highway east of Jeffrey Road. The posted speed limit is 55 mph. On-street parking is prohibited on both sides of this roadway.

Bicycle and Pedestrian Facilities

The City's pedestrian facilities are presented on Figure 4.16-2, City of Irvine Pedestrian Facilities, and the City's bicycle facilities are presented on Figure 4.16-3, City of Irvine Bicycle Facilities. In the vicinity of the proposed project, sidewalks are currently provided on the south side of Portola Parkway and the west side of Jeffrey Road (south of Portola Parkway). A sidewalk on the north side of Portola Parkway along the project property frontage is proposed as a project design feature.

The Jeffrey Open Space Trail (JOST) is located on the east side of Jeffrey Road (south of Portola Parkway). A proposed extension of the JOST would form the western edge of the project site and would connect to the proposed project's South Park. A pedestrian bridge would cross over Portola Parkway as part of the JOST extension. The JOST extension would mark the northernmost end of the JOST, which runs through Irvine.

On-street (Class II) bicycle lanes are currently provided on both sides of Portola Parkway and Jeffrey Road (south of Portola Parkway). Additionally, in the buildout conditions, the cross-section measurement for Jeffrey Road north of Portola Parkway would be approximately 33 feet in each direction, which is wide enough to provide two through lanes with on-street bike lanes. The project will provide bicycle parking amenities that meet the zoning ordinance update that was recently approved, including meeting minimum design and location specifications for short- and long-term bicycle parking.

Transit Service

The Orange County Transportation Authority (OCTA) provides 51 bus routes throughout Orange County (County). The bus network includes local, community, and express routes. In addition, Irvine CONNECT, a free shuttle service, is provided by the City to connect the northern end of Irvine to the Irvine Train Station via Yale Avenue, with stops at parks, schools, hospitals, and shopping centers. The existing transit routes are shown on Figure 4.16-4, City of Irvine Transit Services, and the Irvine CONNECT route is shown on Figure 4.16-5, Irvine CONNECT Transit Route.

There are no transit routes or stops near the project site. The closest bus stops are located at the northwest and southwest corners of Jeffrey Road/Irvine Boulevard, which are approximately 1 mile from the project site. OCTA Route 167 provides transportation to and from these bus stops and throughout the Cities of Orange and Irvine via Jeffrey Road and has stops at the major activity centers, such as the Village at Orange, Irvine Valley College, and University Center. The project would include a new transit stop and bus turnout on Jeffrey Road at approximately the northeast corner of Jeffrey Road and "C" Street. This new transit stop would serve the expanded Irvine CONNECT route to be implemented by the City, with the Irvine CONNECT shuttle route going adjacent to the Irvine Gateway project.

4.16.2 Relevant Plans, Policies, and Ordinances

The following section describes state and local regulations, plans, policies, and ordinances relevant to the study area. There are no transportation-specific federal regulations applicable to the project.

State

Assembly Bill 1358 (Complete Streets)

California's Complete Streets Act of 2008, Assembly Bill (AB) 1358, requires circulation elements to address the transportation system from a multimodal perspective. The bill states that streets, roads, and highways must "meet the needs of all users in a manner suitable to the rural, suburban, or urban context of the general plan." The Complete Streets Act requires that circulation elements plan for all modes of transportation where appropriate, including walking, biking, car travel, and transit, and that streets be designed and operated to enable safe access for all users, including pedestrians, bicyclists, motorists, and transit riders of all ages and abilities.

Senate Bill 375 (Sustainable Communities and Climate Protection)

The Sustainable Communities and Climate Protection Act of 2008 (Sustainable Communities Act; Senate Bill [SB] 375, Chapter 728, Statutes of 2008) supports the state's climate action goals to reduce greenhouse gas (GHG) emissions through coordinated transportation and land use planning with the goal of more sustainable communities. Under the Sustainable Communities Act, the California Air Resources Board sets regional targets for GHG emissions reductions from passenger vehicle use. In 2010, the California Air Resources Board established these targets for 2020 and 2035 for each region covered by one of the state's metropolitan planning organizations (MPOs). The California Air Resources Board will periodically review and update the targets as needed.

Each of California's MPOs must prepare a Sustainable Communities Strategy (SCS) as an integral part of its Regional Transportation Plan (RTP). The SCS contains land use, housing, and transportation strategies that, if implemented, would allow the region to meet its GHG emission reduction targets. Once adopted by the MPO, the RTP/SCS guides the transportation policies and investments for the region. The California Air Resources Board reviews the adopted SCS to confirm and accept the MPO's determination that the SCS, if implemented, meets the regional GHG emissions reduction targets. If the combination of measures in the SCS does not meet the regional targets, the MPO must prepare a separate alternative planning strategy to meet the targets. The alternative planning strategy is not a part of the RTP. The project is within the Southern California Association of Governments (SCAG) MPO, which has adopted Connect SoCal (2024–2050 RTP/SCS; SCAG 2024) as their SCS, as discussed under "Regional" in this section.

The Sustainable Communities Act also establishes incentives to encourage local governments and developers to implement the SCS or the alternative planning strategy. Developers can get relief from certain CEQA requirements if their new residential and mixed-use projects are consistent with a region's SCS (or alternative planning strategy) that meets the targets (see California Public Resources Code Sections 21155, 21155.1, 21155.2, 21159.28).

Senate Bill 743 (Transportation Impacts)

SB 743 was signed into law on September 27, 2013. This legislation seeks to balance the needs of congestion management, infill development, public health, GHG reductions, and other goals. Passage of SB 743 resulted in revisions to the CEQA Guidelines, including elimination of auto delay, level of service (LOS), and similar measurements of vehicular roadway capacity and traffic congestion as the basis for determining significant impacts. These metrics were replaced with VMT as the preferred CEQA transportation metric. The Governor's Office of Land Use and Climate Innovation (LCI), formerly the Office of Planning and Research, released the Technical Advisory on Evaluating Transportation Impacts in CEQA in December 2018 to provide recommendations for the use of VMT metrics when analyzing land use projects and plans under CEQA.

California Department of Transportation

As the owner and operator of the State Highway System, the California Department of Transportation (Caltrans) implements established state planning priorities in all functional plans, programs, and activities. Caltrans has the responsibility for coordinating and consulting with local jurisdictions when proposed local land use planning and development may impact state highway facilities. To comply with SB 743 implementation, the Caltrans Vehicle Miles Traveled–Focused Transportation Impact Study Guide (VMT-Focused TISG; Caltrans 2020) replaced Caltrans's previous 2002 Guide for the Preparation of Traffic Impact Studies. The VMT-Focused TISG replaces LOS with VMT as the metric used in CEQA transportation analyses. Caltrans recommends using LCI's recommended thresholds and guidance on methods of VMT assessment found in the LCI Technical Advisory (LCI 2018). In addition to its VMT-Focused TISG (Caltrans 2020), Caltrans has developed a Local Development Review Safety Review Practitioner's Guidance (Caltrans 2024) to improve consistency and transparency of the safety review process and facilitate sustainable development while improving safety on the State Highway System. During the Local Development Review process, Caltrans may request that a safety analysis of pertinent State Highway Systems be included as part of a development's Transportation Impact Study.

Regional

Orange County Congestion Management Program

The passage of Proposition 111 in June 1990 established a process for each metropolitan county in California, including Orange County, to prepare a Congestion Management Plan (CMP). OCTA prepared the County's CMP in consultation with the County of Orange and the cities within Orange County. The Orange County CMP sets forth regional mobility objectives to reduce traffic congestion, provide a system for coordinating land use and development decisions that support the regional economy, and support gas tax funding eligibility. The CMP outlines policies for monitoring and managing system performance issues. The OCTA developed these policies in conjunction with local jurisdictions, Caltrans, and South Coast Air Quality Management District.

Orange County Transportation Authority Long Range Transportation Plan

OCTA's Directions 2045: Long Range Transportation Plan (LRTP; OCTA 2023) outlines the vision and plan for multimodal transportation in Orange County. OCTA prepares the LRTP and submits it to SCAG so that County transportation projects will be incorporated into the RTP and subsequently programmed into the Federal Transportation Improvement Program. The Directions 2045 LRTP (OCTA 2023) has four goals: (1) deliver on commitments; (2) improve transportation system performance, (3) expand transportation system choices; and (4) support sustainability.

OC Foothills Bikeways Strategy

The OC Foothills Bikeways Strategy (Bikeways Strategy; OCTA 2016) was developed as part of OCTA's regional bikeways planning process, which involves OCTA, local jurisdictions, and public stakeholders.

Regional bikeway planning supports the goals contained in existing countywide transportation plans, such as the OCTA LRTP, OCTA Commuter Bikeways Strategic Plan, and the 2012 Orange County SCS. These goals are interrelated and include expanding travel choices, improving safety, and supporting the viability of bicycle transportation. The Bikeways Strategy was completed in 2016 and identifies 11 regional bikeway corridors to help improve the viability of bicycling and cross-jurisdictional bikeway connectivity throughout the foothills of the County.

Two corridors, Corridor C (Cambridge to Portola) and Corridor J (Jeffrey Corridor), are located in the vicinity of the project site. Corridor C is an opportunity for a continuous, lower-stress, flat north–south connection, with an estimated 26 schools directly adjacent to the proposed corridor. Most of the bikeway corridor is in place today, and the next step will be to implement enhancements to create protected facilities for bicyclists. Corridor J has strong trip demand and requires only one significant gap closure to complete a corridor that would provide a primarily off-street connection to many destinations, such as the University of California, Irvine; Mason Regional Park; and Irvine Valley College. The JOST is along Corridor J and a proposed bridge over Interstate (I) 5 will allow the communities north of I-5 to link to Irvine Valley College and to the existing bridge over I-405 and points south (OCTA 2016).

Master Plan of Arterial Highways

OCTA administers the Master Plan of Arterial Highways (MPAH; OCTA 2025a), including the review and approval of amendments requested by local agencies. The MPAH is a countywide transportation plan for Orange County, designed to manage and improve the arterial highway network. Established in 1956, the MPAH was created to complement the county's developing freeway system and has evolved into a critical element of the County's long-range transportation policy. The current plan was updated in June 2025.

Over the years, the MPAH has played a crucial role in shaping the County's transportation infrastructure, ensuring a coordinated effort between OCTA and the cities within Orange County. The primary goal of the MPAH is to outline a regional arterial highway system that supports existing and future land uses, ensuring that roads are designed to accommodate projected traffic volumes. It aims to provide a circulation system that complements the County's freeway network, focusing on the efficient movement of people and goods.

OC Transit Vision Master Plan

OCTA developed the 2024 OC Transit Vision Master Plan (OC Transit Vision; OCTA 2025b), which aims to integrate, enhance, and expand multimodal transportation services in Orange County. This 18-month study builds upon the previous 2018 plan and other recent studies to establish a framework for future transit investments, including bus, streetcar, microtransit, first/last mile options, and other mobility services for the County. The OC Transit Vision analyzes current transit corridors, modes, transit-supportive design, and policy recommendations. In addition, the plan addresses the latest in transit technologies, responds to evolving ridership trends, and outlines potential funding sources. The updated OC Transit Vision provides a consistent, County-wide transit approach that has been shared with local jurisdictions and partner agencies to encourage coordination for advancing, funding, and implementing transit-related recommendations both locally and regionally.

OC TDM Plan

OCTA developed the Orange County Transportation Demand Management (TDM) Plan (OC TDM Plan; OCTA 2025c) that provides recommendations to shift trips away from solo trips (driving alone) and expand access to alternative travel options. The TDM Plan offers a set of strategies aimed at reimagining the County's transportation framework and prioritizing sustainability, efficiency, and accessibility by reducing drive-alone trips in Orange County. TDM strategies include carpooling, vanpooling, telecommuting, and other technology-enabled innovations such as carshare, bikeshare, and mobile trip planning apps.

OC Bike + Ped Plan

Orange County's Bike + Ped Plan (OC Bike + Ped Plan; OCTA 2019) is the first County-wide active transportation plan for Orange County that addresses both bicycle and pedestrian networks. OCTA developed the OC Bike + Ped Plan to provide a framework for bikeway and pedestrian planning across the County and to comply with Caltrans active transportation plan guidelines. This will allow cities and the County of Orange to use the plan as a foundation to apply for state funding to plan and implement local bicycle and pedestrian projects. The OC Bike + Ped Plan includes the following goals:

Goal 1: Reduce pedestrian and bicyclist collisions.

Goal 2: Advance strategic walking and biking network.

Goal 3: Enhance walking and biking access to transit.

Goal 4: Improve high-need pedestrian areas.

Goal 5: Strengthen stakeholder partnerships.

Goal 6: Incorporate diverse community perspectives.

Goal 7: Leverage funding opportunities.

Connect SoCal

Connect SoCal is a long-term plan for the Southern California region that details investment in the Southern California transportation system and development in regional communities to meet the needs of the region in both the short term and the long term. The horizon year for Connect SoCal is 2050 (SCAG 2024).[1]

The goals for Connect SoCal are designed to help Southern California achieve its vision. They fall into four core categories: mobility, communities, environment and economy. These goals are not mutually exclusive—rather, they are mutually reinforcing. For example, the decisions and actions taken to achieve mobility goals can also help to achieve and support environmental goals. The principal goals are as follows:

Mobility: Build and maintain an integrated multimodal transportation network

Communities: Develop, connect and sustain communities that are livable and thriving

Environment: Create a healthy region for the people of today and tomorrow

Economy: Support a sustainable, efficient and productive regional economic environment that provides opportunities for all residents.

[1] The "horizon year" is the year for which a transportation plan describes the envisioned transportation system. Typically, it is the last year of a metropolitan region's 20-year RTP.

Local

Irvine 2045 General Plan Circulation Element

The City is committed to fostering a sustainable and efficient transportation network that enhances accessibility, promotes connectivity, and prioritizes the safety and mobility of all residents, workers, and visitors. The Circulation Element of the City's General Plan (City of Irvine 2024) serves as a blueprint for the continued development and enhancement of the City's transportation system, ensuring that it evolves in harmony with the City's growth, economic vitality, and environmental stewardship. The Circulation Element includes the following goals and objectives related to circulation:

Goal 1: To facilitate the planning, provision, and maintenance of a well-integrated roadway network that effectively meets the anticipated demands of both local communities and the broader regional transportation system.

Objective C-1. Plan, provide, and maintain an integrated vehicular circulation system to accommodate projected local and regional needs and growth.

Goal 2: To design a circulation system that adheres to the highest standards of transportation engineering safety while considering the surrounding land uses and their sensitivities.

Objective C-2: Maintain and enhance a circulation system consistent with high standards for transportation engineering safety and with sensitivity to adjoining land uses.

Goal 3: To establish a pedestrian circulation system that supports and promotes walking as a viable mode of transportation within the community.

Objective C-3. Maintain and enhance the pedestrian circulation system to support and encourage walking as a mode of transportation.

Goal 4: To develop and maintain a comprehensive bicycle network that encourages increased bicycle usage for both commuting and recreational purposes.

Objective C-4. Plan, provide, maintain, and enhance a comprehensive bicycle network that encourages increased use of bicycles.

Goal 5: Foster a culture of active transportation by prioritizing walking, cycling, and other non-motorized modes of travel to improve public health, reduce greenhouse gas emissions, and enhance the quality of life for residents and visitors in Irvine.

Objective C-5. Enhance the City's infrastructure to support and encourage walking, cycling, and other forms of active transportation by developing safe, accessible, and interconnected networks of pathways, bike lanes, and multi-use trails throughout Irvine.

Goal 6: To plan, develop, and maintain a comprehensive trail network that caters to the needs of cyclists, equestrian riders, and hikers, ensuring accessibility and enjoyment for all.

Objective C-6. Plan, develop and maintain a trail network to support facilities that support the needs of cyclists, equestrian riders, and hikers.

Goal 7: Foster collaboration and coordination with regional transportation agencies to improve connectivity, accessibility, and efficiency of transportation networks serving Irvine and neighboring communities.

Objective C-7. Maintain a public transit system for trips within the City and to/from adjacent areas.

Goal 9: Improve transportation efficiency and accessibility by optimizing the circulation system to provide convenient, reliable, and inclusive transportation options for all residents and visitors in the City of Irvine.

Objective C-9. Maximize transportation efficiency by streamlining traffic flow, reducing congestion, and enhancing connectivity between different transportation modes to facilitate seamless movement within the City.

Goal 11: Align transportation planning with land use and design strategies to foster sustainable development, bolster mobility, and realize broader community objectives within Irvine.

Objective C-11. Continue to ensure that transportation planning efforts are aligned with land use and design strategies to create compact, walkable, and transit-oriented developments that minimize automobile dependency, reduce greenhouse gas emissions, and enhance the overall quality of life for residents and visitors.

Goal 12: Ensure sustainable transportation design for enhanced mobility and the support of environmental conservation.

Objective C-12. Integrate sustainable transportation principles into the City's planning and development initiatives to reduce environmental impact, enhance livability, and improve mobility for all residents.

4.16.3 Thresholds of Significance

The significance criteria used to evaluate the project impacts to transportation are based on Appendix G of the CEQA Guidelines. According to Appendix G, a significant impact related to transportation would occur if the project would:

1. Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.
2. Conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b).
3. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
4. Result in inadequate emergency access.

4.16.4 Impacts Analysis

1. Would the project conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?

Less-Than-Significant Impact. The project would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities, as discussed below. This includes the Orange County CMP, the Directions 2045 LRTP, the OC Foothills

Bikeways Strategy, the MPAH, the OC Transit Vision, the OC TDM Plan, the OC Bike + Ped Plan, Connect SoCal, and the City's Circulation Element.

The proposed project would maintain the existing walkways/sidewalks, on-street (Class II) bicycle lanes, and JOST in the vicinity of the project site, as well as enhance pedestrian connectivity with new facilities. A proposed extension of the JOST would form the western edge of the project site and would connect to the new South Park. The JOST extension would mark the northernmost end of the JOST, which runs through Irvine. A pedestrian bridge would also cross over Portola Parkway as part of the JOST extension, thus improving pedestrian access in the area. A sidewalk on the north side of Portola Parkway along the project property frontage is proposed as a project design feature. Additionally, in the buildout conditions, the cross-section measurement for Jeffrey Road north of Portola Parkway would be approximately 33 feet in each direction, which is wide enough to provide two through lanes with on-street bike lanes. In addition, the OCTA proposed regional bikeway corridors C and J would provide additional biking opportunities within the vicinity of the project site. The project would provide bicycle parking amenities that meet the zoning ordinance update that was recently approved.

The closest bus stops are located at the northwest and southwest corners of Jeffrey Road/Irvine Boulevard, which are approximately 1 mile away from the project site. The project would include a new transit stop and bus turnout on Jeffrey Road at approximately the northeast corner of Jeffrey Road and "C" Street. This new transit stop would serve the expanded Irvine CONNECT route to be implemented by the City, with the Irvine CONNECT shuttle route going adjacent to the Irvine Gateway project. The project would not conflict with bus routes in the study area; therefore, the project would not severely delay, impact, or reduce the service level of transit in the area.

The project does not include site improvements that would interfere with the existing roadway network or impede the construction of new or the expansion of existing facilities, including public transit, bicycle, or pedestrian facilities in the future. Consistent with the City's circulation policies, the project would provide safe, convenient, and direct pedestrian access to surrounding land uses; plan and enhance a comprehensive bicycle network that encourages increased use of bicycles, and multi-use trails.

At the time of this writing, an amendment to the bicycle parking requirements, as stated in the City's Zoning Ordinance, has not been finalized and approved by the Planning Commission and City Council. However, the project would include bicycle parking amenities consistent with the upcoming zoning ordinance update. Furthermore, all pedestrian areas within the site would meet American Disability Act requirements and adhere to City design guidelines.

Therefore, the proposed project would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. Impacts would be less than significant.

2. Would the project conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b)?

Significant and Unavoidable Impact. CEQA Guidelines Section 15064.3 requires that the determination of significance for transportation impacts be based on VMT instead of a congestion metric such as LOS. The change in the focus of transportation analysis is the result of SB 743, as detailed in Section 4.16.2, Relevant Plans, Policies, and Ordinances.

A VMT analysis was prepared in accordance with the City's adopted Traffic Study Guidelines (City of Irvine 2023), which provides screening criteria and VMT thresholds for evaluating a project's potentially significant transportation impact. The detailed analysis results are provided in Appendix I, Traffic Study, and are summarized below.

VMT Screening

Per the City's Traffic Study Guidelines (City of Irvine 2023), there are five types of screening criteria that lead agencies can apply to effectively screen projects from project-level assessment. These criteria are summarized below:

1. The project requires an Addendum to a certified EIR and can demonstrate that it is not subject to VMT analysis per CEQA Guidelines Sections 15064.3 and 15007(c) and applicable guidance from LCI (formerly, the Governor's Office of Planning and Research).
2. The project results in a net increase of 250 or fewer weekday daily trips based on the latest edition of the Institute of Traffic Engineers (ITE) trip rates (or other trip generation rate approved by the City).
3. The project is located in a Transit Priority Area (i.e., within 0.5 miles of existing rail transit station or within 0.5 miles of two or more existing bus routes with a frequency of service interval of 15 minutes or less during morning and evening peak hours).
4. The project is 100% restricted affordable housing units.
5. The project is locally serving, such as 100,000 square feet or less of retail use, a daycare use, or a locally serving public school (kindergarten through 12th grade).

The project does not meet any of these screening criteria. The proposed project includes 1,360 residential units (408 single-family detached units and 952 multifamily units), which would generate 10,825 daily trips (see Appendix I). The project is not located within a Transit Priority Area, because there are no transit routes or stops within 0.5 miles of the project site. A total of 25% (340 units) of the total proposed units would be affordable housing units, which does not meet the affordable housing screening criteria. Finally, the project is not a locally serving use. Therefore, a project-level VMT analysis was prepared.

VMT Thresholds

The City's goal and associated significance criteria is for new projects to generate 15% less VMT per capita (or per employee for non-residential uses) compared to existing conditions, which is consistent with LCI's Technical Advisory recommendations. Table 4.16-1 identifies the existing residential VMT per capita as well as the proposed VMT per capita significance threshold. The residential significance threshold is based on the countywide population VMT divided by the countywide population.

Table 4.16-1. VMT Rate Threshold Goals for Projects in the City of Irvine

Land Use Type	Existing VMT Rate	Threshold Goal (15% Reduction)
Residential (VMT per population)	17.50	14.88

Source: City of Irvine 2023.
Note: VMT = vehicle miles traveled.

VMT Analysis

Table 4.16-2 presents the project-generated VMT analysis results. As shown in Table 4.16-2, the proposed project's VMT rate exceeds the City's VMT threshold, resulting in a significant VMT impact. The project is required to reduce its VMT by 25.7%.

Table 4.16-2. Project VMT Analysis

VMT Analysis Scenario	VMT Rate	
	VMT	Metric
VMT threshold goal	14.88	VMT per capita
Project VMT rate	20.03	VMT per capita
Exceeds City-wide VMT Threshold?	*Yes*	
Significant Impact?	*Yes*	
VMT Reduction Required	*25.7%*	

Source: Appendix I.
Note: VMT = vehicle miles traveled.

The California Air Pollution Control Officers Association (CAPCOA) Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity (CAPCOA Handbook; CAPCOA 2024) is used for identifying the various mitigation strategies and methods to quantify VMT reductions. The CAPCOA VMT reduction strategies include built environment changes and transportation demand management actions. The transportation demand management strategies are separated into seven subsectors: Land Use, Trip Reduction Programs, Parking or Road Pricing/ Management, Neighborhood Design, Transit, Clean Vehicles and Fuels, and School Programs. Three mitigation measures (based on CAPCOA measures T-4, T-18, and T-20), Mitigation Measure (MM) TRA-1 (Affordable and Below Market Rate Housing), MM-TRA-2 (Pedestrian Network Improvement), and MM-TRA-3 (Expanded Bikeway Network), were identified as applicable measures for the proposed project (refer to Section 4.16.5 for the full text of all transportation mitigation measures). Other potential VMT mitigation measures were also reviewed but ruled out because of the nature of the proposed use and the lack of ongoing control that the property developer has with respect to implementation. The CAPCOA measures and potential reduction in VMT are described below.

- Land Use

T-4 (Integrate Affordable and Below Market Rate Housing): Implementation of this measure could result in a 28.6% maximum VMT reduction (expressed as a reduction in GHG emissions resulting from VMT in the CAPCOA Handbook). Individuals living in affordable multifamily housing have lower rates of car ownership and higher rates of other transportation modes, such as transit, bicycling, and walking.

- Neighborhood Design

T-18 (Provide Pedestrian Network Improvement): Implementation of this measure could result in a 6.4% maximum VMT reduction. Providing sidewalks and an enhanced pedestrian network encourages people to walk instead of drive, and this mode shift results in a reduction in VMT.

T-20 (Expand Bikeway Network): Implementation of this measure could result in a 0.5% maximum VMT reduction. Providing bike lanes and an enhanced bikeway network can increase access to and from transit hubs. This encourages a mode shift from vehicles to bicycles and displaces VMT.

Because 25% of the total proposed units are affordable housing units, CAPCOA measure T-4 will reduce the VMT impact by no more than 7.15% (28.6% * 25%). In addition, per the City's Traffic Study Guidelines, the City allows for a 2.5% VMT reduction related to pedestrian and bicycle connectivity. As such, the combination of CAPCOA measures T-18 and T-20 would provide a maximum VMT reduction of 2.5%. Assuming that each proposed project mitigation measure could achieve its maximum VMT reduction value, the implementation of MM-TRA-1 through MM-TRA-3 could reduce VMT by a total of 9.5%, which is less than the project's expected VMT impact of 25.7%. Detailed calculations of the VMT reductions with mitigation are provided in Appendix I, Traffic Study. The mitigation measures are provided in full in Section 4.16.5. Even with mitigation incorporated, the proposed project would have a significant and unavoidable VMT impact.

3. ***Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?***

Less-Than-Significant Impact with Mitigation Incorporated. Roadway design has the potential to increase hazards via sharp curves that are difficult to negotiate or intersections that provide poor lines of sight. In addition, queueing associated with turn pockets can lead to speed differentials, creating a potential safety issue. The following discussion describes the potential for increased hazards as a result of geometric design features of the project and/or as a result of the addition of project traffic to adjacent roadways.

Access to the project site would be provided via three full-access driveways ("A" Street, "B" Street, and "C" Street) on Jeffrey Road and a right-in/right-out driveway ("E" Street) on Portola Parkway. A site access analysis, consistent with the City's Transportation Design Procedures (TDPs; City of Irvine 2007), was conducted for the project for both the Existing (Baseline and Plus Project) scenario and the Buildout Approved (Baseline and Plus Project) scenario. The following TDPs were reviewed for both scenarios:

- **TDP-1:** Turn lane pocket lengths
- **TDP-3:** Left-turn in/out access
- **TDP-4:** Right-turn lanes at uncontrolled driveways
- **TDP-10:** Distance between driveways and intersections
- **TDP-12:** Traffic signal warrant
- **TDP-14:** Driveway lengths

The results of the access analysis for the Existing (Baseline and Plus Project) scenario are summarized below. The results of the Buildout Approved (Baseline and Plus Project) scenario analysis are described in Section 4.16.7, Cumulative Impacts.

Existing (Baseline and Plus Project) Scenario

Under this scenario, the extension of Jeffrey Road toward SR-241, based on the City's MPAH, would not exist. As recently constructed, Jeffrey Road (north of Portola Parkway) is a four-lane Primary roadway that terminates near "C" Street (approximately 3,100 feet north of Portola Parkway).

With the development of the proposed project, the segment of Jeffrey Road north of Portola Parkway would allow traffic to access the project site via three driveways on Jeffrey Road. The roadway segment of Jeffrey Road between Portola Parkway and "C" Street would continue to be a four-lane facility. At each project driveway ("A," "B," and "C" Streets) on Jeffrey Road, a northbound de-facto right-turn lane would be provided.[2] In addition, a 150-foot dedicated southbound left-turn lane with a 90-foot taper would be provided at "A" and "B" Streets. Figure 4.16-6, Jeffrey Road Configuration – Existing + Project Condition, shows the roadway configuration of Jeffrey Road between Portola Parkway and "C" Street in the Existing Plus Project condition. Additionally, the project is proposing to provide a 300-foot dedicated westbound right-turn lane with a 145-foot taper at "E" Street on Portola Parkway.

TDP-1: Turn Lane Pocket Lengths

The length of left-turn lane pockets (turn pockets) at signalized intersections is based on several parameters, including traffic control, turn volume, and cycle length. The purpose of the turn pocket length is to allow the turning vehicle to exit the through movement and decelerate into the turn pocket without affecting the through movement. The minimum single turn pocket length for Major, Primary, and Secondary Highways (e.g., Jeffrey Road and Portola Parkway) is 150 feet.

- **Jeffrey Road/Portola Parkway (Southbound Jeffrey Road).** The dual southbound left-turn lanes at the signalized intersection of Jeffrey Road/Portola Parkway are each approximately 240 feet long (480 feet long in total), with a 160-foot-long transition. The Existing Baseline left-turn demand at this location is 6 vehicles during the AM peak hour and 1 vehicle during the PM peak hour. Based on TDP-1 criteria, the dual southbound left-turn lanes meet the 5-foot length required to accommodate the existing AM peak hour vehicles. The Existing Plus Project left-turn demand at this location is 96 vehicles during the AM peak hour and 57 vehicles during the PM peak hour, which would require a 120-foot-long left-turn lane. The 480-foot-long southbound left-turn lane pocket length would continue to meet the TDP-1 criteria with the project-added traffic.
- **Jeffrey Road/Portola Parkway (Eastbound Portola Parkway).** The dual eastbound left-turn lanes at the signalized intersection of Jeffrey Road/Portola Parkway are each approximately 385 feet long (770 feet long in total), with a 120-foot-long transition. The Existing Baseline left-turn demand at this location is 20 vehicles during the AM peak hour and 6 vehicles during the PM peak hour. Based on TDP-1 criteria, the dual eastbound left-turn lanes meet the 25-foot length required to accommodate the existing 20 AM peak hour vehicles. The Existing Plus Project left-turn demand at this location would be 66 vehicles during the AM peak hour and 129 vehicles during the PM peak hour, which would require a 160-foot-long left-turn lane. Therefore, the 770-foot-long eastbound left-turn lane pocket length would continue to meet the TDP-1 criteria with the project-added traffic.

TDP-3: Left-Turn In/Out Access

TDP-3 provides procedures to determine whether left-turn in only or left-turn in/out access will be considered along Major, Primary, Secondary, and Commuter Streets. This TDP is based on the volume of vehicles entering and/or exiting a driveway in relationship to the conflicting volumes along the highway.

[2] A de facto right-turn lane has no signs or pavement markings, but functions as a right-turn lane in practice because it is wide enough to accommodate both through movements and turns.

Conflicting volumes refer to the traffic volumes that could potentially collide or interfere with each other (e.g., left-turn movements conflicting with a through movement).

- **Jeffrey Road/"A" Street.** Under Existing Plus Project conditions, the southbound Jeffrey Road left-turn volume into the project site via this unsignalized driveway would be minimal (if any) because Jeffrey Road terminates near "C" Street. The conflicting volume for left-turn in/out access would be 194 vehicles during the AM peak hour and 526 vehicles during the PM peak hour for the Existing Plus Project condition. Based on TDP-3, the volumes would be below the point representing the left-turn-in volume and the conflicting volumes; therefore, the TDP-3 criteria for left-turn-in access would be satisfied for this project driveway. Under Existing Plus Project conditions, the left-turn volumes out of the project site via this unsignalized driveway would be 286 vehicles during the AM peak hour and 179 vehicles during the PM peak hour. The conflicting volumes for left-turn-out access would be 403 vehicles during the AM peak hour and 578 vehicles during the PM peak hour for the Existing Plus Project condition. Based on TDP-3, the volumes would be above the point representing the left-turn-out volume and the conflicting volumes. Therefore, the TDP-3 criteria for left-turn-out access would not be satisfied for this project driveway. The intersection geometry at this location in the Existing Plus Project condition would be one through and one dedicated right-turn lane for the northbound direction on Jeffrey Road, one shared lane for through and left-turn movements for the southbound direction on Jeffrey Road, and one lane for all the traffic movements going out from "A" Street. The intersection was further analyzed assuming a one-way stop control on "A" Street (the results are provided in Appendix I). With a stop control, the intersection would operate at satisfactory LOS for the Existing Plus Project condition during both peak hours. Therefore, even though left-turn-out access at "A" Street does not meet the TDP-3 criteria, no operational deficiencies or impacts are expected at this unsignalized driveway and minimal adverse effects are expected on adjacent public roadways.
- **Jeffrey Road/"B" Street.** Under Existing Plus Project conditions, the southbound Jeffrey Road left-turn volumes into the project site via this unsignalized driveway would be minimal (if any) because Jeffrey Road terminates near "C" Street. The conflicting volumes for left-turn-in access would be 115 vehicles during the AM peak hour and 245 vehicles during the PM peak hour for the Existing Plus Project condition. Based on TDP-3, the volumes would be below the point representing the left-turn-in volume and the conflicting volumes. Therefore, the TDP-3 criteria for left-turn-in access would be satisfied for this project driveway. Under Existing Plus Project conditions, the left-turn volumes out of the project site via this unsignalized driveway would be 118 vehicles during the AM peak hour and 74 vehicles during the PM peak hour. The conflicting volumes for left-turn-out access would be 227 vehicles during the AM peak hour and 302 vehicles during the PM peak hour for the Existing Plus Project condition. Based on TDP-3, the volumes would be below the point representing the left-turn-out volume and the conflicting volumes. Therefore, the TDP-3 criteria for left-turn-out access would be satisfied for this project driveway.
- **Jeffrey Road/"C" Street.** Under Existing Plus Project conditions, the southbound Jeffrey Road left-turn volumes into the project site via this unsignalized driveway would be minimal (if any) because Jeffrey Road terminates near "C" Street. The conflicting volumes for left-turn-in access would be 78 vehicles during the AM peak hour and 122 vehicles during the PM peak hour for the Existing Plus Project condition. Based on TDP-3, the volumes would be below the point representing the left-turn-in volume and the conflicting volumes. Therefore, the TDP-3 criteria for left-turn-in access would be satisfied for this project driveway. Under Existing Plus Project conditions, the left-turn volumes out of the project site via this unsignalized driveway would be 130 vehicles during

the AM peak hour and 118 vehicles during the PM peak hour. The conflicting volumes for left-turn-out access would be 39 vehicles during the AM peak hour and 61 vehicles during the PM peak hour for the Existing Plus Project condition. Based on TDP-3, the volumes would be below the point representing the left-turn-out volume and the conflicting volumes. Therefore, the TDP-3 criteria for left-turn-out access would be satisfied for this project driveway.

TDP-4: Right-Turn Lanes at Uncontrolled Driveways

TDP-4 states that right-turn lanes at unsignalized driveways along Primary Highways (e.g., Portola Parkway east of Jeffrey Road and Jeffrey Road north of Portola Parkway) are required for a peak hourly right-turn volume of 100 vehicles. The City currently permits a de-facto right-turn lane, provided the curb lane is a minimum of 19 feet or, where existing on-street bike lanes are provided, the curb lane width is at least 12 feet wide plus a 7-foot-wide bike lane. Jeffrey Road north of Portola Parkway has been recently constructed with a 12-foot-wide outside lane and an 8-foot-wide bike lane, which provides for a dedicated right-turn lane at "A," "B," and "C" Streets.

- **Jeffrey Road/"A," "B," and "C" Streets.** The proposed driveways on Jeffrey Road at "A," "B," and "C" Streets would be unsignalized full-access driveways. "A" Street on Jeffrey Road would have northbound right-turn volumes of 79 vehicles during the AM peak hour and 281 vehicles during the PM peak hour under Existing Plus Project conditions. "B" Street on Jeffrey Road would have northbound right-turn volumes of 37 vehicles during the AM peak hour and 123 vehicles during the PM peak hour under Existing Plus Project conditions. "C" Street on Jeffrey Road would have northbound right-turn volumes of 78 vehicles during the AM peak hour and 122 vehicles during the PM peak hour under Existing Plus Project conditions. As such, a dedicated right-turn lane would be required at all three project driveways. However, as previously stated, a northbound dedicated right-turn lane is currently provided along these locations. This additional roadway capacity would adequately accommodate the queueing that may be expected from these northbound right turns on Jeffrey Road, resulting in minimal adverse effects to the operation of Jeffrey Road. Therefore, the proposed condition meets the intent of TDP-4 for the Existing Plus Project condition at all three driveways.
- **"E" Street/Portola Parkway.** "E" Street is an unsignalized right-in/right-out driveway on Portola Parkway. Portola Parkway at "E" Street would have westbound right-turn volumes of 30 vehicles during the AM peak hour and 76 vehicles during the PM peak hour under Existing Plus Project conditions. As such, a dedicated right-turn lane would not be required at this project driveway. Although it is not required, the proposed project would include provision of a 300-foot-long dedicated westbound right-turn lane with a 145-foot taper at "E" Street on Portola Parkway.

TDP-10: Distance Between Driveways and Intersections

TDP-10 states that the recommended minimum spacing between a driveway and an intersection, or between two driveways, is 230 feet for a Primary Highway (e.g., Portola Parkway east of Jeffrey Road and Jeffrey Road north of Portola Parkway).

- **Jeffrey Road/"A" Street.** "A" Street on Jeffrey Road is approximately 860 feet north of the signalized intersection of Jeffrey Road and Portola Parkway. This driveway is approximately 1,120 feet south of a driveway on the same side of the street and approximately 520 feet north of a driveway on the opposite side of the street. As such, the TDP-10 criteria are met for this project driveway.

- **Jeffrey Road/"B" Street.** "B" Street on Jeffrey Road is approximately 750 feet south and 1,120 feet north of driveways on the same side of the street. As such, the TDP-10 criteria are met for this project driveway.
- **Jeffrey Road/"C" Street.** "C" Street on Jeffrey Road is approximately 750 feet north of a driveway on the same side of the street. As such, the TDP-10 criteria are met for this project driveway.
- **"E" Street/Portola Parkway.** "E" Street (the right-in/right-out driveway) is located on Portola Parkway, which has a raised median, and this driveway does not have adjacent driveways on the same or the opposite side of the street. "E" Street is approximately 1,030 feet east of the signalized intersection of Jeffrey Road/Portola Parkway and approximately 870 feet west of the signalized intersection of Bee Canyon Access Road/Portola Parkway. As such, the TDP-10 criteria are met for this project driveway.

TDP-12: Traffic Signal Warrant

TDP-12 provides guidance to determine whether installation of a traffic signal would be justified at a particular location. The peak-hour traffic signal warrant is generally intended for use at locations where traffic conditions are such that for a minimum of 1 hour of an average day, the minor street (e.g., project driveway) suffers undue delay when entering or crossing the major street (e.g., Jeffrey Road).

A peak-hour traffic signal warrant analysis (FHWA 2023, Section 4C.04) per TDP-12 criteria was prepared to determine if the installation of a traffic signal would be warranted at the proposed driveways ("A," "B," and "C" Streets) along Jeffrey Road. Based on the analysis, traffic signals would not be warranted at "A," "B," and "C" Streets under the Existing Plus Project conditions, per TDP-12.

TDP-14: Driveway Lengths

TDP-14 provides guidance regarding a sufficient driveway length to allow vehicles to enter the parking area without causing subsequent vehicles to back out on the City street system. The measurement of sufficient length is based on the distance from the back of the sidewalk or stop bar to the first intersecting parking space or traffic control measure (e.g., gate/internal drive aisle) on site.

Based on the Existing Plus Project peak-hour traffic volumes, the following driveway lengths are recommended to meet the City's minimum requirements:

- **Jeffrey Road/"A" Street.** A driveway length of 300 feet is recommended to accommodate the 79 vehicles and 281 vehicles entering "A" Street on Jeffrey Road during the AM peak hour and the PM peak hour, respectively.
- **Jeffrey Road/"B" Street.** A driveway length of 125 feet is recommended to accommodate the 37 vehicles and 123 vehicles entering "B" Street on Jeffrey Road during the AM peak hour and the PM peak hour, respectively.
- **Jeffrey Road/"C" Street.** A driveway length of 125 feet is recommended to accommodate the 78 vehicles and 122 vehicles entering "C" Street on Jeffrey Road during the AM peak hour and the PM peak hour, respectively.
- **"E" Street/Portola Parkway.** A driveway length of 100 feet is recommended to accommodate the 30 vehicles and 76 vehicles entering "E" Street on Portola Parkway during the AM peak hour and the PM peak hour, respectively.

The project applicant is aware that the minimum requirements for driveway lengths per TDP-14 should be incorporated into the project design.

Summary

Based on the findings above, no impacts relating to hazards due to a geometric design feature or incompatible uses were identified using the design guidelines TDP-1: Turn lane pocket lengths, TDP-3: Left-turn in/out access, TDP-4: Right-turn lanes at uncontrolled driveways, TDP-10: Distance between driveways and intersections, and TDP-14: Driveway lengths. Additionally, a traffic signal would not be warranted based on expected traffic conditions at any of the proposed project access points from Jeffrey Road in the Existing Plus Project scenario, per the TDP-12 criteria.

Buildout Approved (Baseline and Plus Project) Scenario

Under this scenario, the extension of Jeffrey Road toward SR-241 and farther north to Santiago Canyon Road is assumed to be built. Figure 4.16-7, Jeffrey Road Extension Location, shows the location of the extension. Jeffrey Road north of Portola Parkway is classified as a Primary Highway in the City's General Plan. The cross-section measurement for Jeffrey Road north of Portola Parkway would be approximately 33 feet wide in each direction of travel, for a total width of 66 feet of travel surface, which is wide enough to provide two through lanes with on-street bike lanes and de-facto right-turn lanes at the project driveways. In addition, for purposes of analysis, a 150-foot-long dedicated southbound left-turn lane with a 90-foot-long taper was assumed to be provided at each driveway on Jeffrey Road. Figure 4.16-8, Jeffrey Road Configuration – Buildout Approved + Project Condition, shows the roadway configuration of Jeffrey Road between Portola Parkway and "C" Street in the Buildout Approved Plus Project condition. Additionally, the proposed project would include the provision of a 300-foot-long dedicated westbound right-turn lane with a 145-foot taper at "E" Street on Portola Parkway.

TDP-1: Turn Lane Pocket Lengths

- **Jeffrey Road/Portola Parkway (Southbound Jeffrey Road).** The dual southbound left-turn lanes at the signalized intersection of Jeffrey Road/Portola Parkway are each approximately 240 feet long (480 feet long in total) with a 160-foot-long transition. The Buildout Approved No Project left-turn demand at this location is 251 vehicles during the AM peak hour and 30 vehicles during the PM peak hour. Based on TDP-1 criteria, the dual southbound left-turn lanes meet the 315-foot length required to accommodate the 251 vehicles during the AM peak hour. The Buildout Approved Plus Project left-turn demand at this location would be 341 vehicles during the AM peak hour and 86 vehicles during the PM peak hour, which would require a 425-foot-long left-turn lane. The 480-foot-long southbound left-turn pocket length would continue to meet the TDP-1 criteria in the Buildout Approved conditions.
- **Jeffrey Road/Portola Parkway (Eastbound Portola Parkway).** The dual eastbound left-turn lanes at the signalized intersection of Jeffrey Road/Portola Parkway are each approximately 385 feet long (770 feet long in total), with a 120-foot-long transition. The Buildout Approved Baseline left-turn demand at this location is 120 vehicles during the AM peak hour and 229 vehicles during the PM peak hour. Based on the TDP-1 criteria, the dual eastbound left-turn lanes meet the 285-foot length required to accommodate the 229 vehicles during the PM peak hour. The Buildout Approved Plus Project left-turn demand at this location would be 164 vehicles during the AM peak hour and 346 vehicles during the PM peak hour, which would require a 430-foot-long left-turn lane. The 770-foot-

long eastbound left-turn pocket length would continue to meet the TDP-1 criteria in the Buildout Approved conditions.

- **Jeffrey Road/"A," "B," and "C" Streets (Southbound).** As mentioned before, a 150-foot-long dedicated southbound left-turn lane with a 90-foot-long taper was assumed to be built at Jeffrey Road at "A," "B," and "C" Streets in the Buildout Approved Plus Project condition. The Buildout Approved Plus Project left-turn demand at "A" Street would be minimal, expected to be 2 vehicles during the AM peak hour and 6 vehicles during the PM peak hour. The Buildout Approved Plus Project left-turn demand at "B" Street would be minimal, expected to be 1 vehicle during the AM peak hour and 3 vehicles during the PM peak hour. The Buildout Approved Plus Project left-turn demand at "C" Street would be minimal, expected to be 1 vehicle during the AM peak hour and 3 vehicles during the PM peak hour. Therefore, a minimum 150-foot-long southbound left-turn pocket would meet the TDP-1 criteria in the Buildout Approved Plus Project condition at each of the project driveways.

TDP-3: Left-Turn In/Out Access

- **Jeffrey Road/"A" Street.** Under Buildout Approved Plus Project conditions, the southbound Jeffrey Road left-turn volumes into the project site via this unsignalized driveway would be 2 vehicles during the AM peak hour and 6 vehicles during the PM peak hour. The conflicting volumes for left-turn-in access would be 350 vehicles during the AM peak hour and 1,088 vehicles during the PM peak hour for the Buildout Approved Plus Project condition. Based on TDP-3, the volumes would be below the point representing the left-turn-in volume and the conflicting volumes. Therefore, the TDP-3 criteria for left-turn-in access are satisfied for this project driveway. Under Buildout Approved Plus Project conditions, the left-turn volumes out of the project site would be 280 vehicles during the AM peak hour and 175 vehicles during the PM peak hour. The conflicting volumes for left-turn-out access would be 1,391 vehicles during the AM peak hour and 1,217 vehicles during the PM peak hour for the Buildout Approved Plus Project condition. Based on TDP-3, the volumes would be above the point representing the left-turn-out volume and the conflicting volumes. Therefore, the TDP-3 criteria for left-turn-out access would not be satisfied for this project driveway. The Highway Capacity Manual (HCM) methodology (NAS and TRB 2022) and Synchro software were used to evaluate this project driveway, and a stop control was considered. With a consideration of one stop sign installed on "A" Street (one-way stop controlled), the HCM results (provided in Appendix I) show that the AM and PM peak-hour LOS at this location would be an unsatisfactory LOS F in the Buildout Approved Plus Project condition. With consideration of stop signs installed on both Jeffrey Road (north and south) and "A" Street (all-way stop controlled), the HCM results show that the AM peak-hour LOS at this location would be an unsatisfactory LOS E, and the PM peak-hour LOS would be a satisfactory LOS C in the Buildout Approved Plus Project condition. Because an operational deficiency is expected at this unsignalized driveway, a traffic signal is recommended to provide safe and efficient operation at this location in the Buildout Approved Plus Project condition. Per TDP-12 (FHWA 2023, FHWA 2023, Section 4C.04), a signal warrant analysis indicates that a traffic signal would be warranted at this location under the Buildout Approved Plus Project condition. No operational deficiency or impact is expected at this driveway once the traffic signal is installed in the Buildout Approved Plus Project condition when and if Jeffrey Road is extended to SR-241. Therefore, MM-TRA-4, Traffic Signal Installation (refer to Section 4.16.5), is recommended.

- **Jeffrey Road/"B" Street.** Under Buildout Approved Plus Project conditions, the southbound Jeffrey Road left-turn volumes into the project site via this unsignalized driveway would be 1 vehicle during the AM peak hour and 3 vehicles during the PM peak hour. The conflicting volumes for left-turn-in access would be 279 vehicles during the AM peak hour and 817 vehicles during the PM peak hour for the Buildout Approved Plus Project condition. Based on TDP-3, the volumes would be below the point representing the left-turn-in volume and the conflicting volumes. Therefore, the TDP-3 criteria for left-turn-in access would be satisfied for this project driveway. Under Buildout Approved Plus Project conditions, the left-turn volumes out of the project site via this unsignalized driveway would be 115 vehicles during the AM peak hour and 72 vehicles during the PM peak hour. The conflicting volumes for left-turn-out access would be 1,226 vehicles during the AM peak hour and 954 vehicles during the PM peak hour for the Buildout Approved Plus Project condition. Based on TDP-3, the volumes would be above the point representing the left-turn out volume and the conflicting volumes. Therefore, the TDP-3 criteria for left-turn out access would not be satisfied for this project driveway. The HCM methodology (NAS and TRB 2022) and Synchro software were used to evaluate this project driveway, and a stop control was considered. With consideration of one stop sign installed on "B" Street (one-way stop controlled), the HCM results (provided in Appendix I) show that the AM and PM peak-hour LOS at this location would be a satisfactory LOS C in the Buildout Approved Plus Project condition. Therefore, even though left-turn-out access at "B" Street would not meet the TDP-3 criteria, no operational deficiencies are expected at this unsignalized driveway or adjacent public roadways, and the intent of TDP-3 would be met.
- **Jeffrey Road/"C" Street.** Under Buildout Approved Plus Project conditions, the southbound Jeffrey Road left-turn volumes into the project site via this unsignalized driveway would be 1 vehicle during the AM peak hour and 3 vehicles during the PM peak hour. The conflicting volumes for left-turn-in access would be 246 vehicles during the AM peak hour and 699 vehicles during the PM peak hour for the Buildout Approved Plus Project condition. Based on TDP-3, the volumes would be below the point representing the left-turn-in volume and the conflicting volumes. Therefore, the TDP-3 criteria for left-turn-in access would be satisfied for this project driveway. Under Buildout Approved Plus Project conditions, the left-turn volumes out of the project site via this unsignalized driveway would be 127 vehicles during the AM peak hour and 116 vehicles during the PM peak hour. The conflicting volumes for left-turn-out access would be 1,047 vehicles during the AM peak hour and 724 vehicles during the PM peak hour for the Buildout Approved Plus Project condition. Based on TDP-3, the volumes would be above the point representing the left-turn-out volume and the conflicting volumes. Therefore, the TDP-3 criteria for left-turn-out access would not be satisfied for this project driveway. The HCM methodology (NAS and TRB 2022) and Synchro software were used to evaluate this project driveway, and a stop control was considered. With a consideration of one stop sign installed on "C" Street (one-way stop controlled), the HCM results (provided in Appendix I) show that the AM and PM peak-hour LOS at this location would be a satisfactory LOS C in the Buildout Approved Plus Project condition. Therefore, even though left-turn-out access at C Street would not meet the TDP-3 criteria, no operational deficiencies are expected at this unsignalized driveway or adjacent public roadways, and the intent of TDP-3 would be met.

TDP-4: Right-Turn Lanes at Uncontrolled Driveways

- **Jeffrey Road/"A" Street.** As described in the TDP-3 subsection above, and later in the TDP-12 subsection, the intersection of Jeffrey Road and "A" Street is recommended as a signalized intersection. The northbound right-turn volumes on Jeffrey Road at "A" Street would be 77 vehicles

during the AM peak hour and 275 vehicles during the PM peak hour under Buildout Approved Plus Project conditions. A de-facto right-turn lane would be provided at this location, along with signalization of the intersection in the Buildout Approved Plus Project condition. This signalized location is not subject to the TDP-4 criteria.

- **Jeffrey Road/"B" Street.** The northbound right-turn volumes on Jeffrey Road at "B" Street would be 36 vehicles during the AM peak hour and 120 vehicles during the PM peak hour under Buildout Approved Plus Project conditions. Jeffrey Road north of Portola Parkway is classified as a Primary facility. Expected project traffic volumes would be more than the 100 vehicles per hour that is the trigger for recommendation of a right-turn lane for Primary Highways per TDP-4; therefore, a dedicated right-turn lane would be required at this project driveway. As previously stated, a de-facto right-turn lane would be provided at this location. This additional roadway capacity would adequately accommodate the queueing that may be expected from these northbound right turns on Jeffrey Road, resulting in minimal adverse effects to the operation of Jeffrey Road. Therefore, the proposed condition would meet the intent of TDP-4 for the Buildout Approved Plus Project condition.
- **Jeffrey Road/"C" Street.** The northbound right-turn volumes on Jeffrey Road at "C" Street would be 77 vehicles during the AM peak hour and 119 vehicles during the PM peak hour under Buildout Approved Plus Project conditions. Jeffrey Road north of Portola Parkway is classified as a Primary facility. Expected project traffic volumes would be more than the 100 vehicles per hour that is the trigger for recommendation of a right-turn lane for Primary Highways per TDP-4; therefore, a dedicated right-turn lane would be required at this project driveway. As previously stated, a de-facto right-turn lane would be provided at this location. This additional roadway capacity would adequately accommodate the queueing that may be expected from these northbound right turns on Jeffrey Road, resulting in minimal adverse effects to the operation of Jeffrey Road. Therefore, the proposed condition would meet the intent of TDP-4 for the Buildout Approved Plus Project condition.
- **"E" Street/Portola Parkway.** "E" Street is an unsignalized right-in/right-out driveway on Portola Parkway. The westbound right-turn volumes on Portola Parkway at "E" Street would be 30 vehicles during the AM peak hour and 76 vehicles during the PM peak hour under Buildout Approved Plus Project conditions. Portola Parkway east of Jeffrey Road is a Primary facility. Expected project traffic volumes would be less than the 100 vehicles per hour that is the trigger for recommendation of a right-turn lane for Primary Highways per TDP-4; therefore, a dedicated right-turn lane would not be required at this project driveway. Although it is not required, the proposed project would include the provision of a 300-foot-long dedicated westbound right-turn lane with a 145-foot taper at "E" Street on Portola Parkway

TDP-10: Distance Between Driveways and Intersections

TDP-10 states that the recommended minimum spacing between a driveway and an intersection, or between two driveways, is 230 feet for a Primary Highway (e.g., Portola Parkway east of Jeffrey Road and Jeffrey Road north of Portola Parkway).

- **Jeffrey Road/"A" Street.** "A" Street on Jeffrey Road is approximately 860 feet north of the signalized intersection of Jeffrey Road and Portola Parkway. This driveway is approximately 1,120 feet south of a driveway on the same side of the street and approximately 520 feet north of a driveway on the opposite side of the street. As such, the TDP-10 criteria are met for this project driveway.

- **Jeffrey Road/"B" Street.** "B" Street on Jeffrey Road is approximately 750 feet south and 1,120 feet north of driveways on the same side of the street. As such, the TDP-10 criteria are met for this project driveway.
- **Jeffrey Road/"C" Street.** "C" Street on Jeffrey Road is approximately 750 feet north of a driveway on the same side of the street. As such, the TDP-10 criteria are met for this project driveway.
- **"E" Street/Portola Parkway.** "E" Street (the right-in/right-out driveway) is located on Portola Parkway, which has a raised median, and this driveway does not have adjacent driveways on the same or the opposite side of the street. "E" Street is approximately 1,030 feet east of the signalized intersection of Jeffrey Road/Portola Parkway and approximately 870 feet west of the signalized intersection of Bee Canyon Access Road/Portola Parkway. As such, the TDP-10 criteria are met for this project driveway.

TDP-12: Traffic Signal Warrant

Traffic signals would be warranted at "A," "B," and "C" Streets along Jeffrey Road under the Buildout Approved Plus Project condition, per TDP-12 (FHWA 2023, Section 4C.04). Although traffic signals would be warranted at all three driveway locations on Jeffrey Road, a traffic signal is only recommended at "A" Street under the Buildout Approved Plus Project condition for the following reasons:

- Considering the TDP-3 analysis results for the Buildout Approved Plus Project condition, a traffic signal at "A" Street would be recommended to provide safe and efficient operation at this location, particularly related to left-turn in/out access. Regarding "B" and "C" Streets, these intersections would operate at a satisfactory LOS C with a one-way stop control installed on the project driveways ("B" and "C" Streets).
- An internal driveway ("D" Street), as shown on Figure 3-5, Conceptual Site Plan, provides internal connection for all driveways intersecting with Jeffrey Road or Portola Parkway. It allows residents living adjacent to "B" and "C" Streets to access Jeffrey Road via "A" Street, where a traffic signal is warranted and recommended.
- Additionally, a traffic signal is provided at the intersection of Jeffrey Road and Portola Parkway. The distance between Jeffrey Road/Portola Parkway and "A," "B," and "C" Streets is relatively short, ranging from approximately 750 feet to approximately 1,120 feet. Multiple traffic signals on such a short segment of Jeffrey Road would potentially result in an unnecessary breakdown in traffic flow.

TDP-14: Driveway Lengths

Per TDP-14, the minimum signalized driveway length should be 75 feet and should increase at a rate of 1 foot of storage per peak-hour vehicle (in 25-foot increments) and the minimum unsignalized driveway length should be 25 feet and should increase at a rate of 1 foot of storage per peak-hour vehicle (in 25-foot increments). The minimum requirements for driveway lengths per TDP-14 shall be incorporated into the project design, as summarized below:

- **Jeffrey Road/"A" Street. "**A" Street is recommended as a signalized full-access driveway on Jeffrey Road. Application of the minimum signalized driveway length criteria provided in TDP-14 to the Buildout Plus Project peak-hour inbound traffic volumes results in a recommended driveway length of 350 feet for the 79 vehicles or 281 vehicles entering "A" Street from Jeffrey Road during the AM peak hour or the PM peak hour, respectively.

- **Jeffrey Road/"B" Street.** This is an unsignalized driveway proposed by this project on Jeffrey Road. Application of the minimum unsignalized driveway length criteria provided in TDP-14 to the Buildout Plus Project peak-hour inbound traffic volumes results in a recommended driveway length of 125 feet for the 37 vehicles or 123 vehicles entering "B" Street from Jeffrey Road during the AM peak hour or the PM peak hour, respectively.
- **Jeffrey Road/"C" Street.** This is an unsignalized driveway proposed by this project on Jeffrey Road. Application of the minimum unsignalized driveway length criteria provided in TDP-14 to the Buildout Plus Project peak-hour inbound traffic volumes results in a recommended driveway length of 125 feet for the 78 vehicles or 122 vehicles entering "C" Street from Jeffrey Road during the AM peak hour or the PM peak hour, respectively.
- **"E" Street/Portola Parkway.** This is an unsignalized right-in/right-out driveway proposed by this project on Portola Parkway. Application of the minimum unsignalized driveway length criteria provided in TDP-14 to the Buildout Plus Project peak-hour inbound traffic volumes results in a recommended driveway length of 100 feet for the 30 vehicles or 76 vehicles entering "E" Street from Portola Parkway during the AM peak hour or the PM peak hour, respectively.

Summary

Based on the findings above, no impacts relating to hazards due to a geometric design feature or incompatible uses were identified using the design guidelines TDP-1: Turn lane pocket lengths, TDP-4: Right-turn lanes at uncontrolled driveways, TDP-10: Distance between driveways and intersections, and TDP-14: Driveway lengths.

Under this scenario, a traffic signal would be warranted and recommended at "A" Street on Jeffrey Road (MM-TRA-4; refer to Section 4.16.5 for the text of this mitigation measure) to satisfy both the TDP-3 and TDP-12 criteria, if and when Jeffrey Road is extended north to SR-241. This is based on several factors, including the distance between driveways, the peak-hour traffic volumes primarily at "A" Street, and the internal circulation (i.e., "D" Street) that would allow project vehicles to access the proposed signal at "A" Street. In addition to a four-lane Primary facility for Jeffrey Road, a northbound de-facto right-turn lane is provided at "A," "B," and "C" Streets on Jeffrey Road to satisfy the TDP-4 criteria. With implementation of MM-TRA-4, the project would result in a less-than-significant impact with mitigation incorporated relating to substantially increasing hazards due to a geometric design feature such as a dangerous intersection.

4. Would the project result in inadequate emergency access?

Less-Than-Significant Impact. The project site is located in an established, developed area with sufficient access for emergency service providers. All project access points would be designed according to the City's applicable design standards to ensure adequate access to the project site, including access for emergency vehicles and adequate turning radii, is provided. The internal drive aisles and loading and parking areas would be designed to comply with the City's width and clearance requirements, as well as the turning-radius requirements of the Orange County Fire Authority, which were established to ensure safe and efficient vehicular circulation. Because the project would comply with all applicable local requirements related to emergency vehicle access and circulation, the project would not result in inadequate emergency access. Therefore, operational impacts associated with inadequate emergency access would be less than significant.

Summary of Impacts

As analyzed in Section 4.16.4(2), the proposed project would result in a significant VMT impact that is unavoidable and cannot be mitigated. As analyzed in Section 4.16.4(3), under the Buildout Approved scenario, the project would result in a potentially significant impact, absent mitigation, on access at the unsignalized intersection at "A" Street and Jeffrey Road. All other impacts analyzed would be less than significant or would not occur.

4.16.5 Mitigation Measures

Implementation of the following mitigation measures would address potentially significant impacts identified in the analysis in Section 4.16.4:

MM-TRA-1 Affordable and Below Market Rate Housing. The project shall include affordable and below market housing integrated into the design. Individuals living in affordable multifamily housing have lower rates of car ownership and higher rates of other transportation modes, such as transit, bicycling, and walking.

MM-TRA-2 Pedestrian Network Improvement. The project shall include pedestrian network improvements. Providing sidewalks and an enhanced pedestrian network encourages people to walk instead of drive, and this mode shift results in a reduction in vehicle miles traveled.

MM-TRA-3 Expanded Bikeway Network. The project shall include expansion of the bikeway network. Providing bike lanes and an enhanced bikeway network can increase access to and from transit hubs. This encourages a mode shift from vehicles to bicycles and displaces vehicle miles travel.

MM-TRA-4 Traffic Signal Installation. The project shall include a traffic signal at "A" Street on Jeffrey Road if and when the extension of Jeffrey Road to SR-241 is built, to satisfy both TDP-3 and TDP-12 criteria in the Buildout Approved Plus Project condition.

4.16.6 Level of Significance After Mitigation

Even with implementation of MM-TRA-1 through MM-TRA-3, the proposed project would have a significant and unavoidable impact related to conflicts or inconsistencies with CEQA Guidelines Section 15064.3(b) due to increased VMT.

With implementation of MM-TRA-4, the project would have a less-than-significant impact related to potentially dangerous intersections.

The remaining impacts would be less than significant or would not occur; therefore, they do not require mitigation and would remain less than significant.

4.16.7 Cumulative Impacts

The proposed project is consistent with the Orange County CMP, the LRTP, the OC Foothills Bikeways Strategy, and the City's Circulation Element. Development in the area, including the proposed project and related projects, would be required to comply with applicable adopted policies, plans, or programs regarding public transit, roadway, bicycle, and pedestrian facilities. Due to the urbanized nature of the project area and existing access to transit

facilities, as well as required compliance with applicable plans and policies pertaining to transit, roadway, bicycle and pedestrian facilities, cumulative impacts related to potential conflicts with a program, plan, ordinance, or policy addressing the circulation system would be less than significant.

Based on the guidance provided in California Public Resources Code Section 21083(b)(2), and CEQA Guidelines Section 15064(h)(1), "A project's cumulative impacts are based on an assessment of whether the "incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects." In the context of VMT, when the VMT threshold is an efficiency-based threshold, the LCI Technical Advisory states, "[a] project that falls below an efficiency-based threshold that is aligned with long-term environmental goals and relevant plans would have no cumulative impact distinct from the project impact. Accordingly, a finding of a less than-significant project impact would imply a less than significant cumulative impact, and vice versa." (LCI 2018). Likewise, if a project results in a VMT increase when modeled under base year conditions, then the project would likely exhibit the same characteristics under future conditions. Therefore, given that the project's VMT impacts were determined to be significant and unavoidable, the project's cumulative VMT impacts are also assumed to be significant and unavoidable. Implementation of MM-TRA-1 through MM-TRA-3 would address the VMT impacts; however, impacts would remain significant and unavoidable.

A site access analysis, consistent with the City's TDPs, was conducted to assess the potential for increased hazards as a result of geometric design features of the project, and/or as a result of the addition of project traffic to adjacent roadways. Based on the findings above, no impacts to vehicle access for the Buildout Approved Baseline and Plus Project scenario were identified using the design guidelines TDP-1: Turn lane pocket lengths, TDP-4: Right-turn lanes at uncontrolled driveways, TDP-10: Distance between driveways and intersections, and TDP-14: Driveway lengths.

Under this scenario, a traffic signal would be warranted and recommended at "A" Street on Jeffrey Road (MM-TRA-4) to satisfy both the TDP-3 and TDP-12 criteria, if and when Jeffrey Road is extended north to SR-241. This is based on several factors, including the distance between driveways, the peak-hour traffic volumes, primarily at "A" Street, and the internal circulation (i.e., "D" Street) that would allow project vehicles to access the proposed signal at Jeffrey Road/"A" Street. In addition to a four-lane Primary facility for Jeffrey Road, a northbound de-facto right-turn lane is provided at "A," "B," and "C" Streets on Jeffrey Road to satisfy the TDP-4 criteria. With implementation of MM-TRA-4, the project would result in a less-than-significant impact relating to substantially increasing hazards due to a geometric design feature such as a dangerous intersection.

All cumulative projects would be designed with adequate emergency access and the project would not impede emergency access; under cumulative conditions, the same impact would be assumed. Therefore, cumulative emergency access impacts would be less than significant.

4.16.8 References

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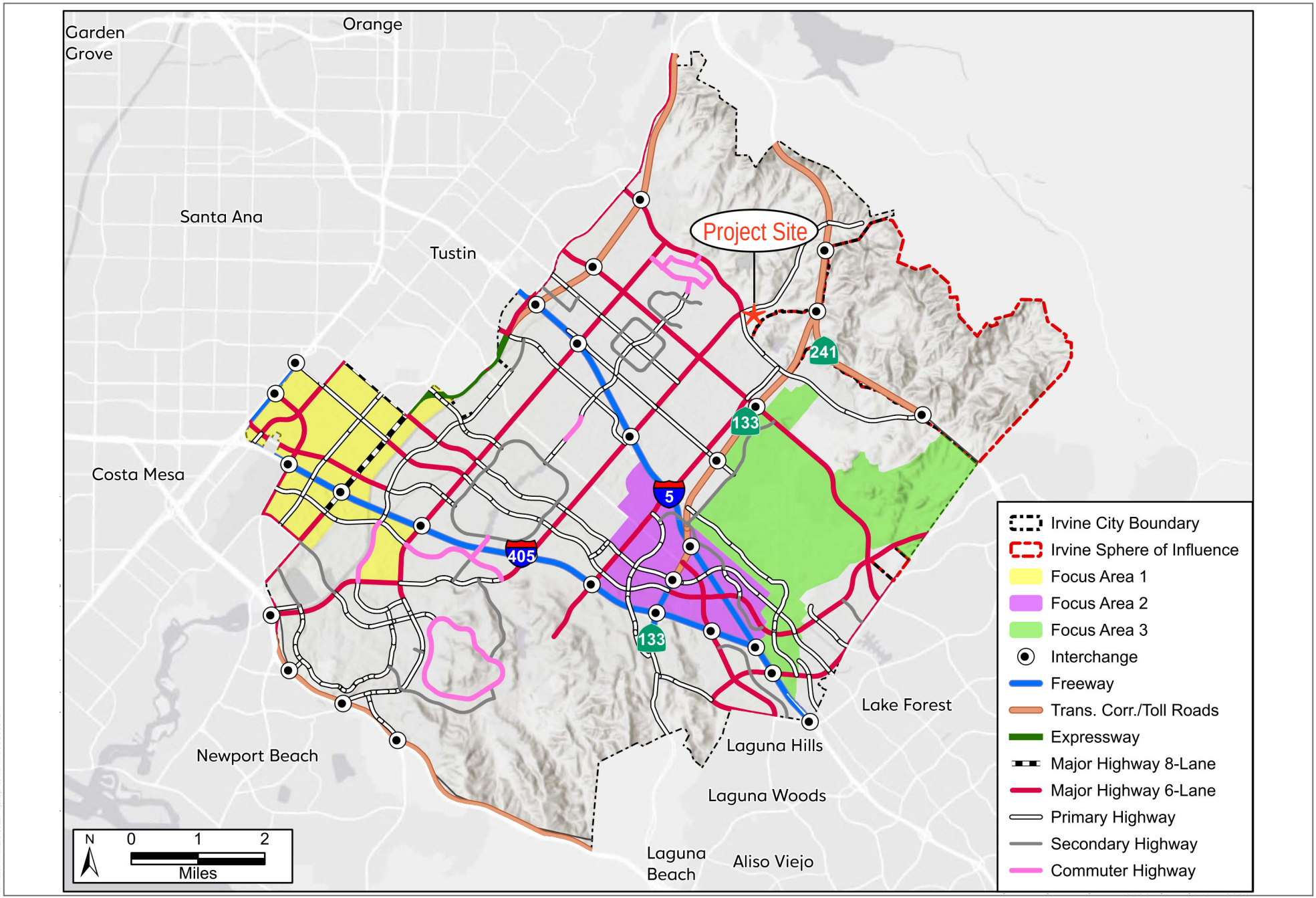
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SOURCE: Orange County 2023; City of Irvine 2023.

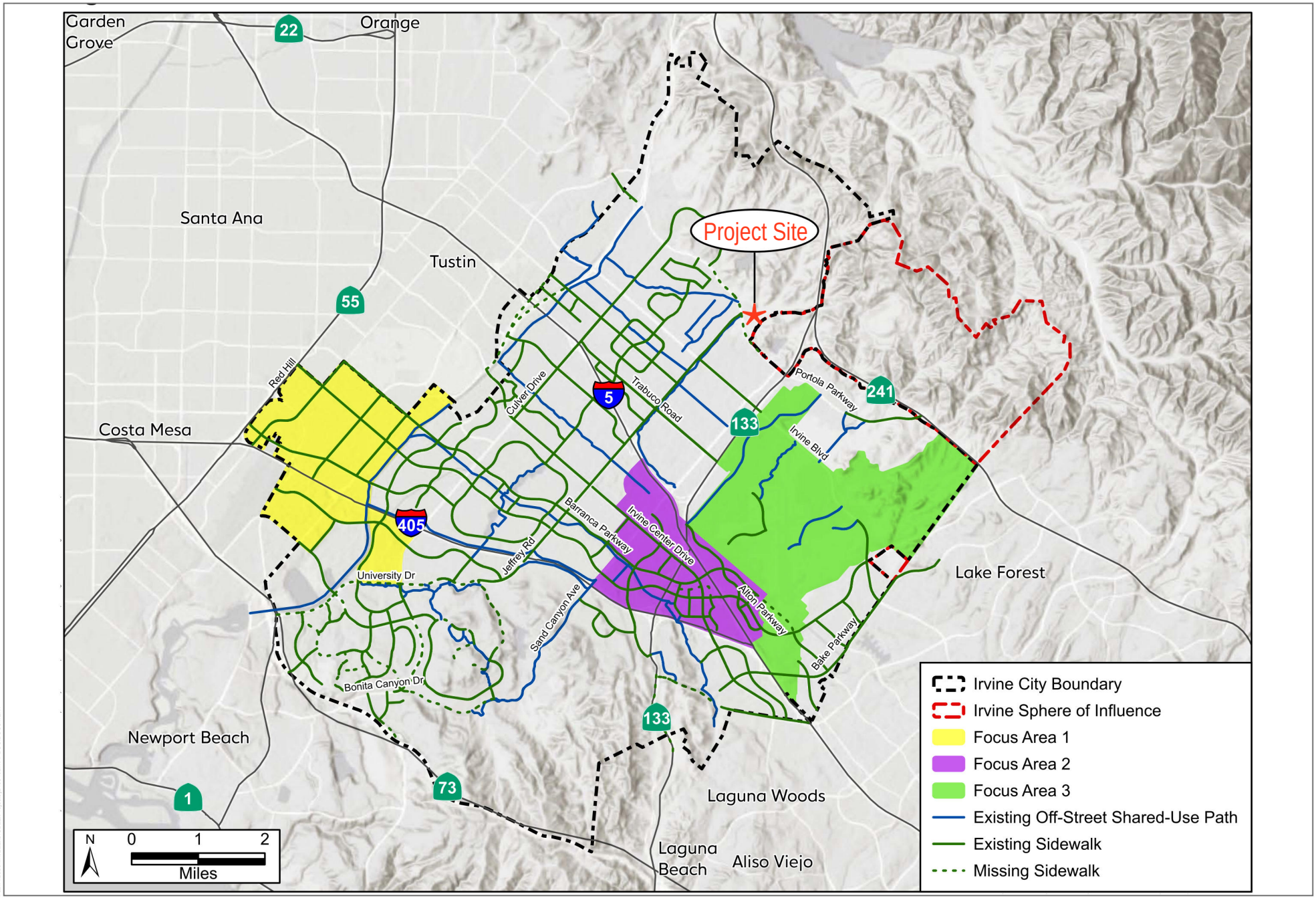
FIGURE 4.16-1

City of Irvine Master Plan of Highways

Irvine Gateway Village Project EIR

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SOURCE: Orange County 2023; City of Irvine 2023.

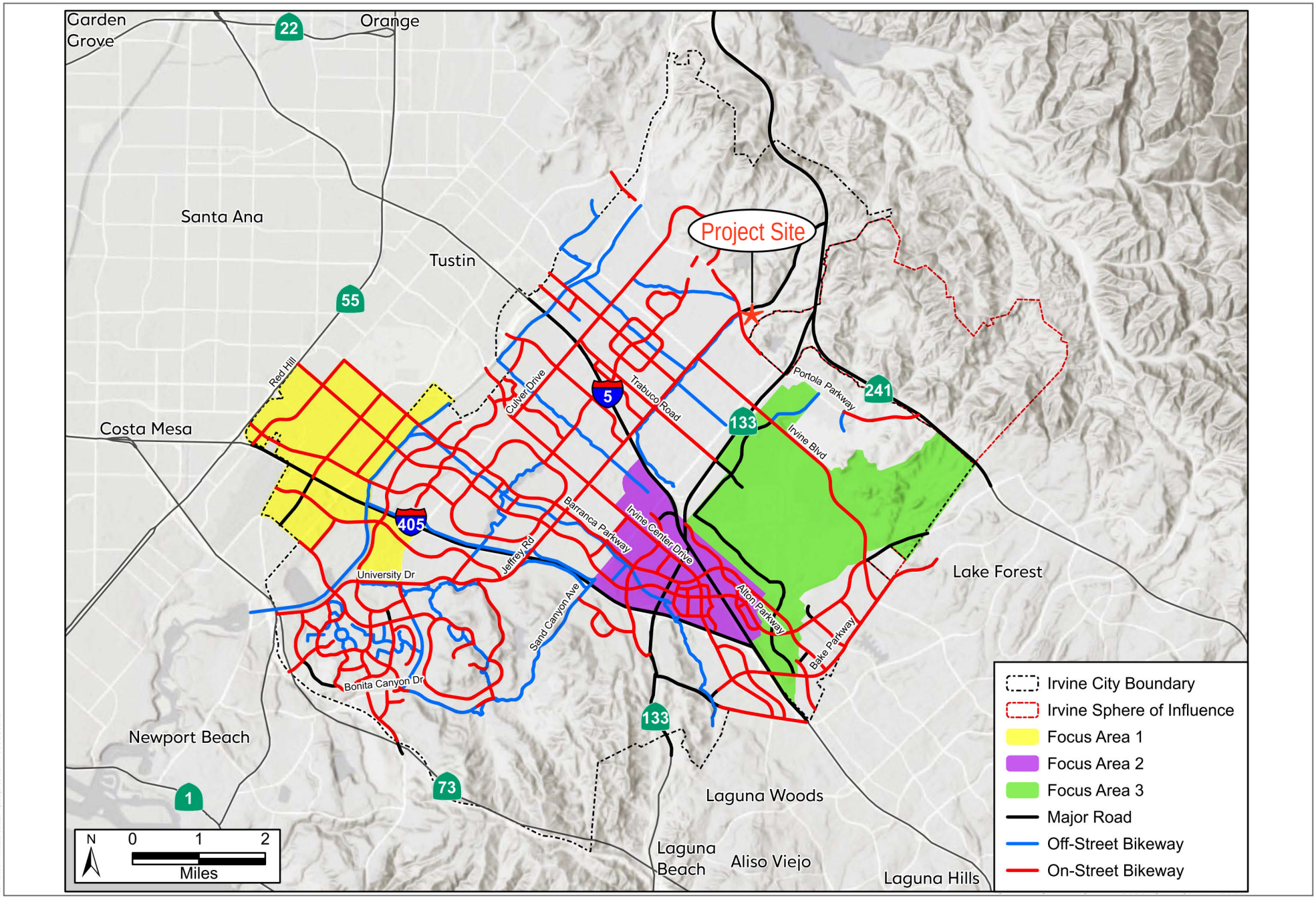
FIGURE 4.16-2

City of Irvine Pedestrian Facilities

Irvine Gateway Village Project EIR

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SOURCE: Orange County 2023; City of Irvine 2023.

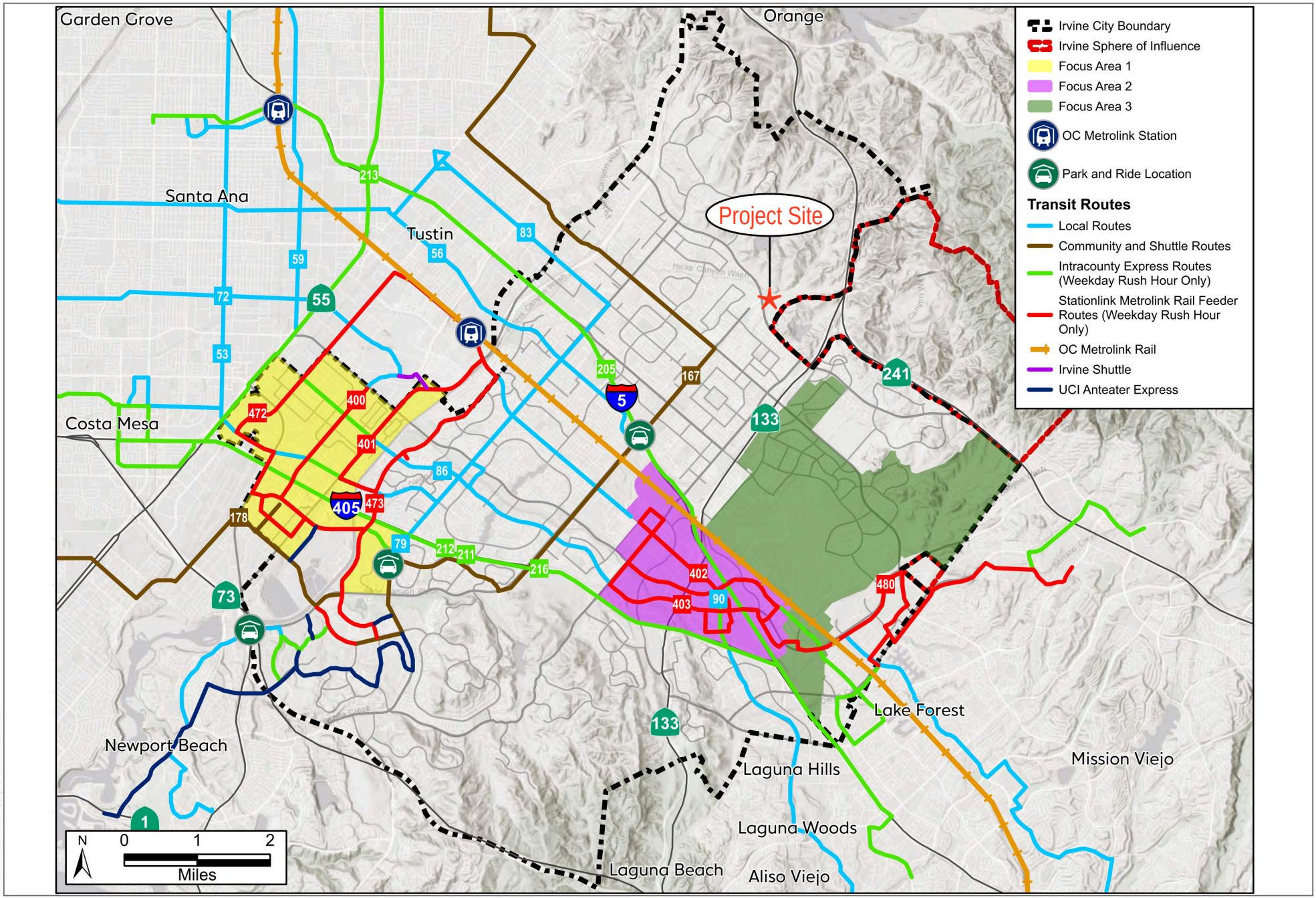
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FIGURE 4.16-3

City of Irvine Bicycle Facilities

Irvine Gateway Village Project EIR

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SOURCE: Orange County 2023; City of Irvine 2023.

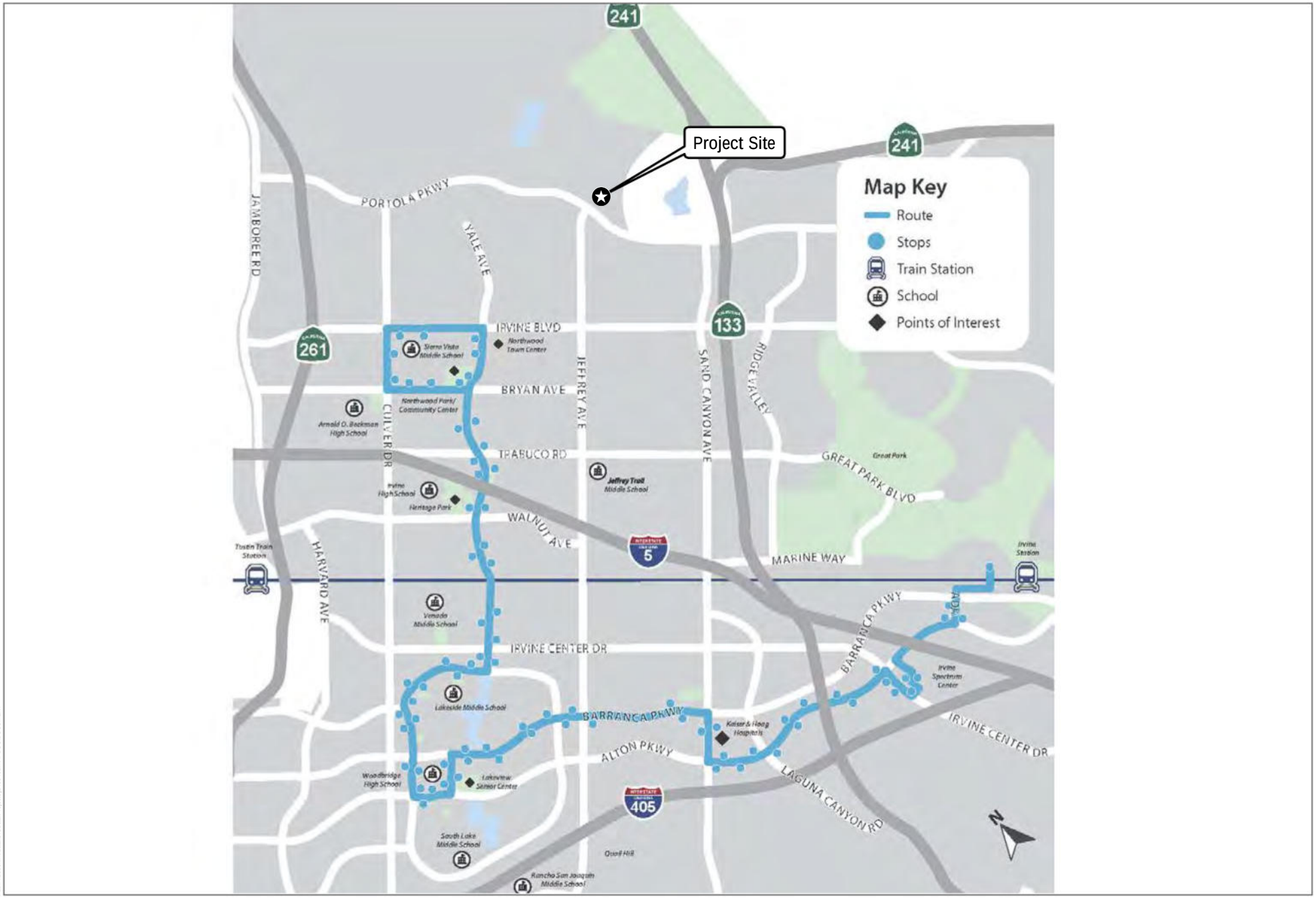
FIGURE 4.16-4

City of Irvine Transit Services

Irvine Gateway Village Project EIR

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SOURCE: Orange County 2023; City of Irvine 2023.

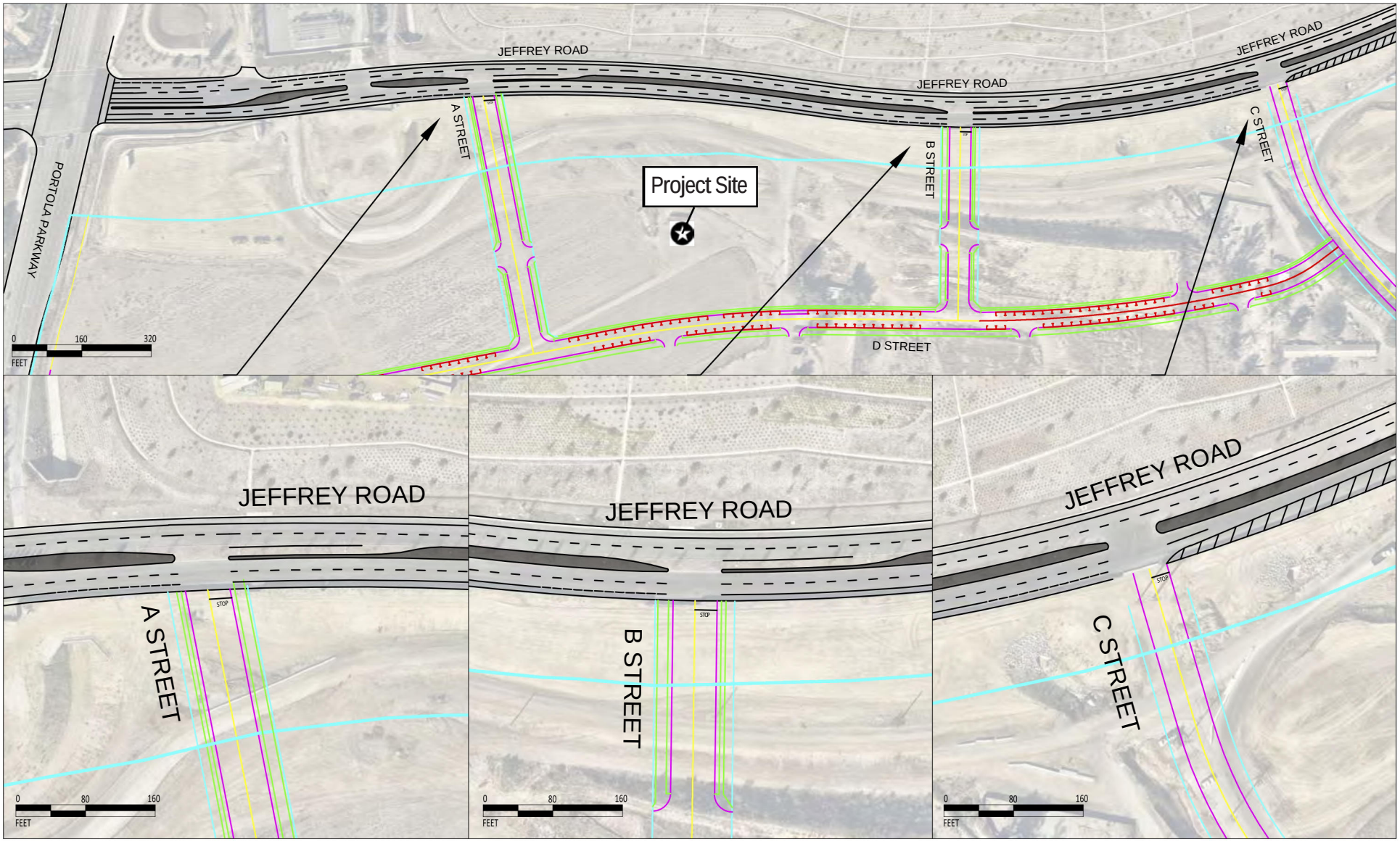
FIGURE 4.16-5

Irvine CONNECT Transit Route

Irvine Gateway Village Project EIR

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SOURCE: LSA 2025

FIGURE 4.16-6

Jeffrey Road Configuration - Existing + Project Condition

Irvine Gateway Village Project EIR

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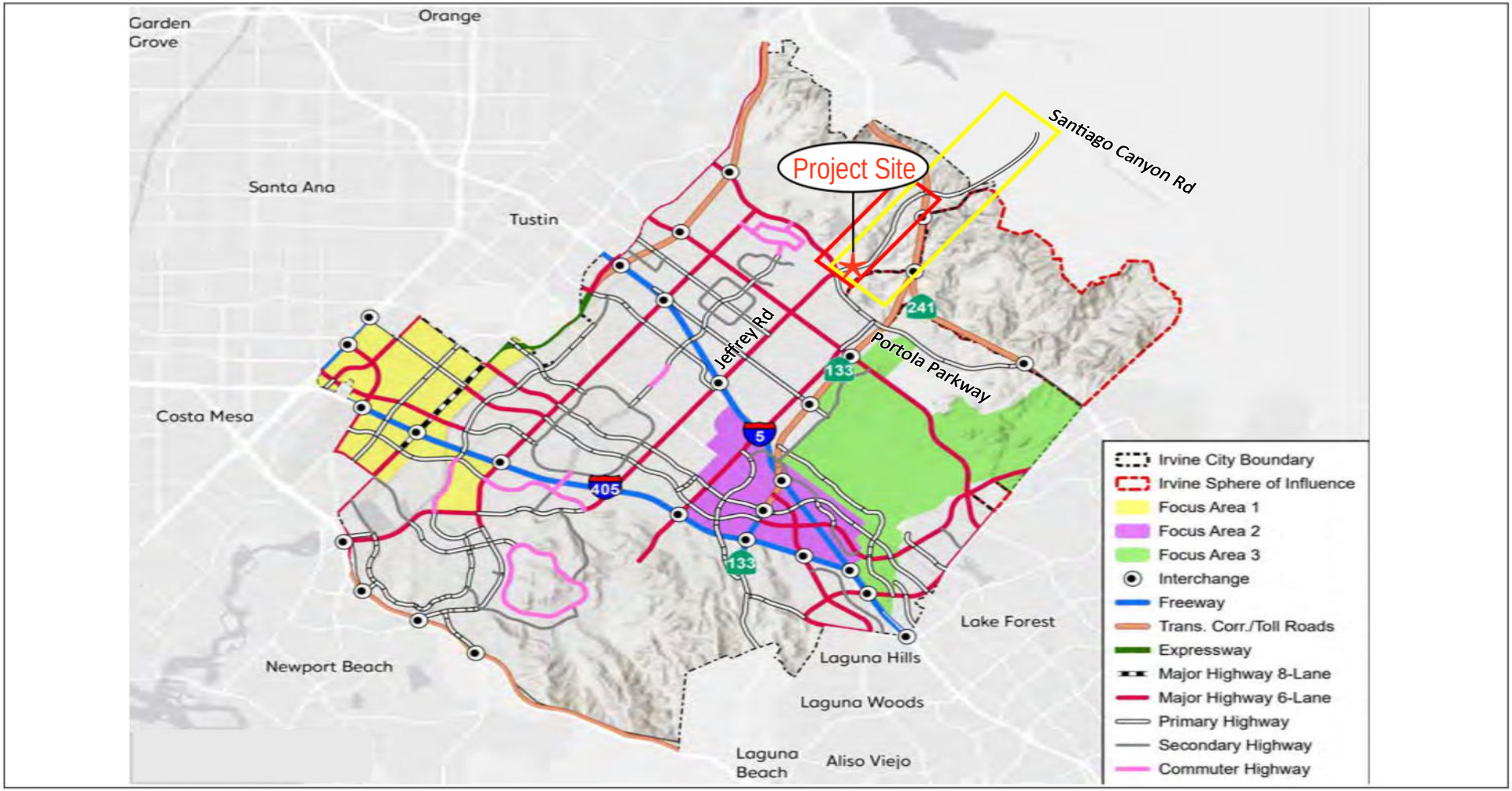


FIGURE 35

LEGEND

Jeffrey Road Extension (from Portola Parkway to SR-241) in the Buildout Approved Plus Project condition.

Jeffrey Road Extension (from Portola Parkway to Santiago Canyon Road) in the Buildout Approved Plus Project condition.

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MILES

SOURCE: 2045 Irvine General Plan (2024)

I:\2023\20231340\G\Jeffrey_Extension.ai (12/23/2024)

Irvine Gateway Village

Jeffrey Road Extension Location

SOURCE: 2045 Irvine General Plan, 2024

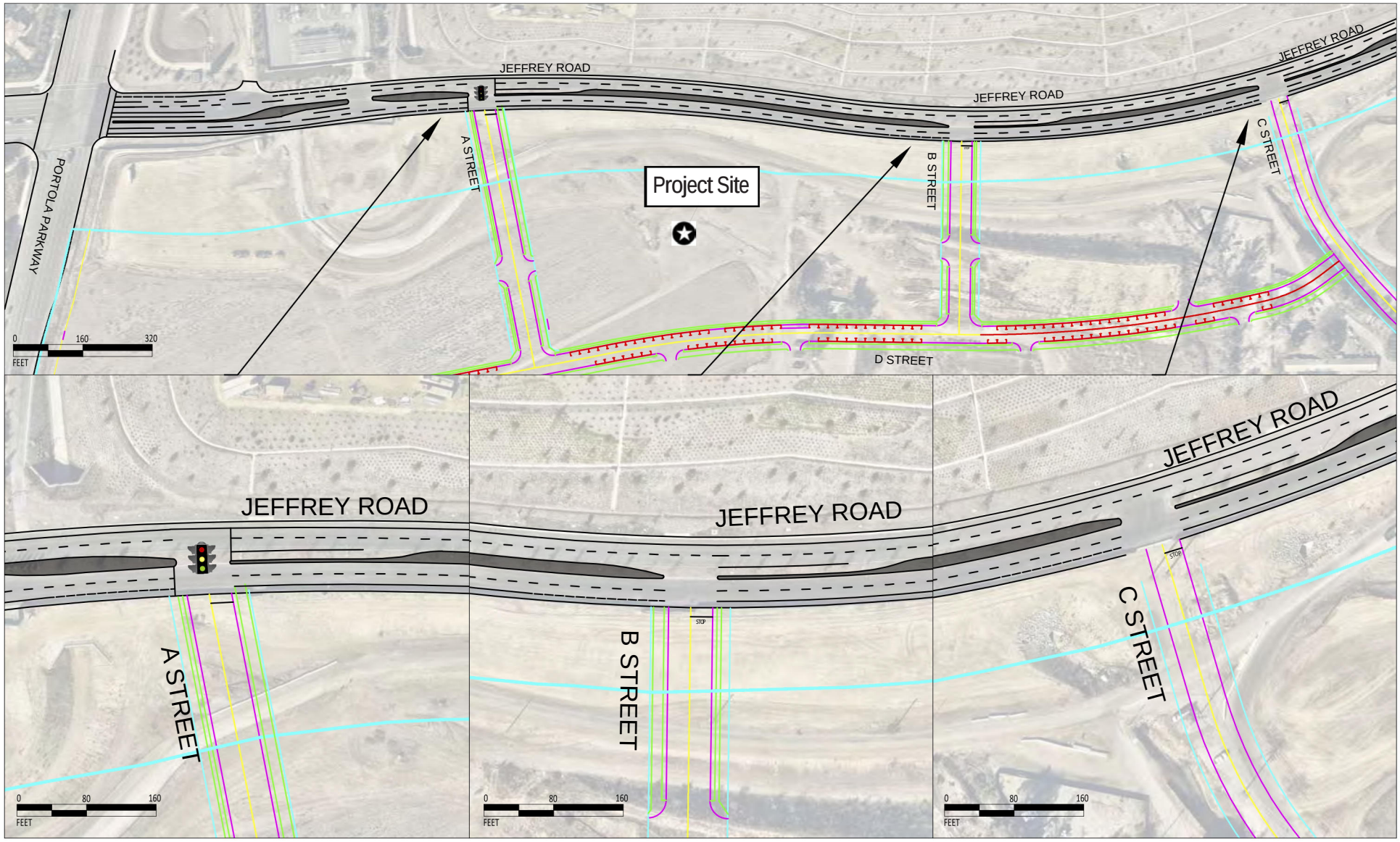
FIGURE 4.16-7

Jeffrey Road Extension Location

Irvine Gateway Village Project EIR

DUDEK

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SOURCE: LSA 2025

FIGURE 4.16-8

Jeffrey Road Configuration - Buildout Approved + Project Condition

Irvine Gateway Village Project EIR

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4.17 Tribal Cultural Resources

This section describes the existing tribal cultural resources (TCRs) conditions of the project site and vicinity, identifies associated regulatory requirements, evaluates potential impacts, and identifies mitigation measures related to implementation of the proposed project. In addition to the documents listed in Section 4.17.8, References, information presented in this section is based on the following:

- **Appendix D:** Cultural Resources Inventory and Evaluation Report, Irvine Gateway Project, City of Irvine, California (Cultural Resources Report); prepared by Dudek; dated March 2025

4.17.1 Existing Conditions

The project site is located at the northeast corner of Portola Parkway and Jeffrey Road and is bounded by Portola Parkway to the south, Jeffrey Road/Hicks Haul Road to the west, and Bee Canyon Access Road to the east. Hicks Canyon Wash is the project site's northern boundary. The project site consists primarily of active agricultural fields, with equipment storage and laydown areas in the northern portion of the site. Adjacent land uses include agricultural (Irvine Ranch Conservancy Native Seed Farm) and industrial (the closed All American Asphalt plant) to the north and residential development to the south and west. The project site is located in a Very High Fire Hazard Severity Zone (CAL FIRE 2025). The cultural study area includes the project site and a 0.5-mile radius around the project site and is referred to herein as the area of potential impacts (API).

Environmental Setting

Prehistoric Setting

Evidence for continuous human occupation in Southern California spans the last 10,000 years. Various attempts to parse out variability in archaeological assemblages over this broad period have led to the development of several cultural chronologies; some of these are based on geologic time, most are based on temporal trends in archaeological assemblages, and others are interpretive reconstructions. To be more inclusive, this research employs a common set of generalized terms used to describe chronological trends in assemblage composition: Paleoindian (pre-5500 BC), Archaic (8000 BC–AD 500), Late Prehistoric (AD 500–1769), and Ethnohistoric (post-AD 1769). See Appendix D, Cultural Resources Inventory and Evaluation, to this Draft EIR for more information.

Ethnohistoric Context

The history of the Native American communities prior to the mid-1700s has largely been reconstructed through later mission-period and early ethnographic accounts. The first records of the Native American inhabitants of the region come predominantly from European merchants, missionaries, military personnel, and explorers. These brief, and generally peripheral, accounts were prepared with the intent of furthering respective colonial and economic aims and were combined with observations of the landscape. They were not intended to be unbiased accounts regarding the cultural structures and community practices of the newly encountered cultural groups. The establishment of the missions in the region brought more extensive documentation of Native American communities, though these groups did not become the focus of formal and in-depth ethnographic study until the early twentieth century (Bean and Shipek 1978; Boscana 1846; Fages 1937; Geiger and Meighan 1976; Harrington 1934; Laylander 2000; White 1963). The principal intent of these researchers was to record the pre-contact culturally specific practices, ideologies, and languages that had survived the destabilizing effects of missionization

and colonialism. This research, often understood as "salvage ethnography," was driven by the understanding that traditional knowledge was being lost due to the impacts of modernization and cultural assimilation. Alfred Kroeber applied his "memory culture" approach (Lightfoot 2005) by recording languages and oral histories within the region. Ethnographic research by Dubois, Kroeber, Harrington, Spier, and others during the early twentieth century seemed to indicate that traditional cultural practices and beliefs survived among local Native American communities.

It is important to note that even though there were many informants for these early ethnographies who were able to provide information from personal experiences about Native American life before European immigration, a significantly large proportion of these informants were born after 1850; therefore, the documentation of pre-contact aboriginal culture was being increasingly supplied by individuals born in California after considerable contact with Europeans. This is an important issue to note when examining these ethnographies, because considerable culture change had undoubtedly occurred by 1850 among the Native American survivors in California.

Based on ethnographic information, it is believed that at least 88 different languages were spoken from Baja California Sur to the southern Oregon state border at the time of Spanish contact (Johnson and Lorenz 2006). The distribution of recorded Native American languages has been dispersed as a geographic mosaic across California through six primary language families (Golla 2007). Golla has contended that one can interpret the amount of variability within specific language groups as being associated with the relative "time depth" of the speaking populations (Golla 2007). A large amount of variation within the language of a group represents a greater time depth than a group's language with less internal diversity. One method that Golla has employed is drawing comparisons with historically documented changes in Germanic and Romantic language groups. Golla has observed that the "absolute chronology of the internal diversification within a language family" can be correlated with archaeological dates (2007). This type of interpretation is modeled on concepts of genetic drift and gene flows that are associated with migration and population isolation in the biological sciences.

The Native American inhabitants of the region would have generally spoken Luiseño–Juaneño (Acjachemen) and Gabrieleño (or Tongva) varieties of Takic, which may be assigned to the larger Uto–Aztecan family (Golla 2007). Golla has interpreted the amount of internal diversity within these language-speaking communities to reflect a time depth of approximately 2,000 years. Other researchers have contended that Takic may have diverged from Uto–Aztecan circa 2600 BC–AD 1, which was later followed by the diversification within the Takic-speaking tribes, occurring approximately 1500 BC–AD 1000 (Laylander 2010). The Luiseño–Juaneño (Acjachemen) and Gabrieleño (or Tongva) represent the descendants of local Late Prehistoric populations. They are generally considered to have migrated into the area from the Mojave Desert, possibly displacing the prehistoric ancestors of the Yuman-speaking Kumeyaay (Ipai Tipai) that lived to the south during Ethnohistoric times. The Luiseño–Juaneño shared boundaries with the Gabrieleño and Serrano to the west and northwest, the Cahuilla to the east, the Cupeño to the southeast, and the Kumeyaay to the south (Bean and Shipek 1978; Kroeber 1925). Southern Native American tribal groups of the San Diego and southern Imperial region have traditionally spoken Yuman languages, a subgroup of the Hokan Phylum.

The Uto–Aztecan inhabitants of the region were called Juaneño and Gabrieleño by the Franciscan friars who established the Missions San Juan Capistrano and San Gabriel Arcángel in the traditional territory of these two respective tribes. The project area is east of Aliso Creek, which is considered by Kroeber (1925) to be the ethnographic boundary marker between the Gabrieleño (or Tongva) (west of the Aliso Creek) and Juaneño (east of the Aliso Creek). A brief description of both ethnographic groups is provided in the following text.

The Gabrieleño may have numbered as many as 5,000 people during their peak in the pre-contact period; however, population estimates are difficult due to the gradual process of missionization (Kroeber 1925). The Gabrieleño territory included the Los Angeles Basin, the coast of Aliso Creek in Orange County to the south, Topanga Canyon

in the north, the four southern Channel Islands, and the watersheds of the Los Angeles, San Gabriel, and Santa Ana Rivers. At the time of European contact, the Gabrieleño were actively involved in trade using shell and beads as currency. The Gabrieleño produced pipes, ornaments, cooking implements, inlay work, and basketry. Dwellings were constructed of tule mats on a framework of poles, but size and shape have not been recorded (Kroeber 1925). Basketry and steatite vessels were used rather than ceramics until near the end of the mission period in the nineteenth century (Garcia et al. 2011).

The Juaneño, or Acjachemen, territory was bounded to the north by Aliso Creek, to the east by the crest of the Santa Ana Mountains, to the south by San Onofre Creek, and to the west by the Pacific Ocean (Kroeber 1925). Ethnographic, linguistic, and archaeological evidence indicates that the Juaneño and Luiseño are one cultural/tribal group. There is no existing record of the Juaneño population during the pre-contact period. Records indicated that approximately 1,300 individuals culturally affiliated with the Juaneño resided at Mission San Juan Capistrano in the year 1800 (Engelhardt 1922). The mission death register shows as many as 4,000 native burials in the mission cemetery (White 1963). It is clear that the arrival of the Spanish decimated Native peoples through disease and changed living conditions (Bean and Shipek 1978).

The tribes of the region were organized into patrilineal clans or bands, composed of 25–30 people, centered on a chief (Kroeber 1925). Each clan or band had its own territorial land or range where food and other resources were collected at different locations throughout the year (Sparkman 1908). The title of chief was heritable along family lines. Inter-band conflict was most common over trespassing. Sparkman observed that "when questioned as to when or how the land was divided and subdivided, the Indians say they cannot tell, that their fathers told them that it had always been thus" (1908). Place names were assigned to each territory, often reflecting common animals, plants, physical landmarks, or cosmological elements that were understood as being related to that location. Marriages were generally arranged by parents or guardians. Free and widowed women had the option to choose their partner. Polygamy occurred but was not common, often with a single man marrying a number of sisters and wives. Shamanism was a major component in tribal life. The physical body and its components were thought to be related to the power of an individual, and wastes such as fluids, hair, and nails were discarded with intent. People often carefully collected and buried hair once it was cut to avoid being affected negatively or controlled by someone who wishes them harm. Some locations and natural resources were of cultural significance. Springs and other water-related features were thought to be related to spirits. These resources, often a component of origin stories, had power that came with a variety of risks and properties to those who became affected. Puberty ceremonies for both boys and girls were complex and rigorous. Mourning ceremonies were similar throughout the region, generally involving cutting the hair, burning the deceased's clothes a year after death, and redistributing personal items to individuals outside of the immediate tribal group (Sparkman 1908; Kroeber 1925). The center of the Juaneño and Gabrieleño religion was *Chinigchinich*, the last of a series of heroic mythological figures. The heroes were originally from the stars and the sagas told of them formed the Juaneño religious beliefs. The most obvious expression of the religion was the *Wankech*, a brush-enclosed area where religious observances were performed. The *Wankech* contained an inner enclosure housing a representation of *Chinigchinich*, a coyote skin stuffed with feathers, claws, beaks, and arrows.

The staple food of the Native American inhabitants of this region during the Ethnohistoric period was acorns (Sparkman 1908). Of the six or more oak species (*Quercus* spp.) within this traditional territory, the most desirable of these was the black oak (*Quercus kelloggii*) because of its ease of processing, protein content, and digestibility. Acorns were stored in granaries to be removed and used as needed. The acorns were generally processed into flour using a mortar and pestle. The acorn meal was most commonly leached with hot water using a rush basket; however, there are also accounts of placing meal into excavated sand and gravel pits to allow the water to drain

naturally. The acorn meal was then prepared in a variety of ways, though often with the use of an earthen vessel (Sparkman 1908). Other edible and medicinal plants of common use included wild plums (*Prunus americana*), choke cherries (*Prunus virginiana*), Christmas berry (*Heteromeles arbutifolia*), gooseberry (*Ribes* spp.), elderberry (*Sambucus nigra*), willow (*Salix* spp.), *Juncus*, buckwheat (*Eriogonum fasciculatum*), lemonade berry (*Rhus integrifolia*), sugarbush (*Rhus ovata*), sagebrush (*Artemisia californica*), currants (*Ribes* spp.), wild grapes (*Vitis* spp.), prickly pear (*Opuntia* spp.), watercress (*Nasturtium officinale*), wild oats (*Avena* spp.), and other plants. More arid plants such as *Yucca, Agave*, mesquite (*Neltuma* spp., *Prosopis* spp.), chia (*Salvia columbariae*), bird-claw fern (*Pellaea mucronata*), *Datura*, yerba santa (*Eriodictyon* spp.), *Ephedra*, and cholla (*Cylindropuntia* spp.) were also of common use by some Juaneño and Gabrieleño populations. A number of mammals were commonly eaten. Game animals included black-tailed deer (*Odocoileus hemionus hemionus*), antelope (*Antilocapra americana*), rabbits (*Sylvilagus* spp.), hares (*Lepus* spp.), birds, ground squirrels (*Xerospermophilus* spp.), woodrats (*Neotoma* spp.), bears (*Ursus americanus*), mountain lions (*Puma concolor*), bobcats (*Lynx rufus*), coyotes (*Canis lupus*), and others. In lesser numbers, reptiles and amphibians may have been consumed. Fish and marine resources provided some portion of many tribal communities' diet, though most notably those nearest the coast. Shellfish would have been procured and transported inland from three primary environments, including the sandy open coast, bay and lagoon, and rocky open coast. The availability of these marine resources changed with the rising sea levels, siltation of lagoon and bay environments, changing climatic conditions, and intensity of use by humans and animals.

Areas or regions, identified by known physical landmarks, could be recognized as band-specific territories that might be violently defended. Other areas or resources, such as water sources and other locations that were rich in natural resources, were generally understood as communal land to be shared. The coastal Juaneño and Gabrieleño exchanged a number of local goods, such as seafood, coastal plants, and various types of shell, for items including acorns, agave, mesquite beans, gourds, and other more interior plants of use (Luomala 1978). Shellfish would have been procured from three primary environments, including the sandy open coast, bay and lagoon, and rocky open coast. The availability of these marine resources changed with the rising sea levels, siltation of lagoon and bay environments, changing climatic conditions, and intensity of use by humans and animals (Gallegos and Kyle 1988; Pigniolo 2005; Warren 1964). Shellfish from sandy environments included *Donax*, *Saxidomus*, *Tivela*, and others. Rocky coast shellfish dietary contributions consisted of *Pseudochama*, *Megastraea*, *Saxidomus*, *Protothaca*, *Megathura*, *Mytilus*, and others. Lastly, the bay environment would have provided *Argopecten*, *Chione*, *Ostrea*, *Neverita*, *Macoma*, *Tagelus*, and others. While marine resources were obviously consumed, terrestrial animals and other resources likely provided a large portion of sustenance.

A number of local plants were used for food and medicine. These were exploited seasonally, and were both traded between regional groups and gathered as a single triblet moved between habitation areas. Some of the more common of these that might have been procured locally, or as higher-elevation varieties, would have included buckwheat, *Agave*, *Yucca*, lemonade berry, sugarbush, sagebrush, yerba santa, sage (*Salvia* spp.), *Ephedra*, prickly pear, mulefat (*Baccharis salicifolia*), chamise (*Adenostoma fasciculatum*), elderberry, oak, willows, and *Juncus* grass, among many others (Wilken 2012).

Records Search

South Coastal Information Center Records Search Results

As described in Section 4.5, Cultural Resources, of this Draft EIR, a records search of the California Historical Resources Information System (CHRIS) was completed for the current project site and a 0.5-mile radius by Dudek at the South Coastal Information Center (SCCIC) on December 9, 2024. This CHRIS search included a review of their collection of mapped prehistoric, historical, and built-environment resources, California Department of Parks

and Recreation (DPR) 523 Series Forms (DPR site records), technical reports, historical maps, and local inventories. Additional consulted sources included the National Register of Historic Places (NRHP), California Inventory of Historical Resources/CRHR and listed Office of Historic Preservation Archaeological Determinations of Eligibility, California Points of Historical Interest, and California Historical Landmarks. The results of the records search are presented in Appendix D.

The SCCIC records search indicates that seven previously recorded cultural resources are located within a 0.5-mile radius of the API and one of these intersects the API. The overlapping resource, P-30-176748, or the Highline Canal, is characterized as a historic-era built environment resource and is addressed in Appendix D as Map ID 2. Of the seven resources within the 0.5-mile radius, four are prehistoric sites, two are historic-era built environment resources, and one is a multicomponent site containing both prehistoric and historic-era components (Appendix D).

Native American Heritage Commission and Tribal Correspondence

As described in Section 4.5 of this Draft EIR, a search of the Native American Heritage Commission (NAHC) Sacred Lands File for the project site was requested on August 9, 2024. The Sacred Lands File consists of a database of known Native American cultural resources. These resources may not be included in the SCCIC database. The NAHC replied via email on August 21, 2024, stating that the Sacred Lands File search was completed with negative results (no records were found). Additionally, the NAHC provided a list of Native American tribes and individuals/organizations with traditional geographic associations to the project site that might have knowledge of cultural resources in the area. Outreach letters to the Native American contacts provided by the NAHC were mailed to all Native American group representatives included on the NAHC contact list (Appendix D). Outreach letters for Assembly Bill (AB) 52 were mailed November 1, 2024, and letters for Senate Bill (SB) 18 were mailed November 5, 2024. These letters attempted to solicit additional information relating to Native American resources that may be impacted by the project. See Appendix B of Appendix D for complete documentation of Sacred Lands File search results.

The project is subject to compliance with AB 52 (California Public Resources Code [PRC], Section 21074) and SB 18 (Section 65351 of the California Government Code), which requires that the lead agency conduct Native American consultation. As mentioned above, the City sent letters to all tribes included on the previously referenced NAHC list notifying them of the project and inquiring whether the tribal representative sought consultation under AB 52 or SB 18. The letters contained the following information: a project description and location description, a request for input relative to tribal cultural resources in the area, an outline of timing relative to both the AB 52 and SB 18 process, an opportunity for consultation, and contact information for the appropriate tribal representative. To date, two responses have been received by the City. Table 4.17-1 summarizes the results of the AB 52 process for the project.

Table 4.17-1. AB 52 and SB 18 NAHC Listed Native American Contacts

Native American Tribal Representatives	Response Received
Andrew Salas, Chairperson, Gabrieleño Band of Mission Indians – Kizh Nation (Kizh Nation)	November 8, 2024 AB 52 letter sent by City to Tribe. November 8, 2024 SB 18 letter sent by City to Tribe. November 8, 2024 Email from Mr. Salas requesting consultation because the project is within their Ancestral Tribal Territory.

Table 4.17-1. AB 52 and SB 18 NAHC Listed Native American Contacts

Native American Tribal Representatives	Response Received
	February 13, 2025 Kizh Nation sent information about their Ancestral Tribal Territory and draft mitigation measures to the City to review and consider during consultation. **May 28, 2025** After review and consideration of the Kizh Nation information, the City responded to the Kizh Nation email with proposed standard conditions and mitigation measures for the Kizh Nation's consideration. **June 6, 2025** Kizh Nation sent correspondence disagreeing with the standard conditions and mitigation measures and provided revisions. **July 7, 2025** After review and consideration of Kizh Nation's suggested revisions, the City responded and provided clarification that the conditions and mitigation measures supplied were not novel in nature and have been used for past projects. **July 18, 2025** Kizh Nation sent correspondence requesting further clarification and a written explanation of the City's approach to the mitigation measures. **August 11, 2025** The City sent a letter to Kizh Nation providing the requested clarification and mitigation measures, and closed the consultation. **August 12, 2025** Kizh Nation sent correspondence objecting to the closing of consultation and requested that consultation remain open. **August 21, 2025** The City sent correspondence thanking the Tribe for their engagement throughout the process and confirmed that consultation had closed.
Shasta Gaughen, Tribal Historic Preservation Officer, Pala Band of Mission Indians	**November 8, 2024** AB 52 letter sent by City to Tribe. **November 8, 2024** SB 18 letter sent by City to Tribe. **November 26, 2024** Declined AB 52 consultation at this time. The project site is not within the tribal boundaries but it is within the boundaries that the Tribe considers its Traditional Use Area or in close proximity to the Reservation.
BobbyRay Esparza, Cultural Director, Cahuilla Band of Indians	No response.
Erica Schenk, Chairperson, Cahuilla Band of Indians	No response.
Anthony Madrigal, Tribal Historic Preservation Officer, Cahuilla Band of Indians	No response.

Table 4.17-1. AB 52 and SB 18 NAHC Listed Native American Contacts

Native American Tribal Representatives	Response Received
Christina Swindall Martinez, Secretary, Gabrieleño Band of Mission Indians – Kizh Nation	No response.
Anthony Morales, Chairperson, Gabrieleño/Tongva San Gabriel Band of Mission Indians	No response.
Robert Dorame, Chairperson, Gabrieleño Tongva Indians of California Council	No response.
Christina Conley, Cultural Resources Administrator, Gabrieleño Tongva Indians of California Tribal Council	No response.
Sandonne Goad, Chairperson, Gabrieleño/Tongva Nation	No response.
Sam Dunlap, Cultural Resource Director, Gabrieleño–Tongva Tribe	No response.
Charles Alvarez, Chairperson, Gabrieleño Tongva Tribe	No response.
Joyce Perry, Cultural Resource Director, Juaneño Band of Mission Indians Acjachemen Nation – Bellardes	No response.
Heidi Lucero, Chairperson, Tribal Historic Preservation Officer, Juaneño Band of Mission Indians Acjachemen Nation	No response.
Christopher Nejo, Legal Analyst/Researcher, Pala Band of Mission Indians	No response.
Alexis Wallick, Assistant Tribal Historic Preservation Office, Pala Band of Mission Indians	No response.
Steven Estrada, Tribal Chairman, Santa Rosa Band of Cahuilla Indians	No response.
Vanessa Minott, Tribal Administrator, Santa Rosa Band of Cahuilla Indians	No response.

Table 4.17-1. AB 52 and SB 18 NAHC Listed Native American Contacts

Native American Tribal Representatives	Response Received
Joseph Ontiveros, Tribal Historic Preservation Officer, Soboba Band of Luiseño Indians	No response.
Jessica Valdez, Cultural Resource Specialist, Soboba Band of Luiseño Indians	No response.

Notes: AB = Assembly Bill; SB = Senate Bill; NAHC = Native American Heritage Commission; City = City of Irvine.

Intensive Pedestrian Survey

Dudek cultural resources specialists Roshanne Bakhtiary and David Alexander conducted an intensive-level pedestrian survey of the API on January 21, 2025. The API consists of two pieces of land bisected by Bee Canyon Access Road, totaling an area of 109.88 acres. The topography is a mixture of flat landscape along the western portion of the API, a flat terrace in the central portion of the API, and hilly terrain throughout the eastern and southern portions of the API. Nearly the entire western half of the API is currently used for agricultural operations, while the northwestern and central portions of the API are in use as construction laydown and haul-out yards. While the majority (65%) of the API appears have been disturbed by development and grading, the eastern, southeastern, and southern portions of the API remain heavily vegetated and undeveloped.

4.17.2 Relevant Plans, Policies, and Ordinances

Federal

National Historic Preservation Act

The National Historic Preservation Act (16 USC 470 et seq.) establishes the federal policy for preservation of historical resources, including archaeological sites, and sets in place a program for the preservation of historic properties by requiring federal agencies to consider effects to significant cultural resources (e.g., historic properties) prior to any undertaking.

Section 106 of the National Historic Preservation Act requires federal agencies to take into account the effects of projects on historic properties (resources included in or eligible for the NRHP). It also gives the Advisory Council on Historic Preservation and the State Historic Preservation Officer an opportunity to consult.

Executive Order 11593, Protection and Enhancement of the Cultural Environment

Executive Order 11593 (36 FR 8921) (1) orders the protection and enhancement of the cultural environment by requiring federal agencies to administer cultural properties under their control in a spirit of stewardship and trusteeship for future generations; (2) initiates measures necessary to direct their policies, plans, and programs in such a way that federally owned sites, structures, and objects of historical, architectural, or archaeological significance are preserved, restored, and maintained for the inspiration and benefit of the people; and (3) in consultation with the Advisory Council on Historic Preservation, institutes procedures to assure that federal plans and programs contribute to the preservation and enhancement of non-federally owned sites, structures, and objects of historical, architectural, or archaeological significance (16 USC 470-1).

National Register of Historic Places

The NRHP is the nation's official list of historic places. The NRHP is overseen by the National Park Service and requires that a property or resource eligible for listing in the NRHP meet at least one of the following criteria at the national, state, or local level to ensure integrity and obtain official designation:

- The property is associated with events that made a significant contribution to the broad patterns of our history.
- The property is associated with the lives of persons significant to our past. Eligible properties based on this criterion are generally those associated with the productive life of the individual in the field in which the person achieved significance.
- The property embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic value, or represents a significant and distinguishable entity whose components lack individual distinction.
- The property has yielded, or is likely to yield, information important to prehistory or history.

In addition to meeting at least one of these four criteria, listed properties must also retain sufficient physical integrity of those features necessary to convey historical significance. The NRHP has identified the following seven aspects of integrity: (1) location, (2) design, (3) setting, (4) materials, (5) workmanship, (6) feeling, and (7) association.

Properties are nominated to the NRHP by the State Historic Preservation Officer, the federal preservation officer for properties under federal ownership or control, or the tribal preservation officer if on tribal lands. Listing in the NRHP provides formal recognition of a property's historic, architectural, or archaeological significance based on national standards used by every state. Once a property is listed in the NRHP, it becomes searchable in the NRHP database of research information. Documentation of a property's historic significance helps encourage preservation of the resource.

State

California Register of Historical Resources

Under the California Environmental Quality Act (CEQA), the term "historical resource" includes but is not limited to "any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California" (PRC Section 5020.1[j]). In 1992, the California legislature established the California Register of Historical Resources (CRHR) "to be used by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change" (PRC Section 5024.1[a]).

The CRHR protects cultural resources by requiring evaluations of the significance of prehistoric and historic resources. Properties listed or formally designated as eligible for listing on the NRHP are automatically listed on the CRHR, as are state landmarks and points of interest. The CRHR also includes properties designated under local ordinances or identified through local historical resource surveys. The State Historic Preservation Officer maintains the CRHR.

A resource is eligible for listing in the CRHR if the State Historical Resources Commission determines that it is a significant resource and that it meets any of the following NRHP criteria (PRC Section 5024.1[c]):

- Associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
- Associated with the lives of persons important in our past.
- Embodies 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.
- Has yielded, or may be likely to yield, information important in prehistory or history.

Resources less than 50 years old are generally not considered for listing in the CRHR but may be considered if it can be demonstrated that sufficient time has passed to understand the historical importance of the resource (14 CCR 4852[d][2]).

California Environmental Quality Act

As described further below, the following CEQA statutes and CEQA Guidelines are of relevance to the analysis of archaeological and historic resources:

1. PRC Section 21083.2(g): Defines "unique archaeological resource."
2. PRC Section 21084.1 and CEQA Guidelines Section 15064.5(a): Define historical resources. In addition, CEQA Guidelines Section 15064.5(b) defines the phrase "substantial adverse change in the significance of an historical resource"; it also defines the circumstances when a project would materially impair the significance of a historical resource.
3. PRC Section 5097.98 and CEQA Guidelines Section 15064.5(e) establish standards and steps to be employed following the accidental discovery of human remains in any location other than a dedicated ceremony.
4. PRC Sections 21083.2(b)–(c) and CEQA Guidelines Section 15126.4 establish the framework for mitigation related to archaeological and historic resources, including options of preservation-in-place mitigation measures. Preservation in place is the preferred manner of mitigating impacts to significant archaeological sites because it maintains the relationship between artifacts and the archaeological context and may also help avoid conflict with religious or cultural values of groups associated with the archaeological site(s).

Under CEQA, a project may have a significant effect on the environment if it may cause "a substantial adverse change in the significance of an historical resource" (PRC Section 21084.1; 14 CCR 15064.5[b]). If a site is either listed or eligible for listing in the CRHR, it is a historical resource. If it is included in a local register of historical resources or identified as significant in a historical resources survey (meeting the requirements of PRC Section 5024.1[q]), it is presumed to be historically or culturally significant for purposes of CEQA (PRC Section 21084.1; 14 CCR 15064.5[a]), unless the preponderance of evidence demonstrates that the resource is not historically or culturally significant. The lead agency is not precluded from determining that a resource is a historical resource even if it does not fall within this presumption (PRC Section 21084.1; 14 CCR 15064.5[a]).

A "substantial adverse change in the significance of an historical resource" reflecting a significant effect under CEQA means "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired" (14

CCR 15064.5[b][1]; PRC Section 5020.1[q]). In turn, the significance of a historical resource is materially impaired when a project:

1. Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register; or
2. Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the PRC or its identification in a historical resources survey meeting the requirements of PRC section 5024.1(g), unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or
3. Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register as determined by a lead agency for purposes of CEQA.

Native American Historic Cultural Sites (PRC Section 5097 et seq.)

PRC Sections 5097 et seq. classify the unauthorized disturbance or removal of archaeological or historical resources located on public lands as a misdemeanor. They prohibit the knowing destruction of objects of antiquity without a permit (express permission) on public lands, and provide for criminal sanctions. This section was amended in 1987 to require consultation with the NAHC whenever Native American graves are found. Violations that involve taking or possessing remains or artifacts are felonies.

PRC Section 5097.5 states that "no person shall knowingly and willfully excavate upon, or remove, destroy, injure, or deface, any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, rock art, or any other archaeological, paleontological or historic feature situated on public lands, except with the express permission of the public agency having jurisdiction over the lands."

Assembly Bill 52

AB 52, which took effect July 1, 2015, establishes a consultation process between California Native American tribes and lead agencies in order to address tribal concerns regarding project impacts and mitigation to TCRs. PRC Section 21074(a) defines TCRs and states that a project that has the potential to cause a substantial adverse change to a TCR is a project that may have an adverse effect on the environment. A TCR is defined as a site, feature, place, cultural landscape, sacred place, or object with cultural value to a California Native American tribe that is either:

1. Listed or eligible for listing in the CRHR or a local register of historical resources, or
2. Determined by a lead agency to be a TCR.

California State Senate Bill 18

SB 18, which took effect on March 1, 2005, requires local (city and county) governments to consult with California Native American tribes identified by the NAHC for the purpose of protecting, and/or mitigating impacts to cultural places in creating or amending general plans, including specific plans (California Government Code 65352.3).

California Native American Graves Protection and Repatriation Act

The California Native American Graves Protection and Repatriation Act (California Repatriation Act) (25 USC, Chapter 32), enacted in 2001, requires all state agencies and museums that receive state funding and that have possession or control over collections of human remains or cultural items, as defined, to complete an inventory and summary of these remains and items on or before January 1, 2003, with certain exceptions. The California Repatriation Act also provides a process for the identification and repatriation of these items to the appropriate tribes.

California Health and Safety Code Section 7050.5 and PRC Section 5097.98

CEQA Guidelines Section 15064.5 assigns special importance to human remains and specifies procedures to be used when Native American remains are discovered. As described below, these procedures are detailed in California Health and Safety Code Section 7050.5 and PRC Section 5097.98.

California law protects Native American burials, skeletal remains, and associated grave goods, regardless of their antiquity, and provides for the sensitive treatment and disposition of those remains. Health and Safety Code Section 7050.5 requires that if human remains are discovered in any place other than a dedicated cemetery, no further disturbance or excavation of the site or nearby area reasonably suspected to contain human remains shall occur until the County coroner has examined the remains (California Health and Safety Code Section 7050.5[b]). If the coroner determines or has reason to believe the remains are those of a Native American, the coroner must contact the NAHC within 24 hours (California Health and Safety Code Section 7050.5[c]). In accordance with PRC Section 5097.98(a), the NAHC will notify the Most Likely Descendant (MLD). With the permission of the landowner, the MLD may inspect the site of discovery. Within 48 hours of being granted access to the site, the MLD may recommend means of treatment or disposition, with appropriate dignity, of the human remains and associated grave goods.

Local

City of Irvine General Plan

The Cultural Resources Element of the City of Irvine's General Plan, adopted in 1973, contains the following goal, objectives and policies relating to protection of cultural resources (City of Irvine 1973):

Goal. Ensure the proper disposition of historical, archaeological, and paleontological resources to minimize adverse impacts, and to develop an increased understanding and appreciation for the community's historic and prehistoric heritage, and that of the region.

Objective E.1. Historical, Archaeological, and Paleontological Surveys. Identify and obtain information on the existence and significance of historical, archaeological, and paleontological sites and encourage land use planning which incorporates this information.

Policy (a). Require appropriate surveys and necessary site investigations in conjunction with the earliest environmental document prepared for a project, in accordance with California Environmental Quality Act (CEQA) and the City's CEQA procedures.

Policy (b). Require surveys, prior to discretionary approval, for areas where the possibility of encountering sites exists. Additional specific site investigations may also be required in order to obtain sufficient information to determine the site's significance. The project sponsor shall fund this level of investigation.

Policy (c). Require a written report be submitted to the City following a survey or investigation describing the findings and making recommendations as to the site's significance, future disposition, and the amount of further investigation which should be undertaken. Copies of site survey records and reports shall be filed with the appropriate clearinghouse.

Policy (d). Encourage, if appropriate, removal of all materials collected during the survey/investigation to local museums, universities, or other depositories providing access for public review or scientific research.

Policy (e). Funding of Archaeological Excavations: Use the following in the case of archaeological salvage excavations: 75% project sponsor; 25% City or other public or quasipublic agency or organization. The costs of other mitigation measures may also be shared by the landowner or developer, the City, and other agencies or organizations.

Policy (f). Maintain information on areas surveyed, numbers of sites located, their status and the names and addresses of individuals or organizations knowledgeable of the sites.

Policy (g). Maintain specific locations of unprotected sites as confidential information to avoid vandalism and the resultant irretrievable loss of the historic and prehistoric record of the community.

Policy (h). Determine the proper disposition of each historical site prior to approval of zoning or discretionary development applications. Disposition determinations shall be based upon a detailed historical report, including an inventory form, a written evaluation, and slides documenting the building and its location. This information shall be reviewed by staff and the approval authority for discretionary development cases. Each historical report shall be filed at the Irvine Historical Museum and the City of Irvine Community Development Department.

Policy (i). Buffer and protect the integrity of an historic site and/or resources contained therein, if the Planning Commission, during review of a discretionary development case, determines preservation is required.

Objective E.2. Hazard Occurrence. Evaluate surveyed sites for their present and potential cultural, educational, recreational, and scientific value to the community and the region, and determine their proper disposition prior to the approval of any project which could adversely affect them.

Policy (a). Ensure that sites determined to be significant are protected through the City's planning policies, ordinances, approval conditions, and mitigation measures.

Policy (b). Encourage the nomination of significant historical sites to the National Registry of Historic Places.

Policy (c). Include sites which are appropriate for educational or recreational purposes as an integral part of either public or community facilities or as part of the Citywide bikeway, pedestrian, and equestrian trail systems. Encourage agencies, organizations, and individuals to develop interpretive and educational programs in order to properly utilize the site for the benefit of the entire community.

Policy (d). Ensure that appropriate staff is available to act in matters relating to the implementation of this element to include identification of costs, and to coordinate the investigation and disposition of sites between City departments and Commissions, The Irvine Company, and other agencies, institutions, organizations, and individuals.

Policy (e). Determine the methods and means of preservation on a case-by-case basis according to a site's importance and disposition methods available. These may include public or private acquisition or one of the following, provided extreme care is exercised not to adversely affect the site:

- Including the site within greenbelts, parks, open space spines, preservation areas or other open space.
- Covering surface or sub-surface sites by adequate fill, pavement, or buildings.
- Using the site for nondestructive public interest or educational purposes, such as museums, interpretive centers, or outdoor classrooms.
- Moving buildings for preservation as part of a consolidated historic site.
- Using significant historic buildings in a preserved state as a part of their functional capacity (e.g., a building preserved and used as an office, restaurant, or home).

Policy (f). Encourage site preservation through economic incentives such as increased building densities, reduced taxes, credit toward park dedication, or reduction of other amenity requirements. Where incentives are not sufficient, the land owner shall be directly compensated by the City or other public or quasi-public agencies or organizations for land preserved as an archaeological, paleontological, or historical site. The costs of site preservation may be the principal responsibility of the City, other public, or quasi-public agencies, or other organizations. Policy (b). Encourage the nomination of significant historical sites to the National Registry of Historic Places.

Policy (h). Assign the Community Services Commission the responsibility to oversee implementation programs for sites or buildings which have been acquired by the City.

Policy (i). Identify and implement revenue sources which can be expended in support of this objective

4.17.3 Thresholds of Significance

The significance criteria used to evaluate the project impacts to tribal cultural resources are based on Appendix G of the CEQA Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to tribal cultural resources would occur if the project would:

1. Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:
   i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k).
   ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1.

In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

4.17.4 Impacts Analysis

1. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?

Less-Than-Significant Impact. Under AB 52, TCRs are defined as archaeological resources that are eligible for or listed in the CRHR, or resources that the lead agency determines to be a TCR with a substantial burden of evidence. To date, no TCRs have been identified that would be impacted by project implementation. The SCCIC records search did not identify any resources within the project API and a search of the NAHC Sacred Land File produced negative results. Although the archival review indicates the API has been subject to past disturbances associated with the development of agricultural fields, the California Labor Camp, and El Modena Nursery throughout the mid- and late-twentieth century, alluvial soils are present throughout the API, which generally have a moderate potential to contain intact archaeological deposits. Archaeologists conducted an intensive-level pedestrian survey of the project API on January 21, 2025. Although no archaeological resources were identified within the API during the survey, approximately 40% of the ground surface was heavily obscured by dense vegetation, hardscape, and fill.

As a result of the City's AB 52 and SB 18 notification efforts, one tribal entity requested consultation on the project: the Gabrieleño Band of Mission Indians – Kizh Nation (Kizh Nation).

Kizh Nation responded to the project notification with a request for consultation. Through a series of emails in lieu of in-person or virtual meetings, Mr. Salas, on behalf of the Kizh Nation, indicated that the project is within Kizh Nation's Ancestral Tribal Territory. In an email to the City, Kizh Nation sent information about their Ancestral Tribal Territory and draft mitigation measures to the City to review and consider during consultation. After review and consideration of the Kizh Nation information, the City responded to the Kizh Nation email with proposed standard conditions and mitigation measures for the Kizh Nation's consideration. Kizh Nation sent correspondence disagreeing with the standard conditions and mitigation measures and provided revisions. After review and consideration of Kizh Nation's suggested revisions, the City responded and provided clarification that the conditions and mitigation measures supplied were not novel in nature and have been used for past projects. Kizh Nation sent correspondence requesting further clarification and a written explanation of the City's approach to the mitigation measures. The City sent a letter to Kizh Nation on August 11, 2025, providing the requested clarification and mitigation measures, and closed the consultation. Kizh Nation provided correspondence objecting to the closing of consultation and requested that consultation remain open. On August 21,

2025, the City provided correspondence thanking the Tribe for their engagement throughout the process and confirmed that consultation had closed.

Through consultation efforts conducted by the City, no additional information has been provided to support the presence of specific, geographically defined TCRs that could be affected by project-related construction or operation. No known cultural resources of Native American origin or association have been identified within the areas that would be affected by the project. Although the City acknowledges that the landscape surrounding the project site was traditionally used by indigenous peoples, no substantial evidence was presented demonstrating that the project has the potential for affecting known TCRs, as defined by PCR Section 21074(a). Impacts would be less than significant.

ii. ***A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1? In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.***

Less-Than-Significant Impact with Mitigation Incorporated. No known TCRs have been identified through consultation that would be impacted by the project, and the City has not identified any resource on site as significant. However, the unanticipated discovery of unknown TCRs during project construction is a possibility. Although the records search, NAHC Sacred Lands File search, and pedestrian survey did not identify any TCRs within the API, the API would have likely been used by indigenous Native American inhabitants prior to Euro-American contact. The City's Mitigation Measure (MM) TCR-1 (Tribal Cultural Resources Monitoring) requires a Native American monitor to be present during grading and excavation activities. See Section 4.17.5 for the text of MM-TCR-1. Implementation of MM-TCR-1 would ensure the proper treatment of unknown TCRs in the event of unanticipated discovery and would reduce impacts from the proposed project to less than significant with mitigation incorporated.

Summary of Impacts

Although the project would not have any impacts on known TCRs, there is potential for the inadvertent discovery of subsurface TCRs during project implementation. This impact would be potentially significant, absent mitigation.

4.17.5 Mitigation Measures

Implementation of the following mitigation measure would address the project's potentially significant impacts relating to discovery of yet unknown TCRs:

MM-TCR-1 Tribal Cultural Resources Monitoring. Prior to the issuance of grading permits, the applicant/developer shall retain a Native American monitor (tribal monitor), initially attempting to retain such tribal monitor from the Gabrieleño Band of Mission Indians–Kizh Nation. The applicant/developer shall allow 45 days from initial contact with the above-listed Tribe to enter into a contract with the Tribe for monitoring services. If the applicant/developer can demonstrate they were unable to secure an agreement from the above-referenced Tribe, or if the contracted Tribe

fails to fulfill its obligation under the contract terms, then the applicant/developer may retain an alternative qualified tribal monitor approved by the City. A copy of the executed contract(s) shall be submitted to the Irvine Community Development Department prior to the issuance of any permit necessary to commence ground-disturbing activities. A tribal monitor shall be present on a full-time basis during ground-disturbing activities, including mass grading of the site, and for any trenching or improvements when such activities extend below artificial fill deposits into native soils.

If determined necessary by the tribal monitor, further monitoring shall continue until grading and excavation is complete or until the tribal monitor determines, based on field observations, that there is no likelihood of encountering tribal cultural resources (TCRs). Alternatively, monitoring shall be reduced from full time to part time or spot-checking if determined appropriate by the tribal monitor based on monitoring results. The tribal monitor shall complete daily monitoring logs providing descriptions of the day's activities, including construction activities, locations, soil, and any cultural materials identified. If TCRs are discovered during grading or excavation, the construction contractor shall divert all earthmoving activity within and around the immediate area of discovery (within 100 feet) until the tribal monitor or Tribe has had a reasonable opportunity to assess the nature and significance of the find. Project personnel shall not collect or move any TCR materials until the find has been assessed and evaluated. Project personnel shall not collect or move any human remains, items of patrimony, or associated grave goods.

4.17.6 Level of Significance After Mitigation

Impacts relating to substantial adverse change to the significance of a TCR would be addressed by implementation of MM-TCR-1, which would reduce impacts to a less-than-significant level.

4.17.7 Cumulative Impacts

Cumulative impacts to TCRs include the project's impacts and those likely to occur as a result of other existing, proposed, and reasonably foreseeable projects (refer to Table 3-1 in Chapter 3). These projects have all involved or will involve grading or other excavation activities that have potential to impact TCRs. The geographic scope for cumulative projects was selected because the archaeological and historical resources within this area are expected to be similar to those that occur on the project site due to their proximity and because similar environments, landforms, and hydrology would result in similar land use and thus site types.

The project would not cause a substantial adverse change to the significance of a TCR listed or eligible for listing in the CRHR or in a local register of historical resources as defined in PRC Section 5020.1(k). This is because there are no known significant TCRs in the project area. All projects in the area would be required to undergo a site-specific AB 52 process. Additionally, as needed, projects would incorporate individual mitigation for site-specific TCRs present on each individual project site. Therefore, the project's impacts combined with those of nearby projects would not result in a cumulatively considerable or significant impact on TCRs. Therefore, the project would not result in a cumulatively considerable contribution to this impact.

The project would have the potential to cause a substantial adverse change in the significance of a TCR determined by the lead agency, in its discretion and supported by substantial evidence, to be significant. There are no known TCRs in the project area. However, the potential for intact tribal cultural deposits to exist within native soils to the depths of assumed ground disturbance is unknown. Cumulative projects would be required to assess impacts to

TCRs through the environmental review (CEQA) process. As mentioned above, all projects in the area would be required to undergo the AB 52 process. Additionally, as needed, projects would incorporate individual mitigation for site-specific TCRs present on each individual project site. Furthermore, the proposed project does not include construction (including grading/excavation) or design features that could directly or indirectly contribute to an increase in a cumulative impact to TCRs, because the implementation of MM-TCR-1 would ensure that any significant TCRs uncovered during project excavations would be properly analyzed and salvaged by the tribal monitor, reducing any potentially significant impacts to less-than-significant levels. Therefore, the project would not result in cumulatively considerable impacts to TCRs.

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4.18 Utilities and Service Systems

This section describes the existing utilities conditions of the project site and vicinity, identifies associated regulatory requirements, evaluates potential impacts, and identifies mitigation measures related to implementation of the proposed project. In addition to the documents listed in Section 4.18.8, References, information contained in this section is based on the following:

- **Appendix K-1:** Draft Sub-Area Master Plan (SAMP) for the Gateway Village Development (Gateway Village SAMP); prepared by Stantec; dated February 6, 2025
- **Appendix K-2:** Dry Utility Due Diligence Report, Gateway Preserve, Irvine, California; prepared by Moran Utility Service Inc.; dated May 4, 2023
- **Appendix K-3:** Recycled Water System Facilities; prepared by Stantec; dated May 31, 2023
- **Appendix K-4:** Water and Sewer Will-Serve Letter; prepared by Irvine Ranch Water District; dated December 26, 2024
- **Appendix F-1:** Water Supply Assessment; prepared by Irvine Ranch Water District; dated April 14, 2025
- **Appendix F-2:** Water Supply Verification; prepared by Irvine Ranch Water District; dated April 14, 2025
- **Appendix F-3:** Preliminary Hydrology Report; Gateway Village, City of Irvine, California; prepared by Fuscoe Engineering Inc.; dated December 2024
- **Appendix B-1:** Air Quality and Greenhouse Gas Emissions Modeling; prepared by Dudek; dated March 2025

4.18.1 Existing Conditions

This section describes the existing conditions of the project site and identifies the resources that could be affected by the project.

4.18.1.1 Water

Existing Water Infrastructure

The City of Irvine's existing potable water system is fully encompassed within the potable and non-potable water service area of the Irvine Ranch Water District (IRWD), which is an independent special district that also services portions of the surrounding cities of Tustin, Santa Ana, Orange, Costa Mesa, Lake Forest, and Newport Beach, and unincorporated areas of the County of Orange. Altogether the service area is approximately 181 square miles, with the City of Irvine and its sphere of influence accounting for approximately 41% (approximately 74 square miles) of IRWD's service area. Distribution pipelines in the City range in diameter from 1 to 72 inches and have a total length of approximately 78 miles. Most of the water pipes throughout the City are 8-inch-diameter pipes, and most of the pipelines were constructed in the 1970s through the 2000s (City of Irvine 2024a).

The closest existing potable water supply infrastructure to the project site are 10-inch-diameter and 12-inch-diameter pipelines along Jeffrey Road, a 12-inch-diameter pipeline connecting Jeffrey Road to the adjacent (to the north) Orchard Hills Neighborhood development, and a 30-inch-diameter pipeline in Portola Parkway (Figure 4.18-1, Potable Water System Facilities). The closest recycled water supply infrastructure to the project site consists of 6-inch-diameter, 8-inch-diameter, and 12-inch-diameter pipelines along Jeffrey Road; a 16-inch-diameter pipeline in Portola Parkway; and 10-inch-diameter pipeline along Bee Canyon Access Road (Figure 4.18-2, Recycled Water System Facilities).

Regional Water Supply and Demand

As discussed in Section 4.10, Hydrology and Water Quality, of this Draft EIR, IRWD has been identified by the City as a public water system that will supply water service (both potable and non-potable) to the project. As the public water system, IRWD is required by Section 10910 et seq. of the Water Code to provide the City with an assessment of water supply availability for defined types of projects. The project has been found by the City to be a project requiring an assessment. As a result, a Water Supply Assessment (Appendix F-1) and a Water Supply Verification (Appendix F-2, which includes the Water Supply Assessment as Exhibit C), have been completed for the project.

IRWD derives its water supplies from groundwater, water imported by the Metropolitan Water District of Southern California (Metropolitan), recycled water, and local reservoirs. With respect to groundwater, in July 2019, the California Department of Water Resources (DWR) approved an alternative to a groundwater sustainability plan (GSP) for the Orange County Groundwater Basin (Basin). Alternative plans can be submitted in lieu of GSPs and must demonstrate how water managers have already achieved or will achieve sustainable groundwater management. The California DWR designated the Coastal Plain of Orange County Groundwater Basin (Basin 8-1) as a medium-priority basin, primarily due to heavy reliance on the Basin's groundwater as a source of water supply. The agencies within Basin 8-1—the Orange County Water District, IRWD, and the City of La Habra (collectively the "Submitting Agencies")—agreed to collaborate in order to submit an alternative to a GSP, known as the Basin 8-1 Alternative (Appendix F-1, Water Supply Assessment).

Based on the Basin 8-1 Alternative, IRWD's water supplies remain essentially constant during normal, single-dry, and multiple-dry years because groundwater and Metropolitan imported water account for the majority of IRWD's potable supply. Recycled water, groundwater, and imported water comprise all of IRWD's non-potable supply. Groundwater production from the Basin typically remains constant or may increase in cycles of dry years, even if overdraft of the Basin temporarily increases, because groundwater producers reduce their demand on imported supplies to secure reliability (OCWD et al. 2022). Metropolitan's 2020 Urban Water Management Plan (UWMP) concludes that Metropolitan has supply capabilities sufficient to meet expected demands from 2025 through 2045 under a single dry-year condition and a period of drought lasting 5 consecutive years, as well as in a normal water year hydrologic condition. Recycled water production also remains constant and is considered "drought-proof" as a result of constant sewage flows, including years with low precipitation (Metropolitan 2021) (Appendix F-1; Appendix F-2, Water Supply Verification).

In April 2023, the Orange County Water District and Orange County Sanitation District completed construction of the final phase of the world's largest indirect potable reuse facility. Located in Fountain Valley, the groundwater replenishment system takes highly treated wastewater that would have been discharged into the Pacific Ocean and purifies it further through a three-step advanced treatment process. The purified water is then injected and percolated into the Basin, where it ultimately becomes part of Orange County's drinking water supply. The groundwater replenishment system has expanded twice since opening in 2008, completing its final phase in 2023 with a production capacity of 130 million gallons per day (mgd) of high-quality drinking water (OCWD 2025).

In addition, in September 2024, in response to improved water conditions following two wet winters, Governor Gavin Newsom ended the drought state of emergency in 19 counties, including Orange County (State of California 2024).

4.18.1.2 Wastewater

Wastewater generated within the City is treated by the IRWD, which provides drinking water, sewage collection and treatment, recycled water programs, and urban runoff treatment, and includes 1,153 miles of sewage collection pipes and two recycled water treatment plants. IRWD meets approximately one-quarter of the service area's water

demands with recycled water (IRWD 2024a). The IRWD Michelson Water Recycling Plant provides tertiary (three-stage) sewage treatment, which produces recycled water for landscape and agricultural irrigation, and for industrial and commercial needs. The residual organic solids are piped to the adjacent Biosolids and Energy Recovery Facility, where they are converted into fertilizer or fuel. The Michelson Water Recycling Plant has a water production capacity of 28 mgd (IRWD 2024b).

The City's wastewater collection system consists primarily of vitrified clay pipe and polyvinyl chloride sewer mains that range from 4 to 60 inches in diameter, in addition to 32 trunk lines that are the most critical components of the sewer collection system. The ultimate destinations of wastewater collected in IRWD's system can be the Michelson Water Recycling Plant, the Los Alisos Water Recycling Plant, or treatment plants operated by the El Toro Water District, Santa Margarita Water District, or Orange County Sanitation District (City of Irvine 2024a).

The nearest existing sewer lines to the project site are an 8-inch-diameter sewer in Portola Parkway and an 8-inch-diameter sewer crossing Portola Parkway. Based on the elevation contours of the site, the site generally flows west toward Portola Parkway (Figure 4.18-3, Sanitary Sewer System Facilities). In addition, existing downstream 8-inch-diameter sewers are in the adjacent Stonegate residential development southwest of the project site along Ovation (Appendix K-1, Gateway Village SAMP).

4.18.1.3 Stormwater Drainage

The local storm drain system is owned by the City and maintained by the City's Public Works and Sustainability Department. The regional flood control system is owned and maintained by the Orange County Public Works Department. These County lines typically range in size from 18 to 60 inches in diameter (with some up to 96 inches in diameter), with the local drainage system consisting of the smaller-diameter pipes, and the larger flood control facilities consisting of trapezoidal channels or riverine systems. Drainage facilities are typically either reinforced concrete pipe (RCP) pipe or box culverts that convey stormwater. Local storm drain facilities are designed to accommodate 25-year flow requirements, and the regional County of Orange facilities are designed to accommodate 100-year storm events. The City conveys stormwater to the Orange County Flood Control District regional conveyance facilities and has an ongoing monitoring and maintenance procedure to ensure that the overall system functions effectively. To prevent significant flooding during storm events, the Orange County Public Works Department and the City monitor and maintain the respective channels and storm drain systems to ensure they are conveying storm flows as designed (City of Irvine 2024a).

As discussed in Section 4.10 of this Draft EIR, the project site has been farmed for decades, and at present consists of unpaved, highly pervious open space. Topography on the upper one-third of the site generally drains by two surface ditches in a southwest direction toward Jeffrey Road, at a gradient of 3.5%. This upper third site tributary is part of the larger East Hicks Canyon watershed, which originates off site and upstream of the project site. Stormwater from the upper third of the project site is collected by existing 42-inch-, 66-inch-, and 96-inch-diameter storm drain laterals that feed into Hicks Canyon Facility F27, which is a 102-inch-diameter RCP in Jeffrey Road (Figure 4.10-1, Existing On-Site Hydrology, in Section 4.10 of this Draft EIR). Additionally, off-site run-on conditions, which is when stormwater flows onto the project site from an adjacent property, occur along the northerly project boundary in the form of surface/channel conveyance, and along the easterly project boundary in the form of surface and pipe flow conveyance, which in turn feed into the existing 96-inch-diameter storm drain lateral (Appendix F-3, Preliminary Hydrology Report).

The topography on the lower two-thirds of the project site generally drains in a southerly direction toward Portola Parkway, with a moderate gradient of 2.5% to 3%. At Portola Parkway, the lower two-thirds flow is collected by two existing storm drain pipes, one on Portola Parkway midway between Jeffrey Road and Bee Canyon Access Road and

one at the intersection of Portola Parkway and Bee Canyon Access Road (Figure 4.10-1 in Section 4.10). One of the existing storm drain facilities heads northwest in Portola Parkway and turns south at Jeffrey Road, and the second existing storm drain facility heads southeast in Portola Parkway, eventually turning southwest at Paragon. Run-on conditions from areas east of Bee Canyon Access Road are not present in the lower two-thirds of the site because existing flows are intercepted and surface-conveyed south before entering a 36-inch-diameter RCP and conveyed underground to a connection point with the southerly Portola Parkway storm drain (Appendix F-3).

4.18.1.4 Electricity, Natural Gas, and Telecommunications

The project site is within the Southern California Edison (SCE) service area. SCE, a public utility that functions on demand, supplies electricity to the project site via underground and overhead lines. SCE is regulated by the California Public Utilities Commission and Federal Energy Regulatory Commission. Electrical power is generated by a combined system of gas and coal production, oil, hydroelectricity, nuclear production, solar and wind technology, and energy purchase. Currently, underground SCE distribution systems are located adjacent to the project site in Bee Canyon Access Road, Portola Parkway, and Jeffrey Road. An SCE substation is at the northeast corner of Jeffrey Road and Portola Parkway, across from the project site. An overhead system in Jeffrey Road feeds the existing tenants on the project site, as well as the Irvine Conservancy, the Bowerman facility, and other existing facilities northeast of the project site (Appendix K-2, Dry Utility Due Diligence Report).

The project site is provided with natural gas by the Southern California Gas Company (SoCalGas). The SoCalGas service territory encompasses approximately 24,000 square miles and more than 500 communities. SoCalGas has existing gas mains in Portola Parkway and Jeffrey Road (Appendix K-2).

The project site is within the service areas of AT&T and Cox Communications (Cox). Together, these providers offer voice and data communication services. Funding for telecommunication services is collected through company billings and developer fees applied to the extension of infrastructure to new development. AT&T and Cox currently have underground systems adjacent to the project site in Portola Parkway and Jeffrey Road. AT&T has an overhead system that runs from the corner of Portola Parkway and Bee Canyon Access Road, trending north through Gateway Preserve and connecting to the existing SCE overhead system on Jeffrey Road. The lines are on the existing poles that SCE is converting to underground lines with the Jeffrey Road construction (Appendix K-2).

4.18.1.5 Solid Waste

Solid waste transfer and recovery facilities in the City are owned and operated by private entities and licensed and overseen by the state. The County of Orange maintains three closed landfills in the City, and there are 21 actively maintained and monitored landfills Countywide. The County operates compost facilities at three existing landfills. Residential, institutional, regional commercial, and industrial solid waste is presently collected by private firms, with residential and village commercial collections franchised by the City. OC Waste & Recycling manages three active landfills in Orange County: the Frank R. Bowerman Landfill, located in Irvine approximately 1.5 miles east of the project site; the Prima Deshecha Landfill, located in San Juan Capistrano, approximately 18 miles southeast of the project site; and the Olinda Alpha Landfill, located in Brea, approximately 18 miles northwest of the project site (City of Irvine 2024a).

The Frank R. Bowerman Landfill has a maximum permitted capacity of 266,000,000 cubic yards (CY), a remaining capacity of 205,000,000 CY, and a cease operation date of December 31, 2053 (CalRecycle 2024a). The Prima Deshecha Landfill has a maximum permitted capacity of 172,100,000 CY, a remaining capacity of 128,800,000 CY, and a cease operation date of December 31, 2102 (CalRecycle 2024b). The Olinda Alpha Landfill would accept

soil (inert waste) exported from the project site during grading (County of Orange 2024). In addition, the Olinda Alpha Landfill would accept construction and operational solid waste. This landfill has a maximum permitted capacity of 148,800,000 CY, a remaining capacity of 17,500,000 CY, and a cease operation date of December 31, 2036 (CalRecycle 2024c).

4.18.2 Relevant Plans, Policies, and Ordinances

Federal

There are no applicable federal regulations related to utilities and service systems.

State

Senate Bill X7-7 – Water Conservation Act

Senate Bill (SB) X7-7, effective February 3, 2010, is the water conservation component to the Delta legislative package (SB 1, Delta Governance/Delta Plan). One of its purposes was to implement water use reduction goals established in 2008 to achieve a 20% statewide reduction in urban per-capita water use by December 31, 2020. In pursuit of this goal (since past), the bill required each urban retail water supplier to develop urban water use targets to help meet the 20% goal by 2020 and an interim 10% goal by 2015. The bill establishes methods for urban retail water suppliers to determine targets to help achieve water reduction targets. The retail water supplier must select one of the four compliance options. The retail agency may choose to comply with SB X7-7 as an individual or as a region in collaboration with other water suppliers. Under the regional compliance option, the retail water supplier must report the water use target for its individual service area. The bill also included reporting requirements in the 2010, 2015, and 2020 UWMPs.

Urban Water Management Planning Act

In accordance with California Water Code Sections 1610–10656, California urban water providers are required by state law to develop a UWMP to ensure sufficient water supplies are available to meet the long-term needs of their customers during normal, dry, and multiple-dry years. The Urban Water Management Planning Act requires urban water suppliers that provide water for municipal purposes to more than 3,000 customers or supply more than 3,000 acre-feet of water annually to develop a UWMP every 5 years, in the years ending in 0 and 5.

In the Urban Water Management Planning Act, the California Legislature declares that waters of the state are a limited and renewable resource subject to fluctuating demands; that the conservation and efficient use of urban water supplies are of statewide concern; that successful implementation of plans is best accomplished at the local level; that conservation and efficient use of water must be actively pursued to protect the people of the state and their water resources; that conservation and efficient use of urban water supplies must be a guiding criterion in public decisions; and that urban water suppliers must be required to develop water management plans to achieve conservation and efficient use.

IRWD's 2020 UWMP was prepared in accordance with the California Urban Water Management Planning Act. The UWMP is intended to serve as a general, flexible, and open-ended document that periodically can be updated to reflect changes in regional water supply trends, conservation policies, and water use efficiency policies (IRWD 2021).

Sustainable Groundwater Management Act

On September 16, 2014, Governor Jerry Brown signed into law a three-bill legislative package—Assembly Bill (AB) 1739 (Dickinson), SB 1168 (Pavley), and SB 1319 (Pavley)—collectively known as the Sustainable Groundwater Management Act (SGMA). SGMA requires governments and water agencies of high- and medium-priority basins to halt overdraft and bring groundwater basins into balanced levels of pumping and recharge. Under SGMA, these basins should reach sustainability within 20 years of implementing their sustainability plans. For critically over-drafted basins, sustainability should be achieved by 2040. For the remaining high- and medium-priority basins, 2042 is the deadline. Through SGMA, the California DWR provides ongoing support to local agencies through guidance, financial assistance, and technical assistance. SGMA empowers local agencies to form Groundwater Sustainability Agencies to manage basins sustainably, and requires those Groundwater Sustainability Agencies to adopt GSPs for crucial groundwater basins in California.

Senate Bill 610 and Senate Bill 221: Water Supply Assessments and Water Supply Verifications

SB 610 and SB 221, enacted into state law effective January 1, 2002, improve the linkage between certain land use decisions made by cities and counties and water supply availability. The statutes require detailed information regarding water availability and reliability for certain developments to be included in the administrative record to serve as evidentiary basis for an approval action by the city or county on such projects. Under Water Code Section 10912(a), projects subject to the California Environmental Quality Act (CEQA) requiring a water supply assessment include residential development of more than 500 dwelling units (DU); shopping centers and business establishments employing more than 1,000 persons or having more than 500,000 square feet of floor space; commercial office buildings employing more than 1,000 persons or having more than 250,000 square feet of floor space; hotels and motels having more than 500 rooms; industrial, manufacturing, and processing plants, and industrial parks planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area; mixed-use projects that include one or more of the projects specified; and projects that would demand an amount of water equivalent to or greater than the amount required by a 500 DU project. A fundamental source document for compliance with SB 610 is the UWMP, which can be used by the water supplier to meet the standard for SB 610. SB 221 prohibits the approval of a subdivision map for 500 DU without verifying that the public water supplier has sufficient water available to serve the proposed development. Related to Water Code Section 1912(a) is California Water Code Section 10910(d)(2), which requires the identification of existing water supply entitlements, water rights, or water service contracts; federal, state, and local permits for construction of necessary infrastructure; and any regulatory approvals required to be able to deliver the water supply. See Appendix F-1 for the project-specific Water Supply Assessment.

Executive Order B-40-17

Executive Order B-40-17 (April 2017) lifted the drought emergency in California counties except for Fresno, Kings, Tulare, and Tuolumne, where emergency drinking water projects continue to address diminished groundwater supplies. This order retains prohibition on wasteful practices and advances measures to make conservation a way of life. The order also rescinds two emergency proclamations from January 2014 and April 2014 and four drought-related executive orders issued in 2014 and 2015.

Model Water Efficient Landscape Ordinance

The Model Water Efficient Landscape Ordinance (CCR Title 23, Division 2, Chapter 2.7, Section 490) adopts water efficiency standards for new and retrofitted landscapes and encourages the use of more efficient irrigation systems, graywater usage, and on-site stormwater capture, and limits the portion of landscapes that can be covered in turf.

It encourages local agencies to designate the necessary authority that implements and enforces the provisions of the ordinance or its local landscape ordinance.

California Code of Regulations Title 22, Chapter 16

Based on California Code of Regulations (CCR) Title 22, Division 4, Environmental Health, Chapter 16, California Waterworks Standards, Article 2, Permit Requirements, Section 64556, Permit Amendments, an application for an amended domestic water supply permit must be submitted to the State Water Resources Control Board for the following:

- Addition of a new distribution reservoir with a capacity of 100,000 gallons or more
- Change to or alteration of the water source
- Consolidation with one or more other water systems
- Expansion of the existing service area by 20% or more of the number of service connections specified in the most recent permit or permit amendment

Based on Chapter 16, California Waterworks Standards, Article 4, Materials and Installation of Water Mains and Appurtenances, the layouts of new water pipelines must comply with the Water Main Separation requirements. These requirements primarily include minimum separation distances from other utilities, wastewater facilities, and hazardous materials storage areas.

Sanitary Sewer General Waste Discharge Requirements

On June 5, 2023, the State Water Resources Control Board adopted a General Waste Discharge Requirement (Order No. WQ 2022-0103-DWQ) for all publicly owned sanitary sewer collection systems in California with more than 1 mile of sewer pipe. The order provides a consistent statewide approach to reducing sanitary sewer overflows by requiring public sewer system operators to take all feasible steps to control the volume of waste discharged into the system to prevent sanitary sewer waste from entering the storm sewer system, and to develop a Sewer System Management Plan. The General Waste Discharge Requirement also requires that storm sewer overflows be reported to the State Water Resources Control Board using an online reporting system.

California Code of Regulations Title 24, Part 11

In 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code, Part 11 of Title 24, is commonly referred to as CALGreen, and establishes minimum mandatory standards and voluntary standards pertaining to the planning and design of sustainable site development, energy efficiency, water conservation, material conservation, and interior air quality. The CALGreen standards took effect in January 2011 and instituted mandatory minimum environmental performance standards for all new construction of residential and non-residential buildings. CALGreen standards are updated periodically. The latest (2022) version became effective on January 1, 2023.

Mandatory CALGreen standards pertaining to water, wastewater, and solid waste include the following (24 CCR Part 11):

- Mandatory reduction in indoor water use through compliance with specified flow rates for plumbing fixtures and fittings

- Mandatory reduction in outdoor water use through compliance with a local water efficient landscaping ordinance or the California DWR's Model Water Efficient Landscape Ordinance
- Diversion of 65% of construction and demolition waste from landfills

California Senate Bill 1087: Sewer and Water Service Priority for Housing Affordable to Lower-Income Households

This 2006 statute requires local governments to provide a copy of the updated Housing Element to water and sewer providers immediately after adoption. Water and sewer providers must grant priority for service allocation to proposed development that includes housing units affordable to lower-income households. Additionally, UWMPs are required to include projected water use for future lower-income households.

California Assembly Bill 3232

Signed into law in September 2018, California AB 3232 calls on the California Energy Commission (working in consultation with the California Public Utilities Commission and other state agencies) to develop and articulate plans and projections to reduce greenhouse gas emissions of California's residential and commercial buildings to 40% below 1990 levels by 2030. Much of the reduction will likely occur by replacing some buildings' natural gas use applications with electric ones.

Assembly Bill 1890 (1996)

The California Public Utilities Commission regulates investor-owned electric power and natural gas utility companies in California. AB 1890, enacted in 1996, deregulated the power generation industry, allowing customers to purchase electricity on the open market. Under deregulation, the production and distribution of power that was under the control of investor-owned utilities (e.g., SCE) were decoupled. All new construction in California is subject to the energy conservation standards set forth in Title 24, Part 6, Article 2 of the California Administrative Code. These are prescriptive standards that establish maximum energy consumption levels for the heating and cooling of new buildings. The use of alternative energy applications in development projects (including the project) is encouraged but not required as a development condition. Such applications may include installation of photovoltaic solar panels, active solar water heating systems, or integrated pool deck water heating systems, all of which lower consumption of conventional energy sources (i.e., electricity and natural gas). Incentives, primarily in the form of state and federal tax credits, as well as reduced energy bills, provide a favorable basis.

California Integrated Waste Management Act – Assembly Bills 939 and 341

The California Integrated Waste Management Act of 1989 (AB 939) was enacted as a result of a national crisis in landfill capacity, as well as a broad acceptance of a desired approach to solid waste management of reducing, reusing, and recycling. AB 939 mandated local jurisdictions to meet waste diversion goals of 25% by 1995 and 50% by 2000, and established an integrated framework for program implementation, solid waste planning, and solid waste facility and landfill compliance. AB 939 requires cities and counties to prepare, adopt, and submit to the California Department of Resources Recycling and Recovery (CalRecycle) a source reduction and recycling element to demonstrate how the jurisdiction will meet the diversion goals. Other elements include encouraging resource conservation and considering the effects of waste management operations. The diversion goals and program requirements are implemented through a disposal-based reporting system by local jurisdictions under California Integrated Waste Management Board (CIWMB) regulatory oversight. Since the adoption of AB 939, landfill capacity is no longer considered a statewide crisis. AB 939 has achieved substantial progress in waste diversion; program implementation; solid waste planning; and protection of public health, safety, and the environment from landfill operations and solid waste facilities.

In 2011, AB 341 was passed, mandating that CalRecycle require local agencies to adopt strategies that would enable 75% diversion of all solid waste by 2020.

California Solid Waste Reuse and Recycling Act

The California Solid Waste Reuse and Recycling Act of 1991 (AB 2176) was enacted to assist local jurisdictions with accomplishing the goals of AB 939. In accordance with AB 2176, any application submitted for a building permit must provide for adequate, accessible areas for the collection and loading of recyclable materials. Furthermore, the areas to be used must be demonstrated as adequate in capacity, number, and distribution to serve the building project. Moreover, the collection areas are to be situated as close as possible to existing exterior refuse collection areas.

Assembly Bill 1327: California Solid Waste Reuse and Recycling Access Act of 1991

AB 1327, which was established in 1991, required CalRecycle to develop a model ordinance for the use of recyclable materials in development projects. Local agencies were then required to adopt the model ordinance, or an ordinance of their own, governing adequate areas for collection and loading of recyclable materials in development projects.

Senate Bill 1374: Construction and Demolition Waste Reduction

SB 1374 requires that annual reports submitted by local jurisdictions to the CIWMB include a summary of the progress made in diversion of construction and demolition waste materials. In addition, SB 1374 required the CIWMB to adopt a model ordinance suitable for adoption by any local agency that required 50% to 75% diversion of construction and demolition waste materials from landfills by March 1, 2004. Local jurisdictions are not required to adopt their own construction and demolition ordinances, nor are they required to adopt CIWMB's model by default.

Assembly Bill 1826: Mandatory Commercial Organics Recycling

In October 2014, Governor Brown signed AB 1826 (Chapter 727, Statutes of 2014) requiring businesses to recycle their organic waste on and after April 1, 2016, depending on the amount of waste generated per week. (Organic waste is defined as food waste, green waste, landscape and pruning waste, nonhazardous wood waste, and food-soiled paper waste that is mixed in with food waste.) This law also requires local jurisdictions across the state to implement an organic waste recycling program to divert organic waste generated by businesses, including multifamily residential dwellings that consist of five or more units. This law phases in the mandatory recycling of commercial organics over time. In particular, the minimum threshold of organic waste generation by businesses decreases over time, which means an increasingly greater proportion of the commercial sector will be required to recycle organic waste.

Senate Bill 1383: California's Short-Lived Climate Pollutant Reduction Strategy

As a follow up to AB 1826, in 2016, the State Legislature passed SB 1383, California's Short-Lived Climate Pollutant Reduction Strategy, to reduce methane and other greenhouse gas emissions statewide. The bill aims to achieve two targets by 2025: (1) 75% reduction of statewide organics waste disposal from 2014 levels and (2) 20% or greater recovery (for human consumption) of edible food currently disposed of in California. To meet these goals, SB 1383 requires all local jurisdictions to provide mandatory source-separated organic waste collection and diversion services to all businesses, schools, multifamily complexes, and single-family home residents. SB 1383 will further support California's efforts to achieve the statewide 75% recycling goal by 2020 established in AB 341. The state has not yet met this target.

California Code of Regulations Titles 14 and 27

CCR Title 14 (Natural Resources, Division 7) and CCR Title 27 (Environmental Protection, Division 2 [Solid Waste]) govern the handling and disposal of solid waste and operation of landfills, transfer stations, and recycling facilities.

Local

Zero Waste Resolution

The City adopted a resolution to support zero waste principles on July 10, 2007. The City encourages many zero waste practices through residential curbside recycling, parks recycling (where City parks are equipped with recycling receptacles for public use), recycling at City facilities, and the City's purchasing policy to buy recycled products when feasible. In addition, all City environmental program public education materials include the state's adopted slogan: "Zero Waste, You Make It Happen."

Construction and Demolition Debris Recycling Ordinance

The City adopted its Construction and Demolition Debris Recycling Ordinance (07-18) in 2007. Under this ordinance, projects are required to recycle or reuse 75% of concrete and asphalt, and at least 65% of all debris generated. Covered projects include new residential and nonresidential development and most projects involving nonresidential demolition and/or renovation in accordance with the requirements of CALGreen. Applicants for projects are required to submit a waste management plan to the City prior to obtaining permits for construction, demolition, or renovation activities covered by the ordinance.

Sustainability Community Initiative

The City adopted the Sustainable Community Initiative (Initiative Ordinance 10-11) as Initiative Measure S in 2010. The ordinance was adopted to ratify and implement policies in support of renewable energy and environmental programs for a sustainable community. It outlines the City's direction for continuing to develop and implement programs geared toward green building, renewable energy, and sustainability. For example, the City would continue to develop and implement recycling, zero waste, and other on-site business programs to divert waste from landfills, and also continue to develop and implement the use of native, California-friendly, and drought-tolerant landscaping.

Community Choice Energy

The passage of AB 117 in 2002 established the Community Choice Aggregation in California, allowing municipalities at the local and county levels to form independent, locally governed, and not-for-profit energy providers. Community Choice Energy programs enable local government control over energy procurement to purchase power, set competitive rates, and collect revenue. Customers have the option of choosing increased percentages of renewable energy. Community Choice Energy programs in California generally procure and resell a power mix of 50% to 100% renewable energy to their customers.

The Orange County Power Authority was established in 2021. On February 8, 2022, the Irvine City Council unanimously voted to select the 100% Renewable Energy default service level for all Orange County Power Authority customers in Irvine, unless they choose a lower tier or opt out and remain with SCE. The Orange County Power Authority began providing commercial and municipal service in April 2022, followed by residential service in October 2022. The Orange County Power Authority purchases energy from clean, renewable sources, including solar, wind, biomass, geothermal, and hydroelectric.

City Municipal Code

The City's Municipal Code (Ordinance 21-19, Section 3 [Exh. A], 12-14-21) provides standards for the provision of solid waste (refuse) and recyclable material storage in compliance with state law (California Solid Waste Reuse and Recycling Access Act, Public Resources Code Sections 42900 through 42911). Additionally, the City's Building Code requires development projects to complete and submit a Waste Management and Recycling Plan for approval prior to issuance of building permits. The Waste Management and Recycling Plan identifies the project type and estimates the amount of materials to be recycled during construction. The following provisions in the Municipal Code apply to future development resulting from implementation of the project.

Title 5 (Planning), Division 7 (Sustainability in Landscaping)

The purpose of this division is to provide policies, standards, procedures, and guidelines to achieve long-term levels of sustainability in landscapes. Sustainability is a concept that emphasizes the environmental benefits of landscapes. In most instances, a sustainable landscape is one that provides positive levels of carbon storage and oxygen productivity after all demands for energy, water, soil improvement, and maintenance activities have been considered. This division is intended to promote actions that conserve, recycle, and reuse resources.

Chapter 10 (Recycling and Diversion of Construction and Demolition Waste)

The Municipal Code (Title 6, Division 7, Chapter 10) and CALGreen (Sections 4.408, 5.408, and 5.713.8) require that construction development, renovation, and demolition projects recycle or otherwise divert construction and demolition debris from landfills. These requirements promote the reuse of resources and help extend the useful life of landfills in compliance with CALGreen and state laws, including the California Integrated Waste Management Act (AB 939, Sher) and Mandatory Construction and Demolition Waste Diversion (SB 1374, Kuehl).

Construction and Demolition Debris Recycling and Reuse Ordinance

The Construction and Demolition Ordinance requires that all residential projects of more than one unit, nonresidential developments on 5,000 square feet or larger, and nonresidential demolition/renovations with more than 10,000 square feet of building recycle or reuse a minimum of 75% of concrete and asphalt and 50% of nonhazardous debris generated.

Requirement to Use Recycled Water

Per the Water Resources Master Plan, Sewer Master Plan, Natural Treatment System Master Plan, and addenda thereto, IRWD identifies customers as in an area capable of receiving service from the IRWD's recycled water system, and determines the feasibility of providing recycled water service to these customers. IRWD also reviews applications for new permits to determine the feasibility of providing recycled water service to these applicants. If recycled water service is determined by IRWD to be feasible, applicants for new water service are required to install on-site facilities to accommodate both potable water and recycled water service in accordance with the rules and regulations. IRWD may also require existing customers to retrofit existing on-site water service facilities to accommodate recycled water service. If IRWD does not require the use of recycled water service, the customer may obtain recycled water service upon request, but only if IRWD determines that recycled water service is feasible and authorizes such use.

Planning Commission Resolution No. 09-2968

Planning Commission Resolution No. 09-2968 adopted standard conditions to assist staff in applying standardized wording for frequently used conditions of approval to discretionary and subdivision applications. Standard conditions are applied on a case-by-case basis depending on the specifics of the application. Companion conditions are cross-referenced and are required to be used together. The following standard conditions related to utilities apply to the project.

City Standard Condition 2.24 (Solid Waste Recycling)

Prior to the issuance of grading permits for a project that involves the demolition of an asphalt or concrete parking lot on site, the applicant shall submit a waste management plan demonstrating compliance with the requirements of Title 6, Division 7 of the Municipal Code relating to recycling and diversion of demolition waste as applicable to said project. Over the course of demolition or construction, the applicant shall ensure compliance with all code requirements related to the use of City authorized waste haulers.

City Standard Condition 3.7 (Solid Waste Recycling)

Prior to the issuance of building permits for a project that involves new construction or that involves the demolition or renovation of existing buildings on site, the applicant shall comply with requirements of Title 6, Division 7 of the Municipal Code relating to recycling and diversion of construction and demolition waste as applicable to said project. Over the course of demolition or construction, the applicant shall ensure compliance with all code requirements related to the use of City authorized waste haulers.

Existing Plans, Programs, and Policies Compliance measures are regulations imposed uniformly by the approving agency based on the proposed action taken and are required of the proposed project to reduce its potential environmental effects. Because these features are standard requirements, they do not constitute mitigation measures. The following measures are existing plans, programs, or policies (PPP) that apply to the proposed project and will help to reduce and avoid potential impacts related to utilities:

- PPP-UTIL-1: Engineering Standard Plans
- PPP-UTIL-2: Title 24 Code Cycles: Net-Zero Buildings (Residential & Non-Residential)
- PPP-UTIL-3: Irvine Sustainability Community Initiative
- PPP-UTIL-4: California Water Code Section 10912 and California Government Code Section 66473.7
- PPP-UTIL-5: Senate Bill 221 (SB 221)
- PPP-UTIL-6: Requirement to Use Recycled Water
- PPP-UTIL-7: City of Irvine Construction and Demolition (C&D) Debris Recycling and Reuse Ordinance
- PPP-UTIL-8: Waste Reduction
- PPP-UTIL-9: City Standard Condition 2.24 (Solid Waste Recycling)
- PPP-UTIL-10: City Standard Condition 3.7 (Solid Waste Recycling)

If a proposed development is considered a project as defined by California Water Code Section 10912 and/or a subdivision as defined by California Government Code Section 66473.7, then a water supply assessment must be prepared and included in the analysis and appendices of the environmental document being prepared for the project.

Irvine Ranch Water District Water Use Efficiency and Conservation Policies

IRWD published water conservation policies, practices, and procedures in 2018 to provide long-term water reliability for existing and future customers. IRWD water conservation policies include the following (IRWD 2018):

1. IRWD is committed to "Making Water Conservation a California Way of Life."
2. An integrated and sustainable approach to California water resource management must recognize the role that water use efficiency and supply development play in ensuring an adequate and reliable water supply for California's many diverse communities.
3. Water efficiency and conservation programs are most successful if they are locally designed, implemented and managed.
4. Water use efficiency and conservation programs should be cost effective and economically viable.
5. Local agencies should take steps to preserve fiscal stability and water affordability when implementing water use efficiency and conservation programs.
6. The benefits and consequences of statewide, regional, and local water use efficiency and conservation policies should be understood prior to being implemented. At a minimum, the benefits and consequences to water and wastewater management, systems, infrastructure, operations, and recycled water supplies should be examined.
7. Statewide and regional policies should encourage and reward previous investments in beneficial water use efficiency strategies, including water recycling, water-budget based rate structures that create a nexus between those overusing water and those bearing the costs of overuse, and investments in distribution system integrity, among others.
8. Statewide and regional water use efficiency goals must incentivize and account for local investments in drought resilient supplies, including investments in recycled water and potable reuse.
9. Conservation strategies should include promoting both the expansion and efficient use of recycled water and potable reuse.
10. State agencies should engage urban retail water suppliers during implementation and development of methodologies, and regulations related to "Making Water Conservation a California Way of Life."

Irvine 2045 General Plan

The Irvine 2045 General Plan (General Plan) is composed of elements that address a broad range of issues. Each element of the General Plan identifies and describes goals, objectives, and implementing actions that provide specific direction for decision making and formation of public policy through 2045. The General Plan contains seven elements required by the State Planning, Zoning, and Development Laws. The Environmental Protection and Climate Action Element and the Safety Element are relevant to utility and service system issues.

Environmental Protection and Climate Action Element

The following goal, objective, and policies in the Irvine 2045 General Plan's Environmental Protection and Climate Action Element are related to utilities and service systems (City of Irvine 2024b):

Goal 7: Reduce waste generation, promote sustainable waste management practices, and maximize resource recovery in Irvine.

Objective EPCA-7: Achieve significant reductions in per capita waste generation and increase diversion rates through comprehensive waste reduction, reuse, recycling, and composting initiatives, while minimizing landfill disposal and associated greenhouse gas emissions.

Policy (a): Encourage businesses, manufacturers, and retailers to adopt eco-friendly practices, such as product redesign, packaging reduction, and extended producer responsibility (EPR) programs to minimize waste generation and environmental impact.

Policy (b): Collaborate with waste management providers, recyclers, and composting facilities to improve collection, sorting, and processing capabilities, enhance material recovery rates, and promote closed-loop recycling and circular economy principles.

Policy (c): Provide education, outreach, and incentives to encourage participation in waste diversion programs, increase public awareness about recycling and composting best practices, and promote behavior change among residents, businesses, and community organizations.

Policy (d): Cooperate in guiding the development and improvement of a solid waste disposal system within the County of Orange that will meet the needs of the City and protect the City from damage by unplanned disposal of refuse.

Policy (e): Control the siting of solid waste disposal facilities to minimize impact on adjacent or existing planned land uses.

Safety Element

The following goal, objective, and policies in the Irvine 2045 General Plan's Safety Element are related to utilities and service systems (City of Irvine 2024c):

Goal 5. Protect the community from the threat of drought and extreme heat.

Objective S-5: Drought and Extreme Heat

Policy (a): Collaborate with federal, State, and local agencies and organizations to explore alternative water sources (e.g., desalination) and improve capacity in consideration of increased demand and drought.

Policy (b): Continue to support Irvine Ranch Water District's recycled water program and explore opportunities to enhance water recycling.

Policy (c): Continue to support and participate in the development of a regional and local drought contingency plan.

Policy (d): Encourage drought-tolerant native landscaping, low-flow water fixtures beyond the state minimum code, and daytime watering restrictions on properties throughout the City to reduce water consumption.

Policy (e): Explore the feasibility of recycled water distribution for residential uses on all lot sizes.

Policy (f): Protect groundwater supply against contamination, degradation, or loss due to flooding.

Policy (g): Promote a system for rapidly detecting, reporting, and repairing water leaks in public facilities and the water conveyance system.

Policy (h): Promote nature-based methods and best management practices (BMPs) (e.g., bioswales, rain gardens, natural ground cover) through the City's stormwater program to promote groundwater infiltration and reduce the impacts of drought.

Policy (i): Support regional patterns in education and outreach efforts focused on water conservation measures (e.g., water reuse, water use, and irrigation efficiency) for City residents.

4.18.3 Thresholds of Significance

The significance criteria used to evaluate the project impacts to utilities and service systems are based on Appendix G of the CEQA Guidelines. According to Appendix G, a significant impact related to utilities and service systems would occur if the project would:

1. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.
2. Not have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years.
3. Not result in a determination by the waste water treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments.
4. Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals.
5. Not comply with federal, state, and local management and reduction statutes and regulations related to solid waste.

4.18.4 Impacts Analysis

1. Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

Less-Than-Significant Impact. The analysis below details the impacts from construction of expanded water, wastewater, stormwater drainage, electrical power, natural gas, and telecommunications facilities.

Water Service/Infrastructure

Potable Water

The City's existing potable water system is within the potable and non-potable water service area of IRWD. Distribution pipelines in the City range in diameter from 1 to 72 inches, and most pipelines are 8-inch-

diameter pipes constructed from the 1970s through the 2000s. The proposed potable water system would be supplied by IRWD.

To estimate water and sewer infrastructure design, potable water demands were estimated based on the maximum 1,360 DU allowed by existing zoning, which includes 927 DU of medium-high density and 433 DU of high-density residential. Using IRWD water factors, the average day potable water demand is approximately 235 acre-feet per year (AFY), with a maximum day demand of 0.35 mgd. Peak-hour demand is estimated to be 530 gallons per minute (gpm). Fire flow requirements are 3,000 gpm for both medium-high- and high-density residential land uses (Appendix K-1, Gateway Village SAMP).

The proposed project would receive water supply from three points of connection to the existing system: one near the intersection of Portola Parkway and "E" Street, and two on Jeffrey Road at the intersections of "A" Street and "C" Street (Figure 4.18-1). A 12-inch-diameter pipeline is proposed along Portola Parkway from Wonderview to the proposed "E" Street consisting of approximately 2,710 linear feet of proposed 12-inch-diameter pipeline. The second supply connection would be to an existing 12-inch-diameter pipeline on Jeffrey Road, which reduces to a 10-inch-diameter pipeline and continues to the southwest, where it connects to an existing 30-inch-diameter pipeline on Portola Parkway. The existing 10- and 12-inch-diameter pipeline on Jeffrey Road would need to be disconnected from the existing 30-inch-diameter pipeline and reconnected to the proposed 12-inch-diameter pipeline on Portola Parkway. Additionally, there is an existing 12-inch-diameter pipeline on Jeffrey Road, approximately 30 feet northeast of the pipeline on Jeffrey Road. The existing 12-inch-diameter pipeline connects to the existing 10-inch-diameter pipeline on Wonderview in the adjacent Orchard Hills development via an existing 12-inch-diameter pipeline from Wilderness and across the slope area to Jeffrey Road. Approximately 30 linear feet of new 12-inch-diameter pipeline is proposed to connect the two existing pipelines on Jeffrey Road (Appendix K-1).

The proposed 12-inch-diameter pipeline in Portola Parkway and pipelines in Jeffrey Road would allow a loop to be created on site from Jeffrey Road to Portola Parkway, with a proposed 12-inch-diameter pipeline along the proposed "A" Street, "C" Street, "D" Street, and "E" Street. To meet pressures on site, two pressure-reducing stations would be installed on Jeffrey Road: one at the intersection of "A" Street and a second at the intersection of "C" Street (Figure 4.18-1). Pipelines are proposed as looping between the two pressure-reducing stations, consisting of a proposed 12-inch-diameter pipeline along "A" Street and "C" Street, and a proposed 10-inch-diameter pipeline along "D" Street and "E" Street (Appendix K-1).

Velocity, pressure, and fire flow were analyzed for the potable water system to meet IRWD criteria. All proposed pipelines were found to be within the IRWD velocity and minimum pressure criteria. The fire flow requirements were also met (Appendix K-1). As discussed in Section 4.18.2, Relevant Plans, Policies, and Ordinances, based on CCR Title 22, Chapter 16, California Waterworks Standards, Article 4, Materials and Installation of Water Mains and Appurtenances, the new water pipelines would be required to comply with the Water Main Separation requirements, which include minimum separation distances from other utilities, wastewater facilities, and hazardous materials storage areas.

Installation of new potable water mains on site and off site, and installation of on-site water laterals would consist of either trenching to the depth of pipe placement or using a variety of trenchless technologies, which cause substantially less ground disturbance than trenching. Trenching results in a temporary stockpiling of soil along the length of the trench, pending backfilling, which could result in potential short-term soil erosion. Similarly, construction of the off-site infrastructure improvements within the IRWD service area would result in temporary ground disturbance and potential erosion and would

require use of construction equipment. As discussed in Section 4.10 of this Draft EIR, in accordance with the Construction General Permit, a stormwater pollution prevention plan (SWPPP), which describes best management practices (BMPs) the discharger would use to protect stormwater runoff from sediment and erosion, would be implemented. Additionally, the project would be required to comply with South Coast Air Quality Management District (SCAQMD) Rule 403 for watering during construction, which would reduce associated fugitive dust and potential soil erosion during construction activities. As a result of complying with current regulations, impacts associated with the construction of new water infrastructure would be less than significant.

Non-Potable Water

Non-potable water demands were estimated based on 1,360 DU covering 65.6 acres, 7.9 acres of park area, and 9.5 acres of landscaping, with a total irrigation area estimated to be approximately 83 acres. Using IRWD irrigation use factors, the average day demand is estimated to be 105 gpm, with a maximum day demand of 285 gpm. Peak-hour demand is estimated to be 580 gpm. The proposed non-potable water system would be supplied by two points of connection with the existing pipeline on Jeffrey Road (Figure 4.18-2). One point of connection would be at "C" Street**,** with a proposed 6-inch-diameter pipeline. The second point of connection would be at "A" Street, with a proposed 6-inch-diameter pipeline. The two points of connection would be looped by a proposed 4-inch-diameter pipeline along "D" Street. The proposed 4-inch-diameter pipeline on "D" Street would continue to the southwest and would terminate at the intersection of "E" Street. A non-potable water system hydraulic analysis indicated that all proposed pipelines were within the IRWD minimum pressure criteria (Appendix K-3, Recycled Water System Facilities). As discussed in Section 4.18.2, based on CCR Title 22, Chapter 16, California Waterworks Standards, Article 4, Materials and Installation of Water Mains and Appurtenances, the layouts of new water pipelines would be required to comply with the Water Main Separation requirements, which include minimum separation distances from other utilities, wastewater facilities, and hazardous materials storage areas.

As discussed for potable water lines, non-potable-water line installation would result in temporary ground disturbance and potential erosion and use of construction equipment. As discussed in Section 4.10 of this Draft EIR, in accordance with the Construction General Permit, a SWPPP, which describes BMPs the discharger would use to protect stormwater runoff from sediment and erosion, would be implemented. Additionally, the project would be required to comply with SCAQMD Rule 403 for watering during construction, which would reduce associated fugitive dust and potential soil erosion during construction activities. As a result of complying with current regulations, impacts associated with the construction of new recycled water infrastructure would be less than significant.

Wastewater Service/Infrastructure

Wastewater Conveyance

The City's wastewater collection system consists primarily of vitrified clay pipe and polyvinyl chloride sewer mains that range from 4 to 60 inches in diameter, in addition to 32 trunk lines that are the most critical components of the sewer collection system. The nearest existing sewer lines to the project site are a 15-inch-diameter sewer in Jeffrey Road and an 8-inch-diameter sewer in Portola Parkway. Developments containing more than 400 DU are required to provide IRWD with a SAMP. The SAMP must include an analysis of the proposed sewer system using a computerized hydraulic model, a complete description of the facilities to be constructed, maps, and computations providing the design criteria meeting the requirements of the Sewer System Guidelines (IRWD 2018).

Based on the project-specific SAMP (Appendix K-1), the project site is proposed to be split into two drainage areas with two points of connection to the existing sanitary sewer system. Drainage Area A would capture sewer flow from parcels along "D" Street and "C" Street (Figure 4.18-3). Flows from this drainage area would be conveyed off site, with a connection to the existing sewer crossing Portola Parkway to Woodhill, in Stonegate. Drainage Area B, the second and smaller drainage area, would capture flow from the southern portion of the project site. The flows from these parcels would be collected and conveyed off site via a new 8-inch-diameter gravity main, routed southerly along the northerly boundary of Portola Parkway, and across Portola Parkway to the existing 8-inch-diameter sewer at the cul-de-sac on Ovation, south of Portola Parkway. Construction of this sewer is assumed to require trenchless construction methods, such as the jack-and-bore method. The jacking pit would be on the project site, northeast of Portola Parkway. The receiving pit would be in the cul-de-sac of Ovation (Appendix K-1).

Based on a sanitary sewer system hydraulic analysis, which considered land use, flows generated, and a peaking factor, no sewer upsizing would be required for the existing sewers in the adjacent Stonegate development located northeast of Encore because of the wastewater flow split between the two existing 8-inch-diameter sewers. However, the existing 8-inch-diameter sewer on Ovation south of Encore does not meet the depth-to-diameter ratio criteria, which is a key criterion used to evaluate the capacity and performance of sewer pipes. Therefore, approximately 1,460 linear feet of existing 8-inch-diameter sewer lines in Ovation would require upsizing to 12-inch-diameter lines from south of Encore to the intersection of Spring Meadow (Figure 4.18-3). The design analysis also included the sewer flows from a future off-site property northeast of the project site, routed to "C" Street and through the project site. With the inclusion of the off-site property, the analysis results do not change the proposed sizing or impacts to the existing system as described (Appendix K-1).

The hydraulic model analysis also included the existing 33-inch-diameter Jeffrey Road trunk sewer, from Irvine Boulevard to Barranca Parkway. Based on the hydraulic model analysis, after including the proposed project flows, the depth to diameter ratio in the 33-inch-diameter trunk sewer increased from 0.64 to 0.76, which is only marginally above the IRWD criterion of 0.75. Therefore, the proposed project would not significantly impact the existing 33-inch-diameter Jeffrey Road trunk sewer, and no mitigation improvements are proposed (Appendix K-1).

As discussed for proposed water facilities, installation of new sewer lines would consist of either trenching to the depth of pipe placement or using a variety of trenchless technology, such as jack and bore, which causes substantially less ground disturbance than trenching. Trenching and jack and bore result in temporary stockpiling of soil, pending backfilling, which could result in potential short-term soil erosion. In accordance with the Construction General Permit and SWPPP, the discharger would implement BMPs to protect stormwater runoff from sediment and erosion. Additionally, the project would be required to comply with SCAQMD Rule 403 for watering during construction, which would reduce associated fugitive dust and potential soil erosion during construction activities. As a result of complying with current regulations, adverse impacts associated with the construction of new wastewater infrastructure would be less than significant.

Wastewater Treatment

Wastewater generated within the City is treated by IRWD. The ultimate destinations of wastewater collected in IRWD's system include the Michelson Water Recycling Plant; the Los Alisos Water Recycling Plant; and treatment plants operated by the El Toro Water District, the Santa Margarita Water District, and the Orange County Sanitation District. The IRWD Michelson Water Recycling Plant uses tertiary (three-stage) sewage

treatment, which produces recycled water for landscape and agricultural irrigation, and for industrial and commercial needs. The residual organic solids are piped to the adjacent Biosolids and Energy Recovery Facility, where they are converted into fertilizer or fuel. The Michelson Water Recycling Plant has a water production capacity of 28 mgd (IRWD 2024b). All wastewater treatment facilities have been expanded as part of IRWD's long-range planning. Based on a will-serve letter, dated December 26, 2024, IRWD would provide sewer services for the proposed project (Appendix K-4, Water and Sewer Will-Serve Letter). As a result, the construction, expansion, or relocation of new wastewater treatment facilities would not be required in association with build-out of the project. Impacts would be less than significant.

Stormwater Infrastructure

Following project construction, the impervious areas of the project site would increase, resulting in a potential for stormwater runoff volumes and/or stormwater runoff rates to increase. As discussed in Section 4.10 of this Draft EIR, the topography on the upper one-third of the site generally drains by two surface ditches in a southwest direction toward Jeffrey Road, at a gradient of 3.5%. This upper third site tributary is part of the larger East Hicks Canyon watershed, which originates off site and upstream of the project site. Stormwater from the upper one-third of the project site is collected by existing 42-inch-, 66-inch-, and 96-inch-diameter storm drain laterals that feed into Hicks Canyon Facility F27, which is a 102-inch-diameter RCP in Jeffrey Road (Figure 4.10-1 in Section 4.10). Additionally, off-site run-on conditions occur along the northerly project boundary in the form of surface/channel conveyance, and along the easterly project boundary in the form of surface and pipe flow conveyance, which in turn feeds into the existing 96-inch-diameter storm drain lateral.

Topography on the lower two-thirds of the site generally drains in a southerly direction toward Portola Parkway, with a moderate gradient of 2.5% to 3%. At Portola Parkway, the lower two-thirds flow is collected by two existing storm drain pipes, one on Portola Parkway midway between Jeffrey Road and Bee Canyon Access Road and one at the intersection of Portola Parkway and Bee Canyon Access Road (Figure 4.10-1 in Section 4.10). One of the existing storm drain facilities heads northwest in Portola Parkway and turns south at Jeffrey Road, and the second existing storm drain facility heads southeast in Portola Parkway, eventually turning southwest in Paragon. Run-on conditions from areas east of Bee Canyon Access Road are not present in the lower two-thirds of the project site because existing flows are intercepted and surface-conveyed south before entering a 36-inch-diameter RCP and conveyed underground to a connection point with the southerly Portola Parkway storm drain.

Based on the project-specific Preliminary Hydrology Report (Appendix F-3), the project site was divided into drainage management areas A-1 through A-7, B-1, and C-1 (Figure 4.10-4 in Section 4.10). Hydrologic calculations were prepared for existing conditions throughout the project site to establish baseline storm flow rates at project watershed exit points. These baseline storm flow rates were compared to proposed-condition design peak-flow rates to determine peak-flow-rate mitigation requirements. Per the Orange County Hydrology Manual (Orange County Environmental Management Agency 1986, 1996) and per the City of Irvine Standards (City of Irvine 2013), a 25-year-frequency storm event was selected for design peak-flow-rate evaluation because sump conditions are present on site. Stormwater runoff would be conveyed on site by a series of proposed storm drains, and a stormwater detention basin would be constructed in the southeastern corner of the project site to accommodate a 25-year storm event and 190,575 cubic feet of storage. The project would not result in expansion of any existing off-site stormwater drainage facilities or in the construction or relocation of new off-site stormwater drainage facilities.

As discussed for proposed water and wastewater facilities, construction of the on-site stormwater infrastructure would be completed in accordance with the Construction General Permit, which is described in detail in Section 4.10 of this Draft EIR. A SWPPP, which describes BMPs the discharger would use to protect stormwater runoff from sediment and erosion, would be implemented as part of the Construction General Permit. Additionally, as described in detail in Section 4.3, Air Quality, of this Draft EIR, the project would be required to comply with SCAQMD Rule 403 for watering during construction, which would reduce associated fugitive dust and potential soil erosion during construction activities. As a result of complying with current regulations, impacts associated with the construction of new stormwater infrastructure would be less than significant.

Electric Power

The project site is within the SCE service area. Currently, underground SCE distribution systems are located adjacent to the project site in Bee Canyon Access Road, Portola Parkway, and Jeffrey Road. An SCE substation is at the northeast corner of Jeffrey Road and Portola Parkway, across from the project site. The substation includes an underground mainline consisting of six 5-inch-diameter conduits and vaults. A proposed underground system with two, and possibly three circuits is planned to accommodate the proposed project. It is anticipated that SCE would serve the project from Jeffrey Road. The existing overhead system along Jeffrey Road that feeds existing tenants would be removed as part of the project. The IRWD site on Bee Canyon Access Road that would remain in place is served from an underground and overhead feed from Bee Canyon Access Road. In addition to converting the overhead system on Jeffrey Road, service would be relocated out of the project parcel onto County of Orange property and the IRWD easement area (Appendix K-2, Dry Utility Due Diligence Report).

Subsurface infrastructure installation would require soil excavations, temporary stockpiling of soil, and recompaction. The electric line connections would likely be completed by either trenchless technology or open trenching to the depth of the underground electrical lines. Construction of the power lines would be temporary and would be subject to all applicable regulatory requirements. Similar to that described above for construction of water, wastewater, and storm drain infrastructure, installation of the on-site electrical infrastructure would be completed in accordance with the Construction General Permit, which is described in detail in Section 4.10 of this Draft EIR. A SWPPP, which describes BMPs the discharger would use to protect stormwater runoff from sediment and erosion, would be implemented as part of the Construction General Permit. Additionally, as described in detail in Section 4.3 of this Draft EIR, the project would be required to comply with SCAQMD Rule 403 for watering during construction, which would reduce fugitive dust and potential soil erosion during construction activities. As a result of complying with current regulations, impacts associated with construction of new and expanded electrical infrastructure would be less than significant.

Natural Gas

The project site is provided with natural gas by SoCalGas, which has existing gas mains in Portola Parkway and Jeffrey Road. As part of the widening and realignment of Jeffrey Road, the existing 8-inch-diameter high-pressure main was relocated into the new Jeffrey Road alignment. This 8-inch-diameter main is not capable of serving the proposed project because it is high pressure. Because the City is moving away from using natural gas in new projects, it is currently assumed that gas would not be extended onto the project site for the proposed residences. However, the proposed homeowner's association swimming pool would require natural gas for heating. Therefore, SoCalGas would extend a new distribution main from Portola Parkway and up Jeffrey Road to provide natural gas for the pool.

As discussed for proposed water and wastewater facilities, construction of the new distribution main and the lateral to the swimming pool area would be completed in accordance with the Construction General Permit, which is described in detail in Section 4.10 of this Draft EIR. A SWPPP, which describes BMPs the discharger would use to protect stormwater runoff from sediment and erosion, would be implemented as part of the Construction General Permit. Additionally, as described in detail in Section 4.3 of this Draft EIR, the project would be required to comply with SCAQMD Rule 403 for watering during construction, which would reduce fugitive dust and potential soil erosion during construction activities. As a result of compliance with current regulations, impacts associated with construction of new natural gas infrastructure would be less than significant.

Telecommunications

The project site is within the service areas of AT&T and Cox. AT&T has an overhead system that runs from the corner of Portola Parkway and Bee Canyon Access Road, trending north through the Gateway Preserve and connecting to the existing overhead system that SCE has on Jeffrey Road. The AT&T lines are on the existing poles that SCE is converting to underground with the Jeffrey Road construction. These overhead lines would be removed as part of that project. Cox currently maintains underground systems in Portola Parkway and Jeffrey Road, which would be available to serve the proposed project. Cox would install an underground system in the joint trench with the SCE and AT&T overhead conversions on Jeffrey Road. It is assumed that this new underground system, consisting of four 2-inch-diameter conduits and vaults, would be the Cox feed for the project (Appendix K-2).

As described above for electric power, telecommunication upgrades would be completed by either trenchless technology or open trenching to the depth of the underground telecommunication lines. Installation of the telecommunication infrastructure would be completed in accordance with the Construction General Permit, which is described in detail in Section 4.10 of this Draft EIR. A SWPPP, which describes BMPs the discharger would use to protect stormwater runoff from sediment and erosion, would be implemented as part of the Construction General Permit. Additionally, as described in detail in Section 4.3 of this Draft EIR, the project would be required to comply with SCAQMD Rule 403 for watering requirements, which would reduce associated fugitive dust and potential soil erosion during construction activities. As a result of complying with current regulations, impacts associated with construction of expanded telecommunication infrastructure would be less than significant.

2. Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

Less-Than-Significant Impact. IRWD has been identified by the City as a public water system that will supply water service (both potable and non-potable) to the project. As the public water system, IRWD is required by Section 10910 et seq. of the Water Code to provide the City with an assessment of water supply availability for defined types of projects. The project has been found by the City to be a project requiring an assessment. As a result, a Water Supply Assessment (Appendix F-1) and Water Supply Verification (Appendix F-2) were completed for the project. As described in these documents, IRWD does not allocate particular supplies to any project, but identifies total supplies for its service area. However, upon approval of an assessment containing a determination of a sufficient supply, IRWD attributes the demands identified in that assessment to IRWD's existing and committed demand. Thereafter, each verification approved by IRWD for a subdivision covered by that assessment is based on the assessment and reflects IRWD's confirmation that the water demands of the subdivision, together with any other subdivisions or

developments that have previously received verifications, will-serves, or other approval by IRWD under the same assessment, are within the demand identified by that assessment. In accordance with that procedure, the project Water Supply Verification (Appendix F-2) is based on the Water Supply Assessment (Appendix F-1).

IRWD prepares two planning documents to guide water supply decision making. IRWD's principal planning document is the Water Resources Master Plan. This document is a comprehensive report compiling data and analyses that IRWD considers necessary for its planning needs. IRWD also prepares an UWMP, which is based on the Water Resources Master Plan, but contains elements as listed in the statute (Water Code Section 10631, et seq.), and as a result, is more limited than the Water Resources Master Plan in the treatment of supply and demand issues. IRWD's most recent UWMP was adopted in June 2021 (IRWD 2021), and the next update for 2025 is anticipated in July 2026. In addition, the project's Water Supply Verification (Appendix F-2) includes the most recent Metropolitan UWMP (May 2021), which details an evaluation by Metropolitan, the wholesaler of IRWD's imported water supplies, of the reliability of Metropolitan's supplies.

As described above for water infrastructure, water and sewer service infrastructure design for potable water demand was estimated based on the maximum 1,360 DU allowed by existing zoning, which includes 927 DU of medium-high density and 433 DU of high-density residential. Using IRWD water factors, the average-day potable water demand is approximately 235 AFY (Appendix K-1, SAMP). The Water Supply Assessment assumes a slightly higher project water demand of 237 AFY in 2030 and 238 AFY in 2045.

As discussed in Section 4.18.1, Existing Conditions, IRWD derives its water supplies from groundwater, Metropolitan imported water, recycled water, and local reservoirs. With respect to groundwater, in July 2019, the California DWR approved an alternative to a GSP for the Basin, known as the Basin 8-1 Alternative. In accordance with Water Code Section 10733.6(b)(3), the Basin 8-1 Alternative presents an analysis of Basin conditions that demonstrates that the Basin has operated within its sustainable yield over a period of at least 10 years. In addition, the Basin 8-1 Alternative establishes objectives and criteria for management that would be addressed in a GSP and is designed to be "functionally equivalent" to a GSP. Basin 8-1 has been operating within its sustainable yield for more than 10 years without experiencing significant or unreasonable lowering of groundwater levels, reduction in storage, degradation of water quality, intrusion of seawater, inelastic land subsidence, or depletions of interconnected surface water that have significant or unreasonable adverse impacts on beneficial uses of the surface water. Pursuant to the Basin 8-1 Alternative, the Submitting Agencies will ensure that the entire Basin 8-1 continues to be sustainably managed and that data is reported as required by SGMA (OCWD et al. 2022).

Metropolitan's 2020 UWMP concludes that Metropolitan has supply capabilities sufficient to meet expected demands from 2025 through 2045 under a single dry-year condition and a period of drought lasting 5 consecutive years, as well as in a normal water year hydrologic condition. Recycled water production also remains constant and is considered "drought-proof" as a result of constant sewage flows, including years with low precipitation. This diversity of water supplies results in relatively constant groundwater production levels and minimizes adverse impacts to groundwater supplies (Metropolitan 2021). Based on the project's Water Supply Assessment (Appendix F-1) and Water Supply Verification (Appendix F-2), adequate water supplies are available to meet the project's water demands (including peak-flow demands) under the normal year, single-dry year, and multiple-dry year conditions through 2045. In addition, based on a will-serve letter, dated December 26, 2024, IRWD would provide water services for the proposed project (Appendix K-4). As a result, there would be sufficient water supplies to serve the proposed project and reasonably foreseeable future development during normal, dry, and multiple dry years. Impacts would be less than significant.

3. Would the project result in a determination by the waste water treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Less-Than-Significant Impact. As previously discussed, water and sewer service infrastructure design was estimated for potable water demands based on the maximum 1,360 DU allowed by existing zoning, which includes 927 DU of medium-high density and 433 DU of high-density residential. Using IRWD water factors, the average-day potable water demand would be approximately 235 AFY to 238 AFY, with a maximum day demand of 0.35 mgd. Peak-hour demand is estimated to be 530 gpm.

Wastewater generated within the City is treated by IRWD. The ultimate destinations of wastewater collected in IRWD's system include the Michelson Water Recycling Plant; the Los Alisos Water Recycling Plant; or treatment plants operated by the El Toro Water District, the Santa Margarita Water District, or the Orange County Sanitation District. The IRWD Michelson Water Recycling Plant includes tertiary (three-stage) sewage treatment, which produces recycled water for landscape and agricultural irrigation, and for industrial and commercial needs. The residual organic solids are piped to the adjacent Biosolids and Energy Recovery Facility, where they are converted into fertilizer or fuel (IRWD 2024b). Based on a will-serve letter, dated December 26, 2024, IRWD would provide sewer services for the proposed project (Appendix K-4). As a result, the project would have adequate capacity to serve the project's projected demand, in addition to the provider's existing commitments. Impacts would be less than significant.

4. Would the project generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Less-Than-Significant Impact. Once operational, the project would produce solid waste in association with operation and maintenance activities. Based on a project-specific air quality analysis (Appendix B-1, Air Quality and Greenhouse Gas Emissions Modeling), anticipated solid waste generation attributable to the proposed project is approximately 971 tons per year (see Table 4.18-1, Anticipated Solid Waste Generation).

Table 4.18-1. Anticipated Solid Waste Generation

Land Use[a]	Solid Waste Generation (Tons per Year)
Detached Housing	286.77
Attached Housing	402.49
Market Rate Multifamily Housing	223.58
City Park	1.39
Health Club	38.07
Recreational Swimming Pool	18.33
Total	970.63

Source: Appendix B-1, Section 8.2, Waste by Land Use (Unmitigated).
Note:
[a] The land uses represent surrogate uses for CalEEMod.

As discussed in Section 4.18.1, OC Waste & Recycling manages three active landfills in Orange County: the Frank R. Bowerman Landfill, located in Irvine approximately 1.5 miles east of the project site; the Prima Deshecha Landfill, located in San Juan Capistrano, approximately 18 miles southeast of the

project site; and the Olinda Alpha Landfill, located in Brea, approximately 18 miles northwest of the project site. The Frank R. Bowerman Landfill has a maximum permitted capacity of 266,000,000 CY, a remaining capacity of 205,000,000 CY, and a cease operation date of December 31, 2053. The Prima Deshecha Landfill has a maximum permitted capacity of 172,100,000 CY, a remaining capacity of 128,800,000 CY, and a cease operation date of December 31, 2102. The Olinda Alpha Landfill would accept soil (inert waste) exported from the project site during grading. In addition, the Olinda Alpha Landfill would accept construction and operational solid waste. This landfill has a maximum permitted capacity of 148,800,000 CY, a remaining capacity of 17,500,000 CY, and a cease operation date of December 31, 2036 (CalRecycle 2024a, 2024b, 2024c).

The net solid waste that is anticipated to be produced by the project would equate to approximately 0.0003% of the combined available capacity of these three landfills per year through the estimated closure dates. As such, the project's solid waste generation would be minimal to negligible relative to available landfill capacity and relative to existing and future solid waste generation in the region. As such, the landfills that would serve the project are anticipated to have adequate capacity to accommodate the waste disposal needs of the project. In addition, the project would be required to comply with applicable state and local regulations related to solid waste, waste diversion, and recycling at the time of development. Additionally, the project would participate in the City's recycling programs, which would further reduce solid waste sent to regional landfills. Impacts would be less than significant.

5. ***Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?***

Less-Than-Significant Impact. As described in Section 4.18.1, OC Waste & Recycling manages three active landfills in Orange County: the Frank R. Bowerman Landfill, Prima Deshecha Landfill, and Olinda Alpha Landfill. These facilities are regulated under federal, state, and local laws. Additionally, the City is required to comply with the solid waste reduction and diversion requirements set forth in ABs 117, 341, 939, 1327, 1374, 1826, and 2176 (see Section 4.18.2, Relevant Plans, Policies, and Ordinances). Project solid waste disposal would also be completed in compliance with the 2022 Green Building Standards Code; the City Zero Waste Resolution; City Ordinances 07-18, 10-11, and 21-19 (related to solid waste); the City Construction and Demolition Recycling and Reuse Ordinance; and City Planning Community Resolution No 09-2968. With compliance with state and local management and reduction statutes and regulations related to solid waste, project impacts would be less than significant.

Impact Summary

In accordance with the Construction General Permit, a SWPPP, which describes BMPs the discharger would use to protect stormwater runoff from sediment and erosion, would be implemented. Additionally, the project would be required to comply with SCAQMD Rule 403 for watering during construction, which would reduce associated fugitive dust and potential soil erosion during construction activities. As a result of complying with current regulations, impacts associated with the construction of new water, recycled water, wastewater, stormwater, electrical, natural gas, and telecommunication infrastructure would be less than significant.

IRWD would provide sewer services for the proposed project (refer to Appendix K-4, Water and Sewer Will-Serve Letter). As a result, the project would have adequate capacity to serve the project's projected wastewater conveyance and treatment demand, in addition to the provider's existing commitments. Impacts would be less than significant.

Based on the project's Water Supply Assessment (Appendix F-1) and Water Supply Verification (Appendix F-2), adequate water supplies are available to meet the project's water demands (including peak-flow demands) through 2045. In addition, IRWD would provide water services for the proposed project (Appendix K-4). As a result, there would be sufficient water supplies to serve the proposed project and reasonably foreseeable future development during normal, dry, and multiple dry years. Impacts would be less than significant.

The landfills that would serve the project are anticipated to have adequate capacity to accommodate the waste disposal needs of the project. With compliance with state and local management and reduction statutes and regulations related to solid waste, project impacts would be less than significant.

4.18.5 Mitigation Measures

No significant utilities and service systems impacts were identified in the analysis in this section; therefore, no mitigation measures are required.

4.18.6 Level of Significance After Mitigation

No mitigation is required; utilities and service systems impacts would remain less than significant.

4.18.7 Cumulative Impacts

4.18.7.1 Water

Existing Water Infrastructure

Cumulative water infrastructure impacts are considered on a system-wide basis and are associated with the capacity of existing and planned infrastructure. The geographic scope for cumulative impacts related to water infrastructure consists of the jurisdiction of IRWD, which is an independent special district that services the City of Irvine and portions of the surrounding cities of Tustin, Santa Ana, Orange, Costa Mesa, Lake Forest, and Newport Beach. All of the cumulative projects analyzed in this draft EIR are within the City of Irvine (see Table 3-1, Cumulative Projects, in Chapter 3, Project Description, of this Draft EIR). Area-wide population projections are based on land use dwelling-unit projections using buildout estimates and persons per household estimates.

Completion of projects within the IRWD service area would involve construction of water distribution infrastructure (e.g., pipes, valves, meters) on project sites. The cumulative project facilities would be connected to off-site water lines in the adjacent rights-of-way. All water infrastructure construction work within the public rights-of-way and on private property would be subject to applicable City and/or County code requirements. For example, for cumulative projects with new water distribution reservoirs/storage tanks with a capacity in excess of 100,000 gallons, an amended domestic water supply permit would be submitted to and approved by the State Water Resources Control Board prior to construction, pursuant to 22 CCR Section 64556. In addition, based on Title 22, Chapter 16, California Waterworks Standards, Article 4, Materials and Installation of Water Mains and Appurtenances, the layouts of new water pipelines would be required to comply with the Water Main Separation requirements, which include minimum separation distances from other utilities, wastewater facilities, and hazardous materials storage areas.

In addition, for cumulative projects involving ground disturbance in excess of 1 acre, cumulative project construction would be required to occur in accordance with the requirements of the Construction General Permit, which includes implementation of a SWPPP and related BMPs the discharger would use to protect stormwater runoff, including erosion-induced siltation of downstream drainages and incidental spills of petroleum products from construction equipment. As a result, indirect cumulative impacts associated with upgrades of water conveyance infrastructure for cumulative project sites would not be cumulatively considerable. Cumulative impacts would be less than significant, and no mitigation is required.

Regional Water Supply and Demand

IRWD derives its water supplies from groundwater, Metropolitan-imported water, recycled water, and local reservoirs. With respect to groundwater, the Basin 8-1 Alternative presents an analysis of conditions that demonstrates that the Basin has operated within its sustainable yield over at least 10 years. Basin 8-1 has been operated within its sustainable yield for more than 10 years without experiencing significant or unreasonable lowering of groundwater levels, reduction in storage, degradation of water quality, intrusion of seawater, inelastic land subsidence, or depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water. Pursuant to the Basin 8-1 Alternative, the Submitting Agencies will ensure that the entire Basin 8-1 continues to be sustainably managed and data reported as required by SGMA (OCWD et al. 2022).

Metropolitan's 2020 UWMP concludes that Metropolitan has supply capabilities sufficient to meet expected demands from 2025 through 2045 under a single dry-year condition and a period of drought lasting 5 consecutive years, as well as in a normal water year hydrologic condition (Metropolitan 2021). Recycled water production also remains constant and is considered "drought-proof" as a result of constant sewage flows, including years with low precipitation. This diversity of water supplies results in relatively constant groundwater production levels and minimizes adverse impacts to groundwater supplies.

Based on the Water Supply Assessment (Appendix F-1) and Water Supply Verification (Appendix F-2), adequate water supplies are available to meet the water demands associated with full Water Resources Master Plan build-out, which includes all presently undeveloped areas in the IRWD service area, based on current General Plan information and more specific information available to IRWD, under the normal year, single-dry year, and multiple-dry year conditions, through 2045. As a result, there would be sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years. Water supply impacts would not be cumulatively considerable.

4.18.7.2 Wastewater

The geographic scope for cumulative wastewater conveyance and treatment would include the jurisdiction of the IRWD, which includes the Michelson Water Recycling Plant; the Los Alisos Water Recycling Plant; and treatment plants operated by the El Toro Water District, the Santa Margarita Water District, or the Orange County Sanitation District. All of the cumulative projects included in this Draft EIR are within this geographic scope. Wastewater treatment facilities are planned based on regional growth projections, such as those produced by the Southern California Association of Governments. As detailed in Section 4.13, Population and Housing, of this Draft EIR, the project is within population and employment growth projections that have been identified by the Southern California Association of Governments. As long as projects fall within these projections, existing wastewater treatment facilities have been planned to accommodate increases in wastewater generation across the region. Because the wastewater treatment plants that would serve the project and many of the cumulative projects are subject to

existing permits, because the project and cumulative projects would be required to pay development fees that fund updates to wastewater facilities, and because the project falls within regional growth projections, the project would not result in cumulatively considerable impacts with respect to potential relocation, construction, or expansion of wastewater treatment facilities.

In addition, as described for water facilities, cumulative project construction would be required to comply with applicable regulations. As a result, indirect impacts associated with upgrades of sewer connections to cumulative project sites would not be cumulatively considerable. Cumulative impacts would be less than significant, and no mitigation is required.

4.18.7.3 Stormwater Drainage

The geographic scope of cumulative impacts related to stormwater drainage infrastructure is the watershed of San Diego Creek, which leads to Upper Newport Bay. Each cumulative project would be required to demonstrate through the CEQA process, as well as in compliance with City and/or County regulations, that adequate stormwater conveyance capacity would be sufficient to accommodate each of the cumulative projects within the watershed of San Diego Creek and Upper Newport Bay.

Most cumulative projects, including the proposed project, would be subject to the most recent Orange County municipal separate storm sewer systems permit, which includes a requirement to minimize the percentage of impervious surfaces on land developments by minimizing soil compaction during construction, designing projects to minimize the impervious area footprint, and employing low-impact-development design principles to mimic predevelopment water balance hydrology through infiltration, evapotranspiration, and rainfall harvest and reuse (see Section 4.10 of this Draft EIR). Compliance with this permit generally results in a reduction in stormwater runoff from redevelopment and infill sites compared with existing conditions. Per the Orange County Hydrology Manual (Orange County Environmental Management Agency 1986, 1996) and City of Irvine Standards (City of Irvine 2013), peak-flow mitigation would be designed for the 25-year frequency storm event. As such, the project would not contribute to a cumulatively considerable impact. For most of the cumulative projects, stormwater runoff mitigation would similarly be designed for the 25-year-frequency storm event. Therefore, it is unlikely that downstream flood control improvements would be required as a condition of cumulative project completion.

In addition, as described for water facilities, cumulative project construction would be required to comply with applicable regulations. As a result, indirect impacts associated with new storm drain construction on cumulative project sites would not be cumulatively considerable. Impacts would be less than significant, and no mitigation is required.

4.18.7.4 Electricity, Natural Gas, and Telecommunications

The geographic scope for cumulative impacts related to electric power, natural gas, and telecommunication facilities is the City of Irvine, which includes all cumulative projects included in Table 3-1, Cumulative Projects, of Chapter 3 of this Draft EIR. Completion of the proposed project would require installation of new electric power, natural gas, and telecommunication infrastructure in roadways and rights-of-way associated with the development.

Cumulative project development would occur incrementally on a project-by-project basis. Trenching and excavations completed for the new connections to existing electric and telecommunication infrastructure could result in potential short-term soil erosion because excavated and temporarily stockpiled soils would be susceptible to rainfall. However, standard BMPs and pollutant control measures would be employed during construction to minimize pollutants, including erosion-induced siltation of downstream drainages and incidental spills of petroleum

products from construction equipment. Individual projects would be required to comply with applicable regulations to address construction impacts for specific project needs. Impacts from the proposed project associated with upgrades of electric and telecommunication facilities would not be cumulatively considerable. Cumulative impacts would be less than significant, and no mitigation is required.

4.18.1.5 Solid Waste

The geographic scope for cumulative solid waste impacts is the greater Orange County area. As discussed in Section 4.18.1, OC Waste & Recycling manages three active landfills in Orange County: the Frank R. Bowerman Landfill, which has a remaining capacity of 205,000,000 CY and a cease operation date of December 31, 2053; the Prima Deshecha Landfill, which has a remaining capacity of 128,800,000 CY and a cease operation date of December 31, 2102; and the Olinda Alpha Landfill, which has a remaining capacity of 17,500,000 CY and a cease operation date of December 31, 2036 (CalRecycle 2024a, 2024b, 2024c). The net solid waste that is anticipated to be produced by the proposed project would equate to approximately 0.0003% of the combined available capacity of these landfills through the estimated closure dates.

Development of cumulative projects could increase land use intensities in the area, resulting in increased solid waste generation in the service area for Orange County landfills. However, as described above, the regional landfills have a combined remaining capacity of approximately 351,300,000 CY and are anticipated to remain open until between 2036 and 2102. The proposed project and cumulative projects would be required to comply with all applicable waste reduction and recycling requirements, including the City's recycling programs, which would further reduce solid waste sent to regional landfills. Additionally, the City is required to comply with the solid waste reduction and diversion requirements set forth in ABs 939, 341, 1327, 2176, 1374, and 1826 (see Section 4.18.2, Relevant Plans, Policies, and Ordinances). Project solid waste disposal would also be completed in compliance with the 2022 CALGreen; the City's Municipal Code Ordinance 21-19, which provides standards for the provision of solid waste (refuse) and recyclable material storage areas; and the City's Building Code, which requires development projects to complete and submit a Waste Management and Recycling Plan for approval prior to issuance of building permits. Therefore, implementation of the proposed project, in addition to the cumulative projects identified in Table 3-1, would not result in cumulatively considerable impacts related to solid waste. Cumulative impacts would be less than significant.

4.18.8 References

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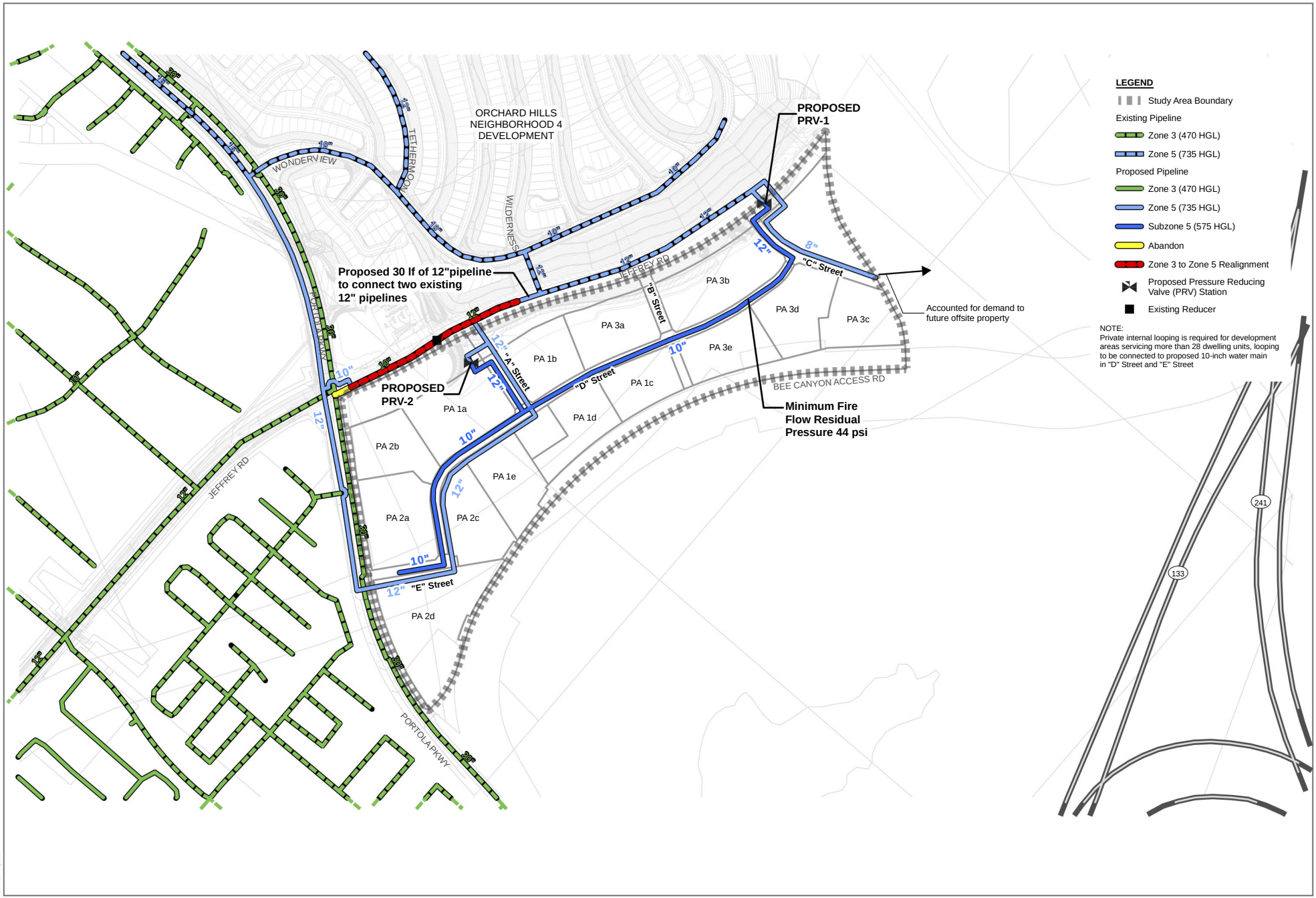
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SOURCE: Stantec 2024

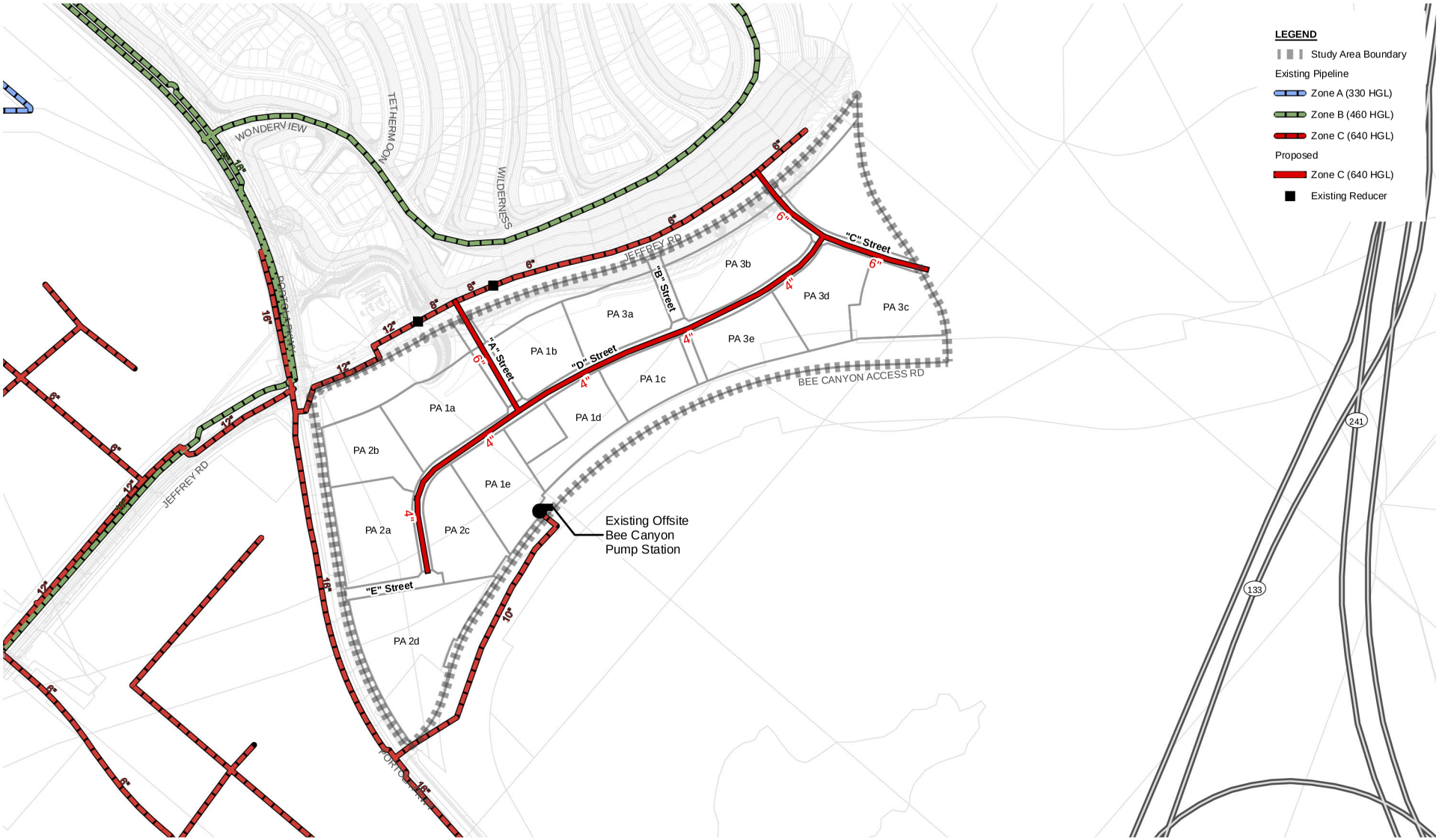
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FIGURE 4.18-1

Potable Water System Facilities

Irvine Gateway Village Project EIR

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SOURCE: Stantec 2024

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FIGURE 4.18-2

Recycled Water System Facilities

Irvine Gateway Village Project EIR

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SOURCE: Stantec 2024

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FIGURE 4.18-3

Sanitary Sewer System Facilities

Irvine Gateway Village Project EIR

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4.19 Wildfire

This section describes the existing wildlife conditions of the project site and vicinity, identifies associated regulatory requirements, evaluates potential impacts, and identifies mitigation measures related to implementation of the proposed project.

This discussion and analysis provided in the section are based on a review of digital information, including California Department of Forestry and Fire Protection (CAL FIRE) Fire Hazard Severity Zone (FHSZ) mapping data, as well as the following project-specific technical reports:

- **Appendix J-1:** Fire Behavior Analysis and Report (Fire Behavior Analysis) – Gateway Village, Irvine, California; prepared by FireSafe Planning Inc.; dated December 30, 2024
- **Appendix J-2**: Evacuation Travel Time Analysis for Irvine Gateway Village in Irvine, California (Evacuation Travel Time Analysis); prepared by LSA; dated July 29, 2025
- **Appendix J-3**: Irvine Gateway Village Conceptual Fuel Modification Plan (Conceptual Fuel Modification Plan), Irvine, California; prepared by FireSafe Planning Inc.; dated April 3, 2025
- **Appendix J-4**: Alternative Means and Methods for Fuel Modification (Alternative Fuel Modification Methods), Irvine, California; prepared by FireSafe Planning Inc.; dated April 3, 2025
- **Appendix E-1:** Preliminary Geotechnical Subsurface Evaluation (Preliminary Geotechnical Evaluation), Residential Development, Gateway Village, Irvine, California; prepared by LGC Geotechnical Inc.; dated November 22, 2024

4.19.1 Existing Conditions

A wildfire is a nonstructural fire that occurs in vegetative fuels, excluding prescribed fire. Wildfires can occur in undeveloped areas and spread to developed areas. A wildland–urban interface is an area where urban development is close to open space or "wildland" areas. The potential for wildland fires represents a hazard where development is adjacent to open space or close to wildland fuels or designated FHSZs. Steep hillsides and varied topography also contribute to the risk of wildland fires. Fires that occur in wildland–urban interface areas may affect natural resources as well as life and property. It is important to note that wildland fire may transition to urban fire if structures are receptive to ignition. Structure ignition depends on a variety of factors and can be prevented through a layered system of protective features, including fire-resistive landscapes directly adjacent to the structures, application of known ignition-resistive materials and methods, and suitable infrastructure for firefighting purposes.

CAL FIRE has mapped areas of significant fire hazards in the state through its Fire and Resources Assessment Program (FRAP). These maps place areas of the state into different FHSZs, ranging from Moderate to Very High, based on a hazard scoring system using subjective criteria for fuels, fire history, terrain influences, housing density, and occurrence of severe fire weather where urban conflagration could result in catastrophic losses. As part of this mapping system, land for which CAL FIRE is responsible for wildland fire protection and that is generally located in unincorporated areas is classified as a State Responsibility Area (SRA) (CAL FIRE 2025a). Where local fire protection agencies, such as the Orange County Fire Authority (OCFA), are responsible for wildfire protection, the land is classified as a Local Responsibility Area (LRA). The northern half of the project site lies within a Very High FHSZ (VHFHSZ) within an LRA, and the entire eastern boundary of the project site borders a VHFHSZ within an SRA (Figure 4.19-1, Fire Hazard Severity Zones).

Topography, Climate, and Vegetation

Fire environments are dynamic systems and include many types of environmental factors and project site characteristics. Fires can occur in any environment where conditions are conducive to ignition and fire movement. Areas of naturally vegetated open space typically exhibit conditions that may be favorable to wildfire spread. The three major components of the fire environment are topography, climate, and vegetation (i.e., fuels). The state of each of these components and their interactions with each other determine the potential characteristics and behavior of a fire at any given moment. The topography, climate, and vegetation of the project site and surrounding vicinity are discussed in further detail below.

Topography

Topography influences fire risk by affecting fire spread rates. Typically, steep terrain results in faster fire spread upslope and slower fire spread downslope (in the absence of wind). Terrain that forms a funneling effect, such as chimneys, chutes, and saddles on the landscape, can result in especially intense fire behavior. Conversely, flat terrain tends to have little effect on fire spread, resulting in fires that are driven by wind. The project site is relatively flat, having been previously used for row crops. The general topography in the project area is flat to the west, rising to the east in the transition from valley floor to foothills. The project area is a series of smaller drainages that generally run northeast–southwest.

Locally, the project site is within the relatively narrow Hicks Canyon at the base of the foothills that support the Santa Ana Mountains to the northeast of the project site. The general nature of the topography on the project site is flat in the western portion of the site, rising in the east toward the foothills. The area includes a series of smaller drainages, generally running northeast–southwest. To the west, east, and north are ridgelines that run parallel with the project site, which generally rise to the northeast to a larger ridgeline that runs southeast–northwest, perpendicular to the project site. Slopes directly adjacent to the project site on the western, northern, and eastern boundary beyond the surrounding roadways range from 5% to 30%, with an average slope of 25%. The majority of the project site is generally flat (less than 2% slope). The edges of the project site are manufactured slopes (2:1 or less), which have revegetated under natural conditions on the northern and eastern interfaces. To the north, the project site has been mass graded (Appendix J-1, Fire Behavior Analysis).

Climate

The climate of Orange County (County) is typical of a Mediterranean area, with warm, dry summers and wet winters. The prevailing wind pattern is from the west (onshore), but the presence of the Pacific Ocean causes a diurnal (i.e., daytime) wind pattern that is caused by temperature differences between the land mass and the adjacent ocean. During the day, winds are from the southwest (sea) and at night winds are from the northeast (land), averaging approximately 4 miles per hour (mph). Surface winds can also be influenced locally by topography and slope variations. The highest wind velocities are associated with Santa Ana winds. Santa Ana winds are caused by high-pressure cells inland seeking equilibrium with the air over the ocean, but with greater intensity than the normal diurnal flow (Appendix J-1). The average high temperature for the project area is approximately 73°F, with average daily highs in the summer and early fall months (June through October) exceeding 80°F. Precipitation typically occurs between December and March, with average annual rainfall of 14.38 inches (U.S. Climate Data 2025).

Typically, the highest fire danger in Southern California coincides with Santa Ana winds. The Santa Ana wind conditions are a reversal of the prevailing winds from the southwest that usually occur on a regionwide basis near the end of fire season during late summer and early fall. Santa Ana winds are dry, warm winds that flow from the

higher desert elevations in the east through the mountain passes and canyons. As they converge through the canyons, their velocities increase. Consequently, peak velocities are highest at the mouths of canyons and dissipate as they spread across valley floors. Localized wind patterns on the project site are strongly affected by both regional and local topography (Appendix J-1).

Vegetation (Fuels)

Vegetation acts as the primary fuel for wildfires, and different vegetation types influence fire behavior and severity. Some vegetation, such as brush and grassland habitats, are highly flammable, while other vegetation, such as riparian communities or forest understory, are less flammable due to their higher plant moisture content, compact structure, and available shading from overstory tree canopies. As discussed previously, areas of naturally vegetated open space typically exhibit conditions that may be favorable to wildfire spread. The majority of the project site is composed of undeveloped open space. The predominant fuels of the project site are grasses, grass/shrub mixtures, and tree understory (Appendix J-1).

The majority of the project site is exposed to natural vegetated areas predominantly composed of grass vegetation. Grass/shrub arrangements cover the majority of the project site and contain both California buckwheat (*Eriogonum fasciculatum*) and California sagebrush (*Artemisia californica*). California buckwheat and California sagebrush burn with a relatively high intensity. Furthermore, the open space directly to the north and east of the project site consists of natural vegetation, predominantly grasses and grass/shrub (Figure 4.19-2, Wildland Fuels). Additionally, the Irvine Ranch Conservancy Native Seed Farm (Seed Farm) is adjacent to the project site. Due to the nature of the Seed Farm, it is expected that whatever plants are raised there would be allowed to seed (Appendix J-1).

Much of the project site is surrounded by 100 feet or less of native vegetation adjacent to the project site boundary. In all cases, the native vegetation is bounded by roads that are 85 feet wide to the south, 80 feet wide to the east, 65 feet wide to the north, and 60 feet wide to the west. Beyond the roads, the project site is surrounded by native vegetation to the north of the project site and to the east of Bee Canyon Access Road, including annual grasslands, shrubs, and trees. Specific plant species in the area include California buckwheat, California sagebrush, toyon (*Heteromeles arbutifolia*), and black mustard (*Brassica nigra*) (Appendix J-1).

Fire History

A review of CAL FIRE's FRAP, which maintains a statewide spatial database of fire perimeters from Bureau of Land Management, National Park Service, and U.S. Forest Service fires 10 acres and greater in size and CAL FIRE fires 300 acres and greater in size, since 1980, was conducted for the Fire Behavior Analysis (Appendix J-1). Collection criteria for CAL FIRE fires changed in 2002 to include timber fires greater than 10 acres, brush fires greater than 50 acres, grass fires greater than 300 acres, fires destroying three or more structures, and fires causing $300,000 or more of damage. In 2008, the collection criteria for CAL FIRE fires eliminated the monetary criterion and redefined "structures."

As shown on Figure 4.19-3, Fire History, five large fires and one small fire have burned onto the project site since records have been kept (105 years). The areas to the north, south, and east of the project site have significant large fire history and are considered to be historic fire corridors." Fires are likely to continue to burn within the areas to the north and east, because these areas are designated as open space and are intended to remain so in perpetuity.

All the fires near the project site, with the exception of the Jeffrey Fire in 2017, have been large fires (greater than 7,000 acres) that have burned into the area from origins in other areas of the County. All the large fires have stopped, or have been stopped, at what is now Portola Parkway. In 1931, 1948, and 1967 (No Name Fire, Green River Fire, and Paseo Grande Fire, respectively), this area would have been strictly agricultural groves. The fires likely stopped due to the change in, or lack of, wildland fuels coupled with the changes in topography (to flat, as opposed to hillside), which no longer channeled or accelerated the winds from the north-northeast (traditional direction of strong winds during fires in the region). The 2017 fire (Jeffrey Fire) was held to a single hillside alongside Jeffrey Road (Figure 4.19-4, Fire History Without Large Fires).

Fire Prevention/Protection, Emergency Services, and Disaster Response

California Department of Forestry and Fire Protection

CAL FIRE is responsible for response to wildfires in areas that are classified as SRAs. CAL FIRE protects the people of California from fires; responds to emergencies; and protects and enhances forest, range, and watershed values providing social, economic, and environmental benefits to rural and urban citizens. CAL FIRE's Fire Prevention Program consists of multiple activities, including wildland pre-fire engineering, vegetation management, fire planning, education, and law enforcement. Typical fire prevention projects include brush clearance, prescribed fire, defensible space inspections, emergency evacuation planning, fire prevention education, fire hazard severity mapping, and fire-related law enforcement activities. The Office of the State Fire Marshal supports CAL FIRE's mission through fire prevention engineering programs, law and code enforcement, and education. It provides support through a wide variety of fire safety responsibilities, including by enforcing fire-related laws in state-owned or -operated buildings, investigating arson fires in California, licensing those who inspect and service fire protection systems, approving fireworks as safe and sane for use in California, regulating the use of chemical flame retardants, evaluating building materials against fire safety standards, regulating hazardous liquid pipelines, and tracking incident statistics for local and state government emergency response agencies (CAL FIRE 2025b).

Emergency Response

The project site is located within OCFA's jurisdictional response area. OCFA is the primary response agency for fires and provides a full range of fire prevention services. OCFA has established a target response time of 8 minutes and 30 seconds from call pick up to arrival for 90% of calls for first-in engines to arrive on scene to medical aids and/or fires; first-in truck companies should arrive on scene to fires within 11 minutes and 30 seconds 90% of the time (Schneider, pers. comm., 2025). Existing fire stations are described and mapped in Section 4.14, Public Services, of this Draft EIR.

4.19.2 Relevant Plans, Policies, and Ordinances

Federal

National Fire Protection Association Codes, Standards, Practices, and Guides

National Fire Protection Association codes, standards, recommended practices, and guides are developed through a consensus standards development process approved by the American National Standards Institute. This process brings together professionals representing varied viewpoints and interests to achieve consensus on fire and other safety issues. National Fire Protection Association standards are recommended guidelines and nationally accepted good practices in fire protection but are not laws or codes unless adopted as such or referenced as such by the California Fire Code (CFC) or the local fire agency.

International Fire Code

Created by the International Code Council, the International Fire Code (IFC) is not a federal regulation but provides important guidance regarding a wide array of conditions hazardous to life and property, including fire, explosions, and hazardous materials handling or usage. The IFC places an emphasis on prescriptive and performance-based approaches to fire prevention and fire protection systems. Updated every 3 years, the IFC uses a hazards classification system to determine the appropriate measures to incorporate into the building and design of new structures or improvement of existing structures to protect life and property (often these measures include construction standards, specialized equipment, and performance requirements). The IFC uses a permit system (based on hazard classification) to ensure that required measures are instituted.

International Wildland–Urban Interface Code

The International Wildland–Urban Interface Code is published by the International Code Council and is a model code addressing wildfire issues. The model code is intended to be adopted and used as a supplemental code to the building and fire codes of a jurisdiction. The goal of the International Wildland–Urban Interface Code is to establish minimum standards and regulations for protecting life and property from the intrusion of fire, wildland fire exposure, and fire exposures from adjacent structures and to prevent structure fires from spreading to wildland fuels.

State

California Health and Safety Code

Fire regulations for California are established in Section 13000 et seq. of the California Health and Safety Code and include regulations for structural standards (similar to those identified in the California Building Code [CBC]); fire protection and public notification systems; fire protection devices, such as extinguishers and smoke alarms; standards for high-rise structures and childcare facilities; and fire suppression training. The state fire marshal is responsible for enforcement of these established regulations and building standards for all state-owned buildings, state-occupied buildings, and state institutions within California.

California Public Resources Code

California Public Resources Code (PRC) Sections 4201–4204 and California Government Code Sections 51175–51189 (discussed in further detail below) direct CAL FIRE to map areas of significant fire hazards based on fuels, terrain, weather, and other relevant factors. These zones, referred to as FHSZs, determine the application of various mitigation strategies to reduce the risk associated with wildland fires.

PRC Section 4290 requires minimum fire safety standards related to defensible space that apply to residential, commercial, and industrial building construction in SRA lands and lands classified and designated as VHFHSZs. These regulations include road standards for fire apparatus access, standards for signs identifying roads and buildings, requirements for fuel breaks and green belts, and minimum water supply requirements. It should be noted that these regulations do not supersede local regulations that equal or exceed minimum regulations required by the state.

PRC Section 4291 requires a reduction of fire hazards around buildings located adjacent to a mountainous area, forest-covered lands, brush-covered lands, grass-covered lands, or land that is covered with flammable material. This section of the PRC requires maintaining a minimum of 100 feet of vegetation management around all buildings

and is the primary mechanism for conducting fire prevention activities on private property within CAL FIRE's jurisdiction. Further, PRC 4291 requires the removal of dead or dying vegetative materials from the roof of a structure and specifies that trees and shrubs must be trimmed from within 10 feet of the outlet of a chimney or stovepipe. Exemptions may apply for buildings with an exterior constructed entirely of nonflammable materials.

In September of 2020, Assembly Bill 3074 amended PRC Section 4291 to require stricter standards for fuel reduction. The amendment stipulates that within 100 feet of structures, more intense fuel reduction is to occur between 5 and 30 feet around the structure, and within 5 feet of the structure is to be the ember-resistant zone.

California Code of Regulations

Title 14: Natural Resources

California Code of Regulations (CCR) Title 14, Division 1.5, Chapter 7, Subchapter 3, Fire Hazard sets forth requirements for defensible space if the distances specified above from PRC Section 4291 cannot be met. For example, options that have similar practical effects include using non-combustible block walls or fences, establishing 5 feet of noncombustible material horizontally around the structure, installing hardscape landscaping or reducing exposed windows on the side of the structure with less than a 30-foot setback, or implementing additional structure hardening, such as those required in the CBC (24 CCR, Part 2, Chapter 7A).

Title 19: Public Safety

CCR Title 19 addresses public safety and includes state fire marshal requirements (19 CCR, Division 1), which incorporate general fire and safety standards regarding fire department access and egress, fire alarms, emergency planning, and evacuation procedures.

The Standardized Emergency Management System (SEMS) regulations are described in Title 19, Division 2, Chapter 1 of the CCR. The SEMS is required by the California Emergency Services Act for managing multi-agency and multi-jurisdictional responses to emergencies in California and coordinating among all levels of government and affected agencies. The SEMS unifies all elements of California's emergency management community into a single, integrated system and standardizes key elements.

As required by state law, the City of Irvine (City) has adopted the SEMS. The SEMS establishes organizational levels for managing emergencies, standardized emergency management methods, and standardized training for responders and managers. When fully activated, SEMS activities occur at five levels: field response, local government, operational areas (County-wide), Mutual Aid Regions, and state.

Title 24: California Building Standards Code

The California Building Standards Code (24 CCR) contains provisions for building and safety standards, including fire safety standards for new buildings that are provided in the CBC (24 CCR, Part 2) and the CFC (24 CCR, Part 9). These standards apply to all occupancies in California, except where state agencies and local governing bodies adopt more stringent standards.

The California Building Standards Code includes several chapters relevant to fire safety and protection that address types of construction, fire- and smoke-protection features, construction materials and methods, and rooftop construction.

Title 24, Part 2: California Building Code

Part 2 of Title 24 contains the CBC. Chapter 7A of the CBC regulates building materials, systems, and/or assemblies used in the exterior design and construction of new buildings located within a wildland–urban interface fire area. The purpose of Chapter 7A is to establish minimum standards for the protection of life and property by increasing the ability of a building located in any FHSZ within an SRA or a wildland–urban interface fire area to resist the intrusion of flames or burning embers projected by a vegetation fire and to contribute to a systematic reduction in conflagration losses. New buildings located in such areas must comply with the ignition-resistant construction standards outlined in CBC Chapter 7A.

Title 24, Part 9: California Fire Code

The CFC is a set of regulations that govern fire safety and practices within the state of California. It is part of the California Building Standards Code (Title 24 of the California Code of Regulations) and is enforced by local building authorities across the state.

Part 9 of Title 24 of the CCR contains the CFC, which incorporates by adoption the IFC with necessary California amendments. The CFC establishes regulations to safeguard against the hazards of fire, explosion, or dangerous conditions in new and existing buildings, structures, and premises. The CFC also establishes requirements intended to provide safety for and assistance to firefighters and emergency responders during emergency operations. The provisions of the CFC apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal, and demolition of every building or structure throughout California. The CFC includes regulations regarding fire-resistance-rated construction, fire-protection systems such as alarm and sprinkler systems, fire services features such as fire apparatus access roads, means of egress, fire safety during construction and demolition, and wildland–urban interface areas. Additionally, CFC safety requirements include fire sprinklers in all high-rise buildings; fire-resistance standards for fire doors, building materials, and particular types of construction; debris and vegetation clearance within a prescribed distance from occupied structures in wildfire hazard areas; and fire-flow requirements, fire hydrant spacing, and access road specifications.

The CFC is updated and published every 3 years by the California Building Standards Commission. The 2022 CFC took effect on January 1, 2023. Both the City and the County have adopted the 2022 CFC with local amendments.

California Fire Code, Chapter 33. Chapter 33 of the CFC outlines general fire safety precautions for all structures and all occupancies during construction and demolition operations. In general, these requirements seek to maintain required levels of fire protection, limit fire spread, establish the appropriate operation equipment and promote prompt response to fire emergencies. Features regulated include fire protection systems, firefighter access to the site and building, means of egress, hazardous materials storage and use, and temporary heating equipment and other ignition sources.

California Government Code

California Government Code Sections 51175 through 51189, included in Title 5, Part 1, Chapter 6.8, Moderate, High and Very High FHSZ, provides guidance for classifying lands in California as fire hazard areas and requirements for management of property within those lands. CAL FIRE is responsible for classifying FHSZs, based on statewide criteria, and making the information available for public review. Further, local agencies must designate, by ordinance, VHFHSZs within their jurisdiction based on CAL FIRE recommendations.

California Government Code Section 51182 sets forth requirements for maintaining property within fire hazard areas, such as defensible space, vegetative fuels management, and building materials and standards. According to the California Government Code, defensible space around structures in fire hazard areas must consist of 100 feet of fuel modification on each side of a structure, but not beyond the property line unless findings conclude that the clearing is necessary to significantly reduce the risk of structure ignition in the event of a wildfire. Clearance on adjacent property is only conducted following written consent by the adjacent owner. Further, trees must be trimmed from within 10 feet of the outlet of a chimney or stovepipe, vegetation near buildings must be maintained, and roofs of structures must be cleared of vegetative materials. Exemptions may apply for buildings with an exterior constructed entirely of nonflammable materials.

Senate Bill 1241

In 2012, Senate Bill 1241 added Section 66474.02 to Title 7, Division 2 of the California Government Code, commonly known as the Subdivision Map Act. The statute prohibits subdivision of parcels designated as VHFHSZs or that are in an SRA unless certain findings are made prior to the approval of the tentative map. The statute requires that a city or county planning commission make three new findings regarding fire hazard safety before approving a subdivision proposal. The three findings are, in brief: (1) the design and location of the subdivision and its lots are consistent with defensible space regulations found in PRC Section 4290-91, (2) structural fire protection services will be available for the subdivision through a publicly funded entity, and (3) ingress and egress road standards for fire equipment are met per any applicable local ordinance and PRC Section 4290.

State Hazard Mitigation Plan

Approved by the Federal Emergency Management Agency (FEMA) in September 2018 as an Enhanced State Mitigation Plan, the 2018 State Hazard Mitigation Plan Update continues to build on California's commitment to reduce or eliminate the impacts of disasters caused by natural, technological, accidental, and adversarial/human-caused hazards, and further identifies and documents progress made in hazard mitigation efforts, new or revised state and federal statutes and regulations, and emerging hazard conditions and risks that affect the state.

California Strategic Fire Plan

The 2018 Strategic Fire Plan for California reflects CAL FIRE's focus on fire prevention and suppression activities to protect lives, property, and ecosystem services, and natural resource management to maintain the state's forests as a resilient carbon sink to meet California's climate change goals and to serve as important habitat for adaptation and mitigation. The Strategic Fire Plan provides a vision for a natural environment that is more fire resilient, buildings and infrastructure that are more fire resistant, and a society that is more aware of and responsive to the benefits and threats of wildland fire, all achieved through federal, tribal, state, local, and private partnerships (CAL FIRE 2018).

Mutual Aid Agreements

The California Disaster and Civil Defense Master Mutual Aid Agreement, as provided by the California Emergency Services Act, provides for statewide mutual aid between and among local jurisdictions and the state. The statewide mutual aid system exists to ensure that adequate resources, facilities, and other supports are provided to jurisdictions whenever resources prove to be inadequate for a given situation. Each jurisdiction controls its own personnel and facilities but can give and receive help whenever needed. The OCFA, Fountain Valley Fire Department, Laguna Beach Fire Department, and Anaheim Fire & Rescue participate in these mutual aid, automatic aid, and other agreements with surrounding fire departments. In some instances, the closest available resource may come from another fire department.

Local

Irvine 2045 General Plan Safety Element

Goal 4: Safeguard the community from the threat of urban and wildfire hazards.

Objective S-4: Wildfire Hazards

Policy (a): Coordinate with regional partners to explore and deploy fire detection cameras as part of a wildfire monitoring network.

Policy (b): Coordinate with surrounding municipalities and Orange County to enhance evacuation and emergency management protocols, agreements, and processes.

Policy (f): Encourage public and private landowners to minimize the risk of wildfire moving from wildland areas to developed properties or from property-to-property by increasing structural hardening measures (e.g., fire-rated roofing and fire-resistant construction materials and techniques), maintaining and improving defensible space on site, and supporting vegetation management in adjacent undeveloped areas.

Policy (h): Encourage removal of highly flammable vegetation with little to no biological value in Very High, High, and Moderate Fire Hazard Severity Zones and replant with fire-adapted specimens.

Policy (i): Promote the proper maintenance and separation of power lines and efficient response to fallen power lines in accordance with Title 14 CCR Division 1.5 Chapter 7 Article 4 (Fire Prevention Standards for Electric Utilities).

Policy (j): Encourage the use of underground power lines for replacement power lines, where feasible.

Policy (k): Ensure that all new development and redevelopment in the Very High Fire Hazard Severity Zone is developed in compliance with minimum structural fire protection standards in the adopted edition of the California Fire and Building Codes, applicable state or local fire safety and defensible space regulations or standards, and any applicable fire protection or risk reduction measures identified in locally adopted plans.

Policy (l): Ensure future neighborhoods are designed with adequate fire access and evacuation egress in the event of an emergency.

Policy (m): Avoid expanding new residential development, essential public facilities, and critical infrastructure in areas subject to extreme threat or high risk, such as Very High Fire Hazard Severity Zones, or areas classified by the California Department of Forestry and Fire Protection as having an Extreme Threat classification on Fire Threat Maps, unless all feasible risk reduction measures have been incorporated into project designs or conditions of approval. Example risk reduction measures include, but are not limited to, fuel modification zones or defensible space, structure hardening, enclosed foundations, and highly visible street signs and property addresses.

Policy (n): Ensure adequate water supply for fire suppression and ensure that the water supply is protected from wildfire impacts, including providing back-up power, with priority for solar and battery storage back-up supplies.

Policy (o): Ensure future neighborhoods are designed with sufficient water pressure to maintain fire flow.

Policy (p): Encourage the use of underground power lines for new developments.

Policy (q): Ensure that private development subject to the California Environmental Quality Act evaluate hazard impacts to ensure adequate evacuation in the event of an emergency, and if required, develop standards for the protection of the community.

Policy (r): Review development proposals and coordinate with regional transportation agencies to ensure that multiple evacuation routes are available under a range of scenarios and identify alternative routes that are accessible to people without life-supporting resources.

Policy (t): Coordinate evaluations for redevelopment of areas that have been burned after a large fire.

Policy (u): Continue the long-term maintenance of fire reduction projects; including but not limited to, a roadside fuel reduction plan, defensible space clearances (including fuel breaks) around structures, subdivisions, and other developments in the Very High Fire Hazard Severity Zone.

Policy (v): Maintain established response time standards for fire and life safety services.

Municipal Code

Title 5 (Planning), Division 9 (Building Regulations)

The City's Building Code Regulations are included in Division 9 of the City's Municipal Code, as adopted under Section 5-9-101 (Adoption of Building Code). Division 9 adopted by reference the most recent version of the CBC.

Zoning Ordinance

City Standard Condition 2.19: Open Space Fuel Modification. Prior to issuance of precise grading permits for any lots adjacent to open space, the applicant shall submit a fuel modification plan prepared to the satisfaction of the Director of Community Development for review and approval, in consultation with the Director of Community Services. The fuel modification plan shall be approved by OCFA. The requirements set forth in this condition do not apply to developed, irrigated parkland.

City Standard Condition 3.14: HOA/Fuel Modification. Prior to the issuance of building permits for any dwelling units on lots located adjacent to or within fuel modification zones, the applicant shall provide evidence that there is a requirement included in the CC&Rs that any changes to plant materials located within fuel modification zones must be approved by the Director of Community Development and be consistent with applicable OCFA requirements. For fuel modification zones adjacent to lands designated as Open Space, changes in plant materials shall also be reviewed by the Director of Community Services.

City of Irvine Local Hazard Mitigation Plan (2020)

The 2020 Local Hazard Mitigation Plan included mitigation actions to decrease risks associated with wildfires, including the following:

- Promote the proper maintenance and separation of power lines and efficient response to fallen power lines.
- Remove highly flammable vegetation in Very High, High, and Moderate Fire Hazard Severity Zones and replant with fire-adapted specimens.
- Create a hillside weed abatement pilot program using goats or other livestock to reduce fuel loads in fire-prone areas.
- Routinely participate in the update of the Orange County Community Wildfire Preparedness Plan for areas within the Very High, High, and Moderate Fire Hazard Severity Zones.
- Create a rapid response plan from among Irvine's and Orange County's first responders to secure hospital, nursing, and assisted living facilities, especially those located within fire hazard severity zones.
- Reinforce and regularly inspect fire retardant infrastructure such as sprinklers, fire hose terminals, and fire suppression systems in City facilities.
- Coordinate with partners to clear dead vegetation in flood control facility footprints, railroad rights-of-way, parks, and open spaces, especially during and after a drought episode.
- Expand the fire hazard prevention awareness campaign to residents in the High and Very High Fire Hazard Severity Zones.
- Work with OCFA on home preparedness assessments to assist more residents in understanding and addressing their wildfire risk.
- Require all new development in Very High, High, and Moderate Fire Hazard Severity Zones to use noncombustible building materials such as masonry, brick, stucco, concrete, steel, or others as appropriate. Establish zones of defensible space around homes in Very High, High, and Moderate Fire Hazard Severity Zones.

Emergency Operations Plan

The City's Emergency Operations Plan provides a resiliency framework for the City to prepare for, respond to, recover from, and mitigate against all hazards including natural, human-caused, and technological disasters, and national security emergencies. It includes an overview of operational concepts, identifies components of the City's emergency management organization consistent with the SEMS and the National Incident Management System, and describes the overall responsibilities of federal, state, and county entities and the City for protecting life and property and assuring the overall well-being of the population. The Emergency Operations Plan identifies wildfire as a potential risk to life and property and identifies areas of concern. It provides a threat assessment and develops an approach to combatting wildfire, alerting and warning, shelter and mass care, donation management, volunteer management, evacuation, damage assessment, and preventive measures.

Orange County Fire Authority 2023 Unit Strategic Fire Plan

The OCFA 2023 Unit Strategic Plan addresses such topics as firefighter and public safety, wildland–urban interface challenges, impactful cost-effective solutions, community preparedness, prioritization, collaborative partnerships, program, project and policy evaluation, and adaptability.

Orange County Fire Authority – Ready, Set, Go Program

The City of Irvine participates in the CAL FIRE/OCFA "Ready, Set, Go!" program to help property owners prepare well in advance of a wildfire to increase safety and protect property. This program provides comprehensive information on how to improve structure resistance to wildfires and prepare people to be ready to leave early in a safe manner.

4.19.3 Thresholds of Significance

The significance criteria used to evaluate the project impacts to wildfire are based on Appendix G of the CEQA Guidelines. According to Appendix G, a significant impact related to wildfire would occur if the project would:

1. Substantially impair an adopted emergency response plan or emergency evacuation plan.
2. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire.
3. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment.
4. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

4.19.4 Impacts Analysis

1. Would the project substantially impair an adopted emergency response plan or emergency evacuation plan?

Less-Than-Significant Impact. An Evacuation Travel Time Analysis (Appendix J-2) was prepared for the proposed project. Off-site improvements causing temporary lane closures would be completed in the first phase of construction. Lane closures would be completed prior to construction of the residential units, because that infrastructure must be in place to obtain a certificate of occupancy. Therefore, construction activities are not anticipated to impede evacuations during this period. However, long-term operation of the project would introduce a permanent resident population on the project site that could require evacuation in the event of a wildfire emergency. Additional traffic generated by the proposed project in an emergency evacuation could contribute to congestion on the existing roadway system, which has the potential to substantially impair emergency response plans or emergency evacuation plans. The following discussion addresses the potential impact and consists of (1) a description of applicable evacuation routes, (2) a discussion of firefighting services that would be available for the project and the project's potential effects on associated service levels, and (3) a summary of results from detailed evacuation modeling of the project.

Evacuation Plans and Evacuation Routes

The Office of Emergency Management is responsible for coordinating the training, planning, and management of major emergencies of natural and man-made disasters.

The Citywide Evacuation Zone Map (City of Irvine 2021) was reviewed to help determine the key roadways and directionality of travel during an evacuation event. The Citywide Evacuation Zone Map shows that the project site is within Evacuation Zone 6A (Portola Springs). Available evacuation roadways in proximity to Evacuation Zone 6A are Jeffrey Road, Portola Parkway, Sand Canyon Avenue, State Route 241, and State Route 133.

Fire Stations and Response Times

As discussed in Section 4.14, Public Services, of this Draft EIR, fire protection in the City is provided by OCFA. Most of the City is served by Division 2 of OCFA, but other portions of the City are served by Divisions 4 and 5. OCFA serves the unincorporated portions of Orange County (County) and some cities within the County with which they have service agreements. OCFA Fire Station No. 55 is located at 4955 Portola Parkway, approximately 0.7 miles west of the project site. OCFA's goals for responding to incidents is within 8 minutes and 30 seconds, 90% of the time (Schneider, pers. comm., 2025). It is important to note that the City is currently negotiating with OCFA regarding an amended contract for fire services or a potential cessation of the current contract to allow the City to operate its own fire services. Details regarding this negotiation are ongoing and have not yet been finalized (City of Irvine 2024a). Should fire services be transferred over to the City, there would be no change to impacts to fire services.

Per City Municipal Code Section 2-9-604, the project would be required to pay a Systems Development Charge that would be used for future facility improvements necessary to ensure contribution of its fair share of the cost of facilities and equipment. Additionally, impacts to fire services are anticipated to be adequately funded by an increase in tax revenue over an extended time, relative to the increase in development intensity. Additional fire personnel and associated facilities and equipment would be provided through the annual Operating Budget and Capital Improvement Program review process (OCFA 2022). Additional fire stations in the City are available to assist Fire Station No. 55 with supplemental resources in an event of great need. Fire Station No. 26 (4691 Walnut Avenue) and Fire Station No. 20 (7050 Corsair) are located 2.5 miles and 2.7 miles away, respectively, from the project site.

According to the OCFA Statistical Annual Report, the City has a population of 303,051 as of 2023 (OCFA 2024). Within the City in 2023 there were 26,635 OCFA unit responses, resulting in a total of 20,195 incidents, 225 of which were fire incidents, 13,781 of which were Emergency Medical Service incidents, and 6,189 of which were other types of incidents. This equates to 0.9 calls for every 10 residents in the City. The proposed project involves the development of 1,360 two- to three-story homes, which could support an estimated 3,604 residents. Assuming an approximate generation of 0.9 calls per 10 residents, the proposed project would generate approximately 324 calls per year.

Evacuation Modeling and Analysis

As discussed previously, two direct evacuation routes (Jeffrey Road and Portola Parkway) are available for the potential evacuation area. In the event of a fire, all the outbound evacuating traffic would exit the evacuation area via "A," "B," "C," and "E" Streets and then proceed through the signalized intersection of Jeffrey Road/Portola Parkway to reach safety. The evacuation traffic that leaves the area via "A," "B," and "C" Streets on Jeffrey Road would contribute to the southbound flow at Jeffrey Road/Portola Parkway; the evacuation traffic that leaves the area via right-in/right-out "E" Street on Portola Parkway would contribute to the westbound flows at Jeffrey Road/Portola Parkway. It should be noted that, in the worst-case fire scenario, evacuees are less likely to travel to the east on Portola Parkway for safety reasons. As mentioned before, the fire flame/heat is expected to extend to the north side of Portola Parkway (east of Bee Canyon Access Road). Although no direct fire was forecast to occur on Portola Parkway, the impact of embers and smoke would make the segment of Portola Parkway east of Bee Canyon Access Road unsafe for traffic.

To calculate the evacuation travel time, the capacity for each evacuation turning movement at Jeffrey Road/ Portola Parkway was determined. Based on the City's Traffic Study Guidelines (City of Irvine 2023), a roadway lane in the City has a saturation flow rate of 1,700 vehicles per hour (veh/h) per lane. According to the Highway Capacity Manual (NASEM and TRB 2022, as cited in Appendix J-2), the "saturation flow rate" is defined as the flow rate per lane at which vehicles could pass through a signalized intersection if a green signal was displayed for the full hour and flow of vehicles never stopped. The capacity for each turning movement at Jeffrey Road/Portola Parkway was determined based on the saturation flow rate and the proportion of green time (when a green signal is displayed) available.

As previously stated, in the event of a fire, northbound (left, through, and right turn) on Jeffrey Road, southbound left turn on Jeffrey Road, westbound right turn on Portola Parkway, and eastbound left turn and through on Portola Parkway would be restricted due to safety concerns. Only southbound through and right turn on Jeffrey Road and westbound left turn and through on Portola Parkway would be allowed for the potential evacuation area, and eastbound right turn would be allowed for evacuees from adjacent communities (e.g., Orchard Hills) along Portola Parkway west of Jeffrey Road. Therefore, during the fire event, the normal multi-phase signal operation at Jeffrey Road/Portola Parkway would be overridden and the resulting two-phase operation is expected to provide the following:

1. Southbound through and right turns on Jeffrey Road
2. Westbound left turn and through movements and eastbound right turns on Portola Parkway

For the purpose of this evacuation analysis, it is assumed that the green time will be evenly split by the two phases (50% for each phase). Table 4.19-1 provides a summary of the evacuation travel time calculations for each evacuation turning movement at Jeffrey Road/Portola Parkway that would be available for the evacuation area. As this table indicates, the three southbound through lanes at Jeffrey Road/Portola Parkway would have a capacity of 2,550 veh/h, and it would take approximately 0.56 hours (or 34 minutes) to evacuate 1,430 vehicles; the one southbound de facto right-turn lane at Jeffrey Road/Portola Parkway would have a capacity of 850 veh/h, and it would take approximately 0.42 hours (or 26 minutes) to evacuate 357 vehicles; the three westbound through lanes at Jeffrey Road/Portola Parkway would have a capacity of 2,550 veh/h, and it would take approximately 0.09 hours (or 6 minutes) to evacuate 222 vehicles; and the two westbound left-turn lanes at Jeffrey Road/Portola Parkway would have a capacity of 1,700 veh/h and it would take approximately 0.52 hours (or 32 minutes) to evacuate 888 vehicles. Therefore, the analysis conservatively concludes that the evacuation time for the potential evacuation area (including both existing uses and the proposed project) would be 0.56 hours (or 34 minutes) in the worst-case fire scenario under no Jeffrey Road extension to State Route 241 conditions. There are no established thresholds for determining whether evacuation times are safe; however, FEMA has provided a general guideline for reasonable community evacuations of 1 hour and 30 minutes (i.e., total of 90 minutes) (Rhode and Associates 2020).

Table 4.19-1. Evacuation Travel Time Analysis at Jeffrey Road/Portola Parkway

Travel Direction	Green Time (Percentage)	Saturation Flow Rate (veh/h/ln)[a]	Through Lanes (No.)	Roadway capacity (veh/h)[b]	Evacuation Vehicles	Evacuation Travel Time	
						Hrs	Mins
SB through	50%	1,700	3	2,550	1,430	0.56	34
SB right turn	50%	1,700	1	850	357	0.42	26

Table 4.19-1. Evacuation Travel Time Analysis at Jeffrey Road/Portola Parkway

Travel Direction	Green Time (Percentage)	Saturation Flow Rate (veh/h/ln)[a]	Through Lanes (No.)	Roadway capacity (veh/h)[b]	Evacuation Vehicles	Evacuation Travel Time	
						Hrs	Mins
WB through	50%	1,700	3	2,550	222	0.09	6
WB left turn	50%	1,700	2	1,700	888	0.52	32

Source: Appendix J-2.
Notes: veh/h/ln = vehicles per hour per lane; veh/h = vehicles per hour; SB = southbound; WB = westbound.
[a] Per the City of Irvine Traffic Study Guidelines (2023).
[b] Capacity = green time percentage * saturation flow rate * number of lanes.

Based on the analysis, the calculated evacuation travel time for the evacuation area is 0.56 hours (or 34 minutes) in the worst-case fire scenario. However, the actual evacuation travel time is anticipated to be less than the calculated 0.56 hours (34 minutes) because of the following reasonable considerations:

- The number of evacuation cars and the travel time were estimated based on the conservative conversion factor of 2.50 vehicles per residential unit. However, the Orange County Transportation Analysis Model (OCTAM) shows an average of 2.35 vehicles owned per household for existing residential communities surrounding the evacuation area (see Attachment C of Appendix J-2).
- No occupancy adjustments were applied in this analysis and the evacuation travel time was calculated assuming that all residents would be at home during an evacuation event. In addition, it is also assumed that all evacuees would leave the evacuation area at the same time.
- The City's Traffic Management Center would adjust the traffic signals in real time and emergency personnel could be placed at intersections to manually guide traffic during an evacuation, which would help traffic flow at Jeffrey Road/Portola Parkway and would potentially reduce evacuation time.

Conclusion

Based on the fire modeling outputs (provided in Appendix J-1), the fire origin located northwest of the project site within the open space, with an 80 mph north-northeast wind, was identified as the worst-case fire scenario. However, a fire is not expected to spread directly through the project site or the adjacent roadways (i.e., Jeffrey Road and Portola Parkway). All emergency access points ("A," "B," "C," and "E" Streets and Jeffrey Road/Portola Parkway) would remain accessible and would not be impacted directly by fire flame/heat. An evacuation would only be required due to the impact of embers and smoke.

The most conservative evacuation time for the potential evacuation area (including both existing uses and the proposed project) is approximately 34 minutes in a worst-case fire scenario. However, the actual evacuation time is anticipated to be less, because the evacuation time calculation is based on the conservative vehicle ownership per household number, 100% occupancy of all residential units, and the simultaneous departure of all evacuees. In addition, the City's Traffic Management Center would adjust the traffic signals in real time and emergency personnel could be placed at intersections to guide traffic at Jeffrey Road/Portola Parkway and potentially reduce the evacuation time. As such, emergency evacuation plan impacts would be less than significant.

2. Due to slope, prevailing winds, and other factors, would the project exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

Less-Than-Significant Impact with Mitigation Incorporated. As noted in Section 4.19.1, Existing Conditions, the project site is located in a VHFHSZ in an LRA. Additionally, the closest VHFHSZ in an SRA is adjacent to the east of the project site (Figure 4.19-1). The project could exacerbate wildfire risk and expose project occupants to pollutant concentrations from wildfire or the uncontrolled spread of wildfire if the project, combined with climatic, topographic, vegetation, and weather conditions and other factors, would increase the risk of a wildfire occurring and increase the severity of such an occurrence.

Much of the project site is surrounded by 100 feet or less of native vegetation adjacent to the project site boundary. In all cases, the native vegetation is bounded by roads between 60 and 85 feet in width beyond the project site boundary. Beyond the roads, the project site is surrounded by native vegetation to the north and to the east of Bee Canyon Access Road, consisting of annual grasslands, shrubs, and trees. Specific plant species in the area include California buckwheat, California sagebrush, toyon, and black mustard (Appendix J-1). According to the Fire Behavior Analysis (Appendix J-1), none of the adjacent fuels connect directly to a wildland area. This means that fire cannot burn into the project site as a "line of fire" but rather must "spot over" the roadways by embers or brands in most locations; however, direct flame contact over the Hicks Canyon Wash access is possible without the fuel modification zones [FMZs] discussed below. All fires in this area must start as a point source fire and grow into an equilibrium (sustained maximum rate of spread for the conditions) if there is enough fuel to do so. If a fire were to occur in the vegetation immediately adjacent to the project site, there would be limited fuel in this area to facilitate wildfire spread.

Short-Term Construction Impacts

Construction of the project would introduce potential ignition sources to the project site, including the use of heavy machinery and the potential for sparks during welding activities or other hot work. However, the project would be required to comply with City and state requirements for fire safety practices, including CFC Chapter 33 regulations, to reduce the possibility of fires during construction activities. Implementation of Mitigation Measure (MM) WF-1 (Pre-Construction Requirements) would ensure that before combustible materials are brought onto the site, all utilities and site improvements, fire hydrants, all-weather roadway, and FMZs would be in place and vegetation clearing would be maintained. Adherence to City and state regulatory standards during project construction would reduce the risk of wildfire ignition and spread during construction activities. Therefore, short-term construction-related impacts associated with exacerbating wildfire risk would be less than significant with mitigation incorporated.

Long-Term Operational Impacts

Slope

As outlined in Section 4.19-1, the majority of the project site is relatively flat (less than 2% slope); however, the maximum slope on the eastern and northern boundary of the project site is 25%. Elevations range from 420 to 570 feet above mean sea level. Upon project implementation, the portions of the site that would be developed would be graded to a level surface. Once developed, the project site would be graded with infill and therefore would not result in steep slopes that could exacerbate wildfire risk.

Prevailing Winds

Prevailing winds are winds that blow from a single direction over a specific area. As mentioned in Section 4.19.1, the prevailing wind pattern is from the southwest-west during the day, and at night winds are from the northeast. The average wind speed is 4 mph. High wind velocities that could exacerbate wildfire risk are generally associated with downslope, canyon, and Santa Ana winds that can occur in the winter in this area. Further, as shown on Figure 4.19-3 and mentioned above, wildfires have occurred immediately to the north, east, and west of the project site.

Other Factors

Other factors, such as FMZs, vegetation, building materials and setbacks, and proposed on-site activities, can also contribute to wildfire risk. These factors are further discussed below.

Fuel Modification Zones

The project site would have three FMZs that would extend across the project site, as depicted in Appendix J- 3 (Conceptual Fuel Modification Plan) and further described in Appendix J-4 (Alternative Fuel Modification Methods). This defensible space would consist of 20 feet of noncombustible construction (Zone A), a minimum of a 50-foot-wide wet zone that would include the full removal of undesirable shrubs (Zone B), and a 100-foot-wide thinning zone (Zone C) along the southwestern edge of the project site. Along the southern edge adjoining Bee Canyon Access Road, a minimum 10-foot-wide noncombustible construction zone (Zone A) and a minimum 39- to 129-foot-wide irrigated wet zone (Zone B) to the Bee Canyon Access Roadway would be provided. The total fuel modification distances along the edge include the Bee Canyon Access Roadway, as indicated in the Conceptual Fuel Modification Plan (Appendix J-3). Along the northeastern border of the project site, a 20-foot-wide Zone A and 100-foot-wide Zone B would be provided, and along the northern interface, a 20-foot-wide Zone A, followed by a minimum 85-foot-wide Zone B (which would provide a 50-foot-wide Zone B Roadside Protection Zone for the northern side of "C" Street) and a 100-foot-wide Zone C. Radiant heat walls, a radiant heat construction zone, and alternative tree spacing requirements would also be incorporated into the project site design as part of the fuel modification plan (per Appendix J-4, Alternative Fuel Modification Methods). The proposed FMZs would follow the requirements outlined in Appendices J-3 and J-4.

Zone A would consist of non-combustible construction. Zone B consists of a wet zone, which would be permanently irrigated and fully landscaped with approved drought-tolerant, deep-rooted, moisture-retentive material. Any new plant material that is added would be required to be planted using container shrub material. Avocado orchard trees (*Persea americana*) would be required to be a minimum of 15 feet from any eucalyptus trees (*Eucalyptus* spp.). Zone C consists of a thinning zone, which would require 50% thinning of native shrubs. Zone C would be a maximum of 100 feet out from Zone B. Zone C would be required to be non-irrigated and have horizontal and vertical spacing of plant groups in accordance with Attachment 6 of Appendix J-3 and removal of all dead and dying vegetation and undesirable species as specified in Attachment 7 of Appendix J-3. The minimum thinning percentage of plant removal in Zone C is 50%. Zones A, B, and C would be maintained by the homeowners' association (HOA). Alternative tree spacing requirements cover areas in Zone B and Zone C between the project site and Bee Canyon Access Road and would require no more than three trees in a group and spacing of each group of trees a minimum of 30 feet from any adjacent group, as measured from the mature canopy. Additionally, the understory directly under the tree canopies would be required to be composed of fire-resistant plant material in

accordance with OCFA's Fuel Modification Zone Plant List (OCFA 2020) and/or groundcover that naturally grows to no more than 1 foot in height. In addition, groundcover within 15 feet of groups of trees would be required to naturally grow to no more than 1 foot in height. Any shrub material that naturally grows to more than 2 feet in height would be required to be spaced a minimum of 30 feet from groups of trees.

Vegetation

As discussed previously, the vegetation on the project site is characterized by native species. Most of the vegetation on the project site consists of grass/shrub. The project would result in conversion of mostly undeveloped land with scattered vegetation cover into development consisting of residential homes, paved roads, and maintained landscape areas. The proposed landscaping would be implemented according to Chapter 3-15 of the City's Municipal Code and the Fuel Modification Plan and would include maintained landscaped areas that would have specific requirements (Appendices J-3 and J-4). Implementation of MM-WF-2 (Fire-Resistant Landscape Plan) would ensure that the proposed fuel modification plan would be implemented in accordance with defensible space principles discussed in the project-specific fuel modification plan, and that highly flammable vegetation would not be used in project landscaping, as referenced in Appendix J-3. Implementation of MM-WF-2 would ensure consistency with the City's General Plan Goal 4, Objective S-3, Policy k.

Building Materials and Setbacks

Project buildings would be required to comply with the City's Municipal Code Division 9, Chapter 1, which adopts both the 2022 CFC and the 2022 CBC and includes provisions for fire safety and fire-resistive construction. Further, compliance with required setbacks would allow for space between residential buildings and off-site vegetation. Studies indicate that given certain assumptions (e.g., 10 meters [33 feet] of low-fuel landscape, no open windows), wildfire is unlikely to spread to buildings unless the fuel and heat requirements of the building are sufficient for ignition and continued combustion (Alexander et al. 1998; USFS 1995). Construction materials and methods can prevent or minimize ignitions. The distance between a wildfire that is consuming wildland fuel and a building is the primary factor for structure ignition (not including burning embers) (Cohen 2000). Low-ignitability buildings provide the option of reducing the wildland fire threat to structures without extensive wildland fuel reduction. The project would be required to comply with construction methods outlined in the City's Municipal Code, the CFC, and the CBC, including Chapter 7A of the CBC, which regulates exterior design and construction of new buildings located within a wildland–urban interface fire area. These regulations specify requirements for materials and construction methods for fire safety. The proposed building materials for the project structures would be in accordance with the CBC, CFC, and Municipal Code. The proposed building materials for project structures include stucco, clay tile roofing, and other fire-resistant materials in compliance with Chapter 7A of the CBC. If structures have a sufficiently low ignitability, such as the project's structures, buildings can survive exposure to wildfire without major fire destruction.

Proposed Activities

Project activities would introduce new potential sources of ignition to the project site, including the introduction of a new population on site, vehicles traveling to and from the project site, and activities within a residential area. In Southern California, humans play a major role in wildfire ignitions by influencing the timing and spatial pattern of fires. As a result, humans account for more than 95% of ignitions in the region (Keeley and Syphard 2018). New residential development in a fire-prone area has the potential to exacerbate

wildfire risks and expose project occupants to pollutant concentrations from a wildfire, the uncontrolled spread of a wildfire, or direct or indirect risks associated with wildfire; therefore, impacts would be potentially significant.

As discussed in Section 4.13, Population and Housing, the population generated by the project, based on 1,360 residential dwelling units, would result in approximately 3,604 new residents at the project site. Development of the project would introduce new potential sources of ignition on the project site, including increased human activity (e.g., barbeque, smoking, outdoor mechanical equipment, and vehicles traveling on internal and external roads). The project also includes an extension of Jeffrey Road, development of parks, and an extension of the Jeffrey Open Space Trail east from Portola Parkway to the entrance of the new Gateway Preserve, which would facilitate expanded use of trails in the project area. In summary, the proposed project would increase human occupation in the project area, which has the potential to increase on-site ignitions and expose future project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire.

Equipment-caused ignitions frequently result from exhaust or sparks from power saws or equipment with gas or electric motors, such as lawnmowers, trimmers, or tractors. Ignitions are also more likely to occur close to roads and structures and in areas of intermediate structure densities. These sources of potential fire hazard would be introduced by the proposed project and have the potential to exacerbate wildfire risks and thereby potentially expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire.

However, as discussed previously, the project would include a layered approach to wildfire mitigation. Given that the proposed use would consist of ignition-resistant construction and vegetation on site would consist of fire-resistant and irrigated landscaping, the likelihood of a fire starting on site and spreading to off-site areas would be reduced. Additionally, the project would include Zone 0 landscaping requirements and would implement Chapter 7A on site to reduce ember and ignition sources, while also reducing fuel load and fire intensity by the FMZ along the project site's northern and eastern ridges. Further, existing development and roads surround the project site that present existing ignition sources near the currently vacant project site, which currently contains ignitable vegetation. The project would convert all available fuels to developed and maintained structures and landscaping.

Summary

Although CAL FIRE has designated the majority of the project site as a VHFHSZ, the risk of home ignition would likely be very low due to actions that reduce the risk of ignition. Projects within fire hazard zones are required to provide for a level of planning, ignition-resistant construction, access, water availability, fuel modification, and construction materials and methods that have been developed specifically to allow safe development within these areas.

The extent of VHFHSZs across Southern California is substantial; however, there is no evidence that modern, code-compliant residential communities are at high risk from wildfire if located within a designated VHFHSZ. Residential communities built to modern ignition-resistant standards provide passive fire protection that is highly successful at minimizing damage and loss of structures (CBIA, pers. comm., 2022). The state fire marshal's statistics demonstrate that building homes to CBC Chapter 7A standards effectively reduce fire risks to homes built in the wildland–urban interface and FHSZs (CBIA, pers. comm., 2022).

For example, the 2007 Witch Creek Fire was one of the most destructive fires in California's history and destroyed thousands of homes in San Diego County. However, after the 1990 Paint Fire in Santa Barbara and the 1991 Oakland Hills Tunnel Fire, five communities in San Diego County implemented measures to adapt to a VHFHSZ environment, such as implementing home fire-hardening measures, similar to Chapter 7A requirements, and vegetation restrictions, all of which were maintained and enforced by the HOA (Mutch et al. 2011). As a result, when the Witch Creek Fire spread to Rancho Santa Fe, no homes were lost in the five communities that had adopted this fire-hardening approach, while older communities that had not implemented fire-hardening measures were heavily impacted (Mutch et al. 2011).

Similarly, the 2008 Freeway Complex Fire near Yorba Linda tested the effects of enhanced building construction. In 1996, the City of Yorba Linda adopted construction requirements similar to those currently reflected in Chapter 7A of the CBC. Notably, even though structures were exposed to severe fire behavior and airborne ember storms, no homes built after 1996 were lost during the fire. The Casino Ridge community, which was built with fire-resistant materials and methods and maintained FMZs, was able to withstand the impacts of the wildfire and experienced no structure losses. In fact, firefighters were able to focus protection efforts on other, more at-risk communities, knowing that Casino Ridge was built to withstand wildfire with little to no fire protection efforts. Additionally, the 2020 Silverado Fire did not damage or destroy any homes in the City, including homes in the neighboring residential complex, Orchard Hills.

The proposed project would provide a wide, managed FMZ separating homes from unmaintained fuel. New development is also required to adhere to stricter code requirements for building materials and landscape plan implementation. The landscapes would be managed and maintained to remove non-native fuels that may become established over time. The Fire-Resistant Landscape Plan plant palette restrictions (MM-WF-2), combined with HOA maintenance, would minimize the establishment and expansion of non-native plants, including grasses. The proposed project would provide roadside fuel modification throughout the project site, and electrical lines would be subterranean.

Based on the fire behavior modeling in Appendix J-1, the onshore flow would take fire away from the project site at the Seed Farm interface. All the wildland safety features provided to protect against scenarios in which winds are from the northeast are present and would provide more than adequate levels of protection for winds from any direction, including the onshore flow from the southwest that is predominant at the project site. With adherence to the City's Municipal Code, the low ignitability of the proposed structures in accordance with Chapter 7A of the CBC, and implementation of fire-resistant, irrigated landscaping (MM-WF-2), the project would not facilitate wildfire spread or exacerbate wildfire risk or expose people or structures, indirectly or directly, to significant wildfire risk. It is not anticipated that the project, due to slope, prevailing winds, and other factors, would exacerbate wildfire risks or expose project occupants to pollutant concentrations from a wildfire, the uncontrolled spread of a wildfire, or significant risks associated with wildfires; therefore, impacts would be less than significant with mitigation incorporated.

3. ***Would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?***

Less-Than-Significant Impact with Mitigation Incorporated. As mentioned in Chapter 3, Project Description, of this Draft EIR, the project would involve the development of a previously undeveloped site to construct a new residential development. As discussed in Section 4.18, Utilities and Service Systems,

the project would include extension of and upgrades to existing service utilities (e.g., water, wastewater, stormwater drainage, electric power, natural gas, and telecommunication services). This also includes some additions, including a new sewer connection through the project site, a stormwater detention basin, and an underground storage tank.

The activity of connecting utilities from their current locations to the project site and the new off-site improvements would require ground disturbance, and the use of heavy machinery associated with trenching would potentially result in temporary or ongoing impacts to the environment. Therefore, implementation of the proposed project could exacerbate wildfire risk by introducing new potential sources of ignition, such as the use of heavy machinery, welding, or other hot work. However, as previously discussed, vegetation would be removed from the site prior to the start of construction and the site would be graded to a flat, level surface and other improvements made prior to bringing combustibles on site (MM-WF-1, Pre-Construction Requirements), which would reduce the likelihood of fire ignition during installation and connection of utilities. The majority of the associated infrastructure and utility connections would occur on the project site or adjacent to the site and would not result in off-site environmental impacts or exacerbate wildfire risk.

The project would also include the installation and maintenance of FMZs in accordance with an approved fuel modification plan. The FMZs would result in the introduction of equipment to areas with existing fuel that would have the potential to ignite during installation and maintenance activities for fuel modification. Increased fire risk would be temporary and would be reduced after the FMZs are completed. These FMZs would decrease overall fire risk to the project site and surrounding areas (MM-WF-2, Fire-Resistant Landscape Plan). All maintenance activities would be conducted according to regulatory requirements and would occur adjacent to the project's FMZs, which would be installed prior to the start of construction and maintained throughout the life of the project.

The installation and maintenance of roads, service utilities, and drainage and water quality improvements and vegetation removal are part of the project analyzed herein. As such, any potential temporary or ongoing environmental impacts related to these components of the project have been accounted for and analyzed in this Draft EIR as part of the impact assessment conducted for the entirety of the project. Additionally, the project would be required to comply with all regulatory requirements and mitigation measures outlined in this Draft EIR for the purposes of mitigating impacts associated with trenching, grading, site work, and the use of heavy machinery. No adverse physical effects specifically related to wildfire or beyond those already disclosed throughout this Draft EIR would occur as a result of implementation of the project's associated infrastructure. Therefore, the installation and maintenance of associated infrastructure would not exacerbate wildfire risk or result in impacts to the environment beyond those already disclosed in this Draft EIR; therefore, impacts would be less than significant with mitigation incorporated.

4. Would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

Less-Than-Significant Impact. Vegetation plays a vital role in maintaining existing drainage patterns and the stability of soils. Plant roots stabilize the soil and leaves, stems, and branches intercept and slow water, allowing it to more effectively percolate into the soil. Removal of surface vegetation reduces the ability of the soil surface to absorb rainwater and can allow increased runoff that may include large amounts of debris or mud flows. If hydrophobic conditions exist post-fire, the rate of surface water runoff is increased as water percolation into the soil is reduced (Moench and Fusaro 2012). The potential for surface runoff

and debris flows therefore increases for areas recently burned by large wildfires (Moench and Fusaro 2012). Given the project site's location in fire-prone Southern California, the on-site and surrounding topography, and the recent wildfires that have burned in the project area, project occupants and structures could be exposed to downslope or downstream flooding or landslides as a result of post-fire conditions. As previously discussed and as shown on Figure 4.19-3, multiple wildfires have burned within a 5-mile radius of the project site.

In addition, vegetation removal as a result of vegetation management, such as that proposed for the project, could result in changes to drainage patterns and slope stabilization. Caution must be used to avoid causing erosion, ground (including slope) instability, or water runoff due to vegetation removal, vegetation management, maintenance, landscaping, or irrigation.

The project would be required to be constructed in accordance with the CBC, the City's Municipal Code, and the Preliminary Geotechnical Evaluation (Appendix E-1) that has been prepared by a California licensed geotechnical engineer or engineering geologist. As discussed in Section 4.7, Geology and Soils, a small portion of the project site along the northern, western, and eastern boundary consists of areas of deep-seated landslide susceptibility. However, these areas are designated as having a moderately low risk of landslides due to seismic conditions and low likelihood of landslide under other conditions (City of Irvine 2024b). In addition, the proposed improvements would include drainage-control features in accordance with local drainage-control requirements, which would also reduce the potential for adverse effects related to debris flows.

Further, as discussed in Section 4.10, Hydrology and Water Quality, the project would not substantially alter the drainage patterns at the site compared to existing conditions. However, development associated with the project would introduce new impervious surfaces over much of the project site, which in turn would result in increased stormwater runoff. If not managed appropriately, stormwater runoff from these hardscapes could potentially result in erosion or siltation on or off site. Development of the site would include development of underground stormwater detention tanks, which would enhance water quality and reduce stormwater runoff flow rates and volumes. On-site proposed landscaping would also serve to reduce the potential for erosion or siltation transport off site. On-site drainage would be designed in accordance with regulatory requirements from the City, which are consistent with the County Stormwater Standards Manual developed to meet National Pollutant Discharge Elimination System municipal separate storm sewer system requirements.

The project would be developed as a fire-hardened, modern residential community and would comply with current state-of-the-art ignition-resistant construction standards for all new residential buildings meeting Chapter 7A of the CBC, Chapter 33 of the CFC, and OCFA requirements. These standards require, among many other measures, fire-resistant roofing to resist ignition from embers or building-to-building fires, vent covering and opening limitations to avoid ember intrusion, noncombustible or ignition-resistant exterior walls, ignition-resistant eaves and porch ceilings, insulated windows and exterior doors, fire-resistant exterior decks and walkways, and ignition-resistant underflooring and appendages. These standards have proven to substantially reduce the risk of buildings catching fire or spreading fires during a wildfire event. The project would incorporate FMZs ranging from 120 to 205 feet, which modeling demonstrates would protect the project site from off-site wildfires, limit the spread of on-site fires to off-site locations, and provide access for firefighters and fire-fighting equipment to suppress both on-site and off-site fires. Project buildings would be constructed of fire-retardant materials and would include indoor fire sprinkler systems, thereby reducing ember generation in the event of a structure fire that could threaten on-site and off-site

resources. The project would have a sufficient water supply to serve fire suppression needs and would be constructed with code-compliant fire hydrant systems with adequate water flows to fight fire. The project's code-compliant internal circulation system and parking restrictions would ensure that firefighting apparatus would have appropriate access to, in, and around the project site as necessary to provide fire suppression services, and the project would provide sufficient access points to ensure safe and timely ingress and egress to and from the project site to serve the needs of both first responders and potential evacuees.

Therefore, adherence to the project-specific geotechnical recommendations (Appendix E-1), implementation of the proposed drainage-control measures, implementation of a project-specific fuel modification plan, and annual fuel modification maintenance and inspection, combined with regulatory restrictions limiting development in floodplains and steep terrain and ridgelines, would ensure that the proposed project would not expose people or structures to significant risks related to downslope or downstream flooding, debris flows, or landslides as a result of runoff, post-fire slope instability, or drainage changes and impacts would be less than significant.

Impact Summary

Construction of the project and installation of associated infrastructure would introduce potential ignition sources to the project site, including the use of heavy machinery and the potential for sparks during welding activities or other hot work. Impacts relating to exacerbation of wildfire risks and exposing project occupants to pollutants from a wildfire or uncontrolled spread of a wildfire would be potentially significant absent mitigation.

Construction of the project would introduce new residential structures and human activities in a fire-prone area. The northern portion of the proposed project site is in a VHFHSZ. Grass/shrub arrangements cover the majority of the project site and surrounding areas to the north and east of the project site that contain both California buckwheat and California sagebrush, both of which burn with a relatively high intensity. Impacts related to installation or maintenance of infrastructure that may exacerbate fire risk or impact the environment would be potentially significant absent mitigation.

All other impacts related to wildlife would be less than significant.

4.19.5 Mitigation Measures

The following mitigation measures would address impacts relating to exacerbation of wildfire risks and exposing project occupants to pollutants from a wildfire or uncontrolled spread of a wildfire and installation or maintenance of infrastructure that may exacerbate fire risk or impact the environment:

MM-WF-1 Pre-Construction Requirements. Prior to the commencement of construction activities, the project applicant/developer shall ensure the following requirements are met in accordance with Orange County Fire Authority (OCFA) Guideline B-01, Fire Master Plans for Commercial & Residential Development, Appendix A, Access During Construction. Access and water supply during construction shall comply with California Fire Code Chapter 33 and the provisions listed below. Construction activities that do not comply with these requirements may be suspended at the discretion of the fire code official until a reasonable level of compliance is achieved.

At no time shall construction impair/obstruct existing fire lanes or access to the operation of an existing fire hydrant (or hydrants) serving other structures.

The developer shall provide alternative access routes, fire lanes, and other mitigation features when existing roadways or fire hydrants may need to be moved or altered during construction to ensure adequate fire and life-safety protection. Such alternatives and features shall be submitted to OCFA for review and approval prior to alteration of existing conditions

Lumber Drop Inspection: An inspection shall be scheduled with an OCFA inspector to verify that access roadways, fire lanes, and operable fire hydrants have been provided for buildings under construction and prior to bringing combustible materials on site. The inspection shall verify the following:

- The street address of the site shall be posted at each entrance. Projects on streets without names or street signs posted at the time of construction shall include the project name, tract number, or lot number for identification.
- Gates through construction fencing shall be equipped with a Knox padlock or breakaway lock/chain.
- When required by the OCFA inspector, fire lanes shall be posted with "Fire Lane – No Parking" signs, or "No Parking Areas" will be identified to maintain obstruction-free areas during construction.
- Provisions shall be made to ensure that fire hydrants are not blocked by vehicles or obstructed by construction material or debris. A 3-foot-wide clear space shall be provided around the perimeter of each hydrant and no parking or similar obstructions shall be allowed along the adjacent road within 15 feet of a hydrant. Inoperable fire hydrants shall be bagged.

Temporary Fire Access Roads: Temporary access roads (construction roads that do not match the final location and configuration of permanent roads as approved on a Fire Master Plan) and temporary hydrants may be permitted for single-family residential model construction or a single detached custom home less than 5,500 square feet in area with the conditions listed below. They may be allowed on a case-by-case basis for other structures with additional requirements, as determined by the fire code official. Conditions allowing the construction of these temporary access roads and hydrants include the following:

- Plans for temporary access shall be submitted to the OCFA Planning and Development Services Section. Plans will show proposed temporary roadway locations, location of models, space dedicated to storage of construction materials, and parking for work crews and construction vehicles. The plans shall clearly state that they have been submitted for temporary access and hydrants.
- Plans shall be stamped and signed by a licensed civil engineer stating that the temporary access road can support 94,000 pounds of vehicle weight in all weather conditions. Plans shall also provide manufacturer's documentation that demonstrates suitability of the material, specifically as a road stabilizer.
- Parking plans shall include details on how the construction site will enforce fire lanes and no-parking zones.
- Aboveground invasion lines are acceptable for water supply, as follows:
  - Drawings shall show details of how the line will be secured in place (e.g., size, depth, and interval of rebar tie-downs) and protected from vehicular damage (e.g., K-rails or bollards).

  - An invasion line may be run underground if the depth of bury can support the 94,000-pound weight of a fire apparatus.
  - The temporary water line must provide the required fire flow; calculations may be required.
  - The pipe shall be listed for fire service.
  - Fire hydrants shall consist of a minimum 6-inch-diameter barrel with one 2.2-inch outlet and one 4-inch outlet. This shall be noted on the plan.
- All other access and water requirements shall apply (e.g., width, approach clearance, premises identification, locks, gates, barriers).
- The approved plan for temporary access and water supply shall be available at the construction site prior to bringing combustible building materials on site.
- An inspection by OCFA personnel is required to verify adherence to the approved plan prior to bringing combustible materials on site.

Phased Access: Incremental installation of permanent access roadways as shown on a Fire Master Plan may be permissible for commercial and residential developments. If phased installation is anticipated, the site superintendent or designee shall review the installation process with an OCFA inspector during the lumber drop inspection or pre-construction meeting. Depending on the complexity of the installation, size of the project, and other project-specific factors, the inspector may allow phased installation to proceed immediately or may first require that all or some of the following items are satisfied:

- The extent of building construction
- Location of operable hydrants serving all buildings under construction
- The location of construction fencing, barriers, and vehicle access gates
- The location of all temporary or permanent "fire lane—no parking" signs
- Equipment/materiel staging locations
- Worker parking areas

In addition, the following requirements for phased access shall be met:

- Phasing plans shall be stamped and signed by a licensed civil engineer stating that the access road can support 94,000 pounds of vehicle weight in all weather conditions. The final road section less the final lift of asphalt topping may be acceptable if certified by the engineer.
- The phasing plan shall identify any anticipated areas where fire department access roadways may be temporarily inaccessible due to trenching, slurry coating, striping, or other construction activities after they have been installed and inspected. The plan shall indicate the anticipated period of impairment and include provisions for providing plating over trenches and alternative access routes, notification to the fire department, and/or other forms of mitigation when such roadways are impaired.
- A parking plan shall be provided for the construction site detailing how the fire lane no-parking regulations will be enforced. The plan shall include a clause stating that "the job-site superintendent is responsible for informing the work crews of parking requirements and that the entire job site is subject to shutdown by the OCFA inspector if parking is in violation of fire lane posting."

- The approved phasing plan shall be available at the construction site prior to bringing combustible building materials on site. A lumber drop inspection by an OCFA inspector will be required prior to the commencement of each phase; additional inspection fees will be due for each phase.
- All other access and water requirements shall apply (e.g., width, approach clearance, premises identification, locks, gates, barriers).

MM-WF-2 Fire-Resistant Landscape Plan. The proposed landscape plan shall be implemented in accordance with defensible space principles discussed in the project-specific Fire Behavior Analysis and Fuel Modification Plan (Appendices J-1 and J-3 to the Draft EIR) and using fire-resistant plant material in accordance with the Orange County Fire Authority (OCFA) Fuel Modification Zone Plant List. Some plant communities and their associated plant species have increased flammability based on plant physiology (resin content), biological function (flowering, retention of dead plant material), physical structure (bark thickness, leaf size, branching patterns), and overall fuel loading. Given the project site's proximity to High and Very High Fire Hazard Severity Areas, the project landscape plan shall not include plants that are highly flammable. The landscape plan shall be submitted to OCFA for review and approval prior to issuance of building permits. No plant that is listed as undesirable (according to OCFA's 2014 Orange County Undesirable Plants List) shall be included within the proposed project without prior approval by OCFA.

4.19.6 Level of Significance After Mitigation

Impacts relating to construction-related potential ignition sources would be reduced to a less-than-significant level through implementation of MM-WF-1, and impacts relating to development of a residential land use in a VHFHSZ would be reduced to less than significant by implementation of MM-WF-2. Other impacts do not require mitigation and would remain less than significant.

4.19.7 Cumulative Impacts

The project, combined with other projects and planned development in the region, would increase population and/or activities and potential ignition sources in a VHFHSZ, which may increase the potential of a wildfire and/or the need for evacuations during a wildfire event. Many of the cumulative projects are residential projects that would introduce new populations into the area. Additional new residents would create additional demands for evacuations during wildfire emergencies. However, individual projects located in the area would be required to comply with applicable fire and building codes, which include mandatory fire prevention and protection features that reduce the likelihood of a fire igniting and spreading to off-site vegetated areas. Further, for the cumulative projects that are located in FHSZs, each would be required to comply with vegetation clearance and fuel modification requirements, as mandated by the City's Municipal Code and the CFC. These codes also protect projects from wildfires that may occur in the area through the implementation of FMZs, ensuring adequate water supply, preparation of fire prevention plans, and other measures.

As discussed in the Evacuation Travel Time Analysis (Appendix J-2), the evacuation routes in the project site's vicinity are Jeffrey Road, Portola Parkway, Sand Canyon Avenue, State Route 241, and State Route 133. No permanent impacts would occur to these roadways that would impede evacuation routes as a result of the project. As discussed in Appendix J-2, it was determined that it would require 34 minutes in a worst-case fire scenario to evacuate the project site. However, the actual evacuation time is anticipated to be less, because this evacuation calculation is

based on a conservative estimate of the number of vehicles owned per household, 100% occupancy of all residential units, and the simultaneous departure of all evacuees. In addition, the City's Traffic Management Center would adjust the traffic signals in real time and emergency personnel could be placed at intersections to guide traffic at Jeffrey Road/Portola Parkway and potentially reduce the evacuation time.

The CFC, CBC, and OCFA requirements, along with project-specific needs assessments and fire prevention plan requirements, would ensure that all the cumulative projects approved for construction include adequate emergency access. Roads for the project and all cumulative projects are required to meet minimum widths, have an all-weather surface, and be capable of supporting the imposed loads of responding emergency apparatus. The proposed project would include fire access and circulation throughout the project site, including emergency access and on-site shelter-in-place areas in an area where access was previously limited.

The project's contribution to the potential to impair emergency evacuation, in combination with cumulative projects, would not be cumulatively considerable because the Evacuation Travel Time Analysis determined that the project and cumulative projects in the area would evacuate within the FEMA timeframe (total of 90 minutes), the project would include improved road conditions and on-site locations to safely shelter in place, and the project and cumulative projects would be required to adhere to all state building codes to minimize the spread of a wildfire. Therefore, the cumulative impact would be less than significant.

The majority of the project site is designated as a VHFHSZ within an LRA. The project site is in Southern California, where Santa Ana winds are prevalent. Factors that could increase wildfire risk include the electrical components associated with the project (e.g., cables, inverters, transformer). To reduce potential impacts related to the exposure of occupants to pollutant concentrations from a wildfire, the project would implement MM-WF-1 (Pre-Construction Requirements) and MM-WF-2 (Fire-Resistant Landscape Plan). With implementation of these measures, the project would result in less-than-significant impacts with mitigation incorporated.

Cumulative projects in the project's vicinity are residential developments and commercial projects in a similar environmental setting to the project (e.g., relatively flat topography, Santa Ana winds). As discussed above, the overall wildfire risk for the area is relatively low; however, the addition of multiple projects does increase wildfire risk and impacts could be significant. Similar to the project, all cumulative projects would be required to comply with all applicable codes for the installation of electrical components, which would limit the wildfire risk associated with these features. Therefore, the project's less-than-significant impacts with mitigation incorporated combined with the potential impacts of nearby projects would not result in a cumulatively significant impact with respect to exacerbating impacts related to exposing the population to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire.

The project would involve the development of a previously undeveloped site to construct a new residential development. The project would include extension of and upgrades to existing service utilities (e.g., water, wastewater, stormwater drainage, electric power, natural gas, and telecommunication services). This also includes some additions, including a new sewer connection through the project site, a stormwater detention basin, and an underground storage tank. Given that the activity of connecting utilities from their current locations to the project site and the new off-site improvements would require ground disturbance, and the use of heavy machinery associated with trenching would potentially result in temporary or ongoing impacts to the environment, implementation of the proposed project could exacerbate wildfire risk by introducing new potential sources of ignition, such as the use of heavy machinery, welding, or other hot work. The project would implement MM-WF-1 to reduce impacts related to installation or maintenance of infrastructure (e.g., utilities, power lines). Additionally, the project would include the installation and maintenance of FMZs in accordance with an approved fuel modification

plan. The FMZs would result in the introduction of equipment to areas with existing fuel that would have the potential to ignite during installation and maintenance activities for fuel modification. Increased fire risk would be temporary and would be reduced after the FMZs are completed. These FMZs would decrease overall fire risk to the project site and surrounding areas (MM-WF-2). All maintenance activities would be conducted according to regulatory requirements and would occur adjacent to the project's FMZs, which would be installed prior to the start of construction and maintained throughout the life of the project. With the incorporation of MM-WF-1 and MM-WF-2, the project's impacts would be less than significant with mitigation incorporated.

Cumulative projects in the project's vicinity are residential developments and commercial projects in a similar environmental setting to the project (e.g., relatively flat topography, Santa Ana winds). As discussed above, the overall wildfire risk for the area is relatively low; however, the addition of multiple projects does increase wildfire risk and impact could be significant. Similar to the project, all cumulative projects would be required to comply with all applicable codes and regulations related to construction and operation, which would reduce fire risk associated with cumulative projects. Therefore, the project's less-than-significant impacts with mitigation incorporated, combined with the potential impacts of nearby projects, would not result in a cumulatively significant impact with respect to impacts related to the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment.

The project site is relatively flat. A small portion of the project site along the northern, western, and eastern boundary consists of areas of deep-seated landslide susceptibility. However, these areas are designated as having a moderately low risk of landslides due to seismic conditions and low likelihood of landslide under other conditions (City of Irvine 2024b). In addition, the proposed improvements would include drainage-control features in accordance with local drainage-control requirements, which would also reduce the potential for adverse effects related to debris flows, reducing any potential impacts to less than significant.

Cumulative projects in the project's vicinity are other residential developments and commercial projects, many of which are in a similar environmental setting to the project (e.g., relatively flat topography, Santa Ana winds). Similar to the project, all cumulative projects would be required to comply with all applicable codes and regulations. Therefore, the project's less-than-significant impacts, combined with the potential impacts of nearby projects, would not result in a cumulatively significant impact with respect to exacerbating impacts related exposing the population to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes post-fire slope instability.

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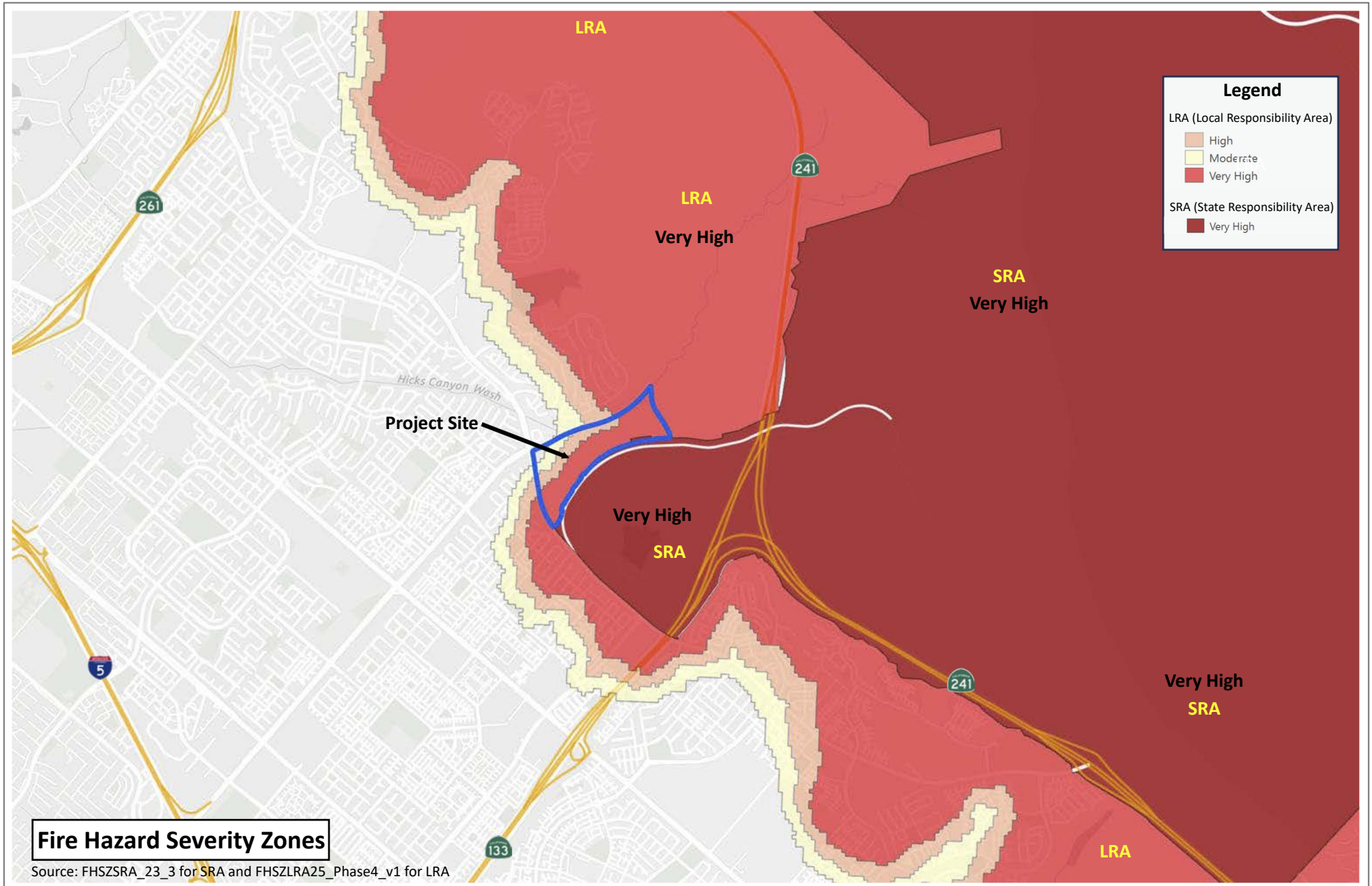
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SOURCE: FireSafe Planning, Inc. 2025

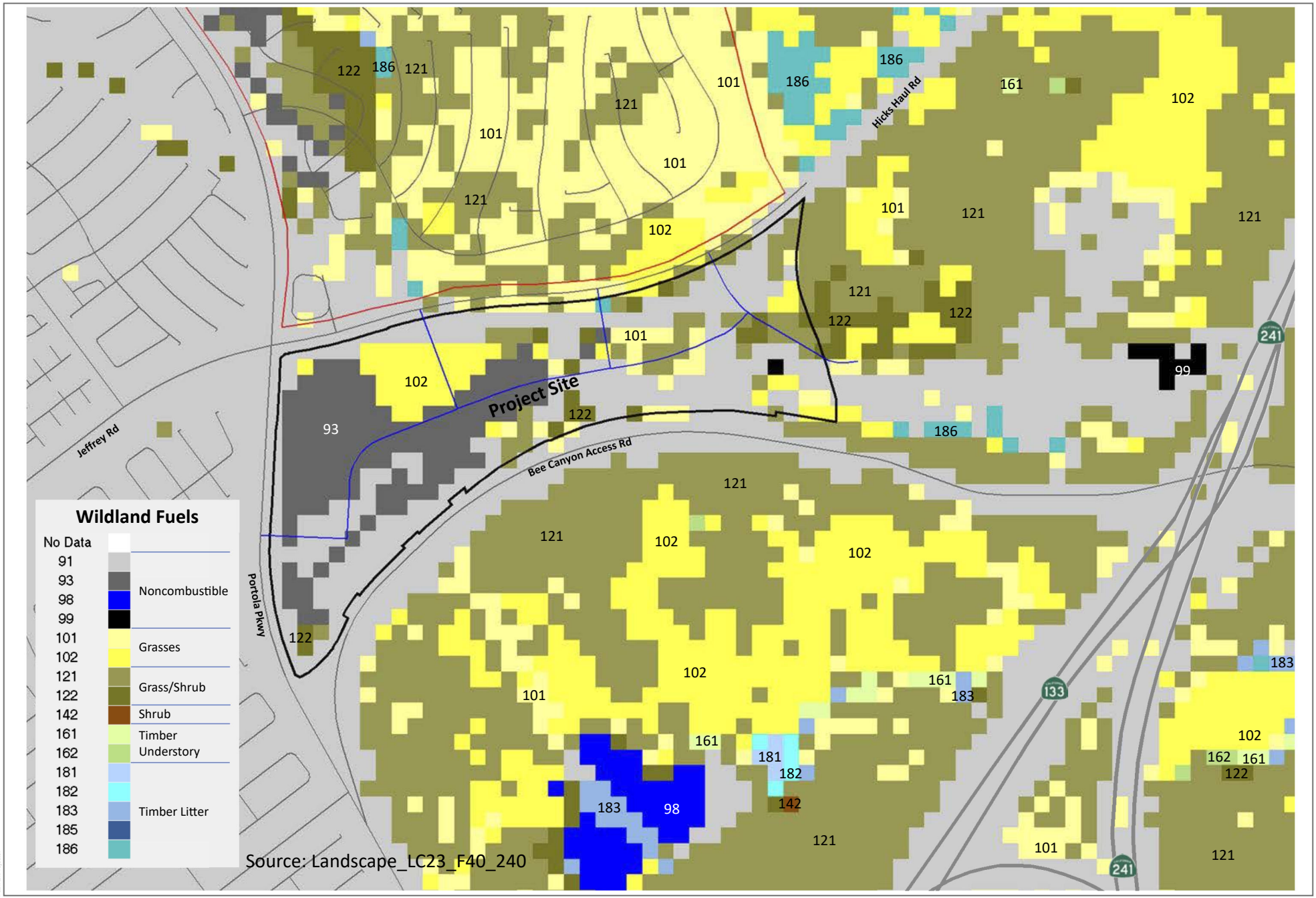
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FIGURE 4.19-1

Fire Hazard Severity Zones

Irvine Gateway Village Project EIR

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SOURCE: FireSafe Planning, Inc. 2025

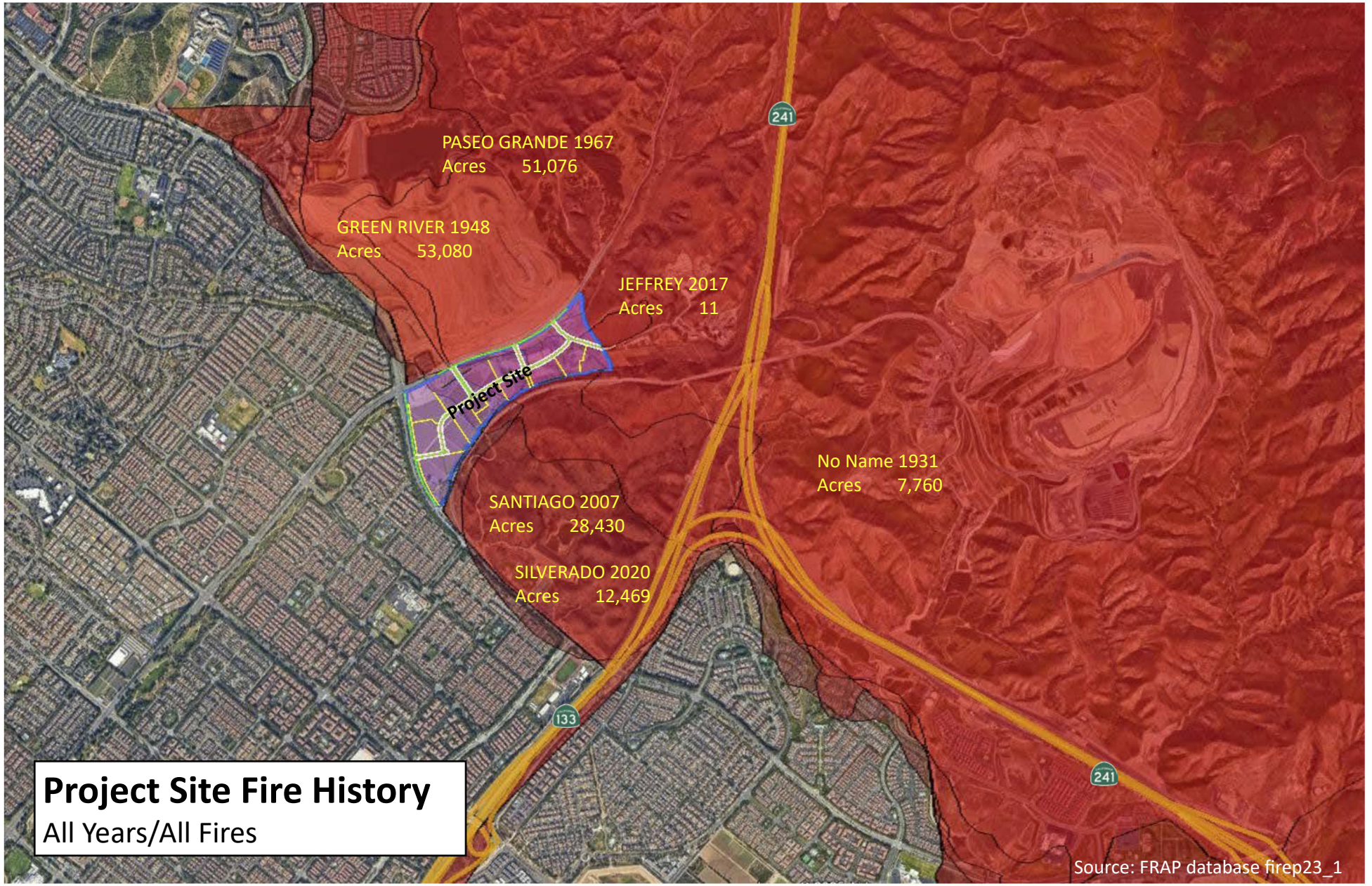
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FIGURE 4.19-2

Wildland Fuels

Irvine Gateway Village Project EIR

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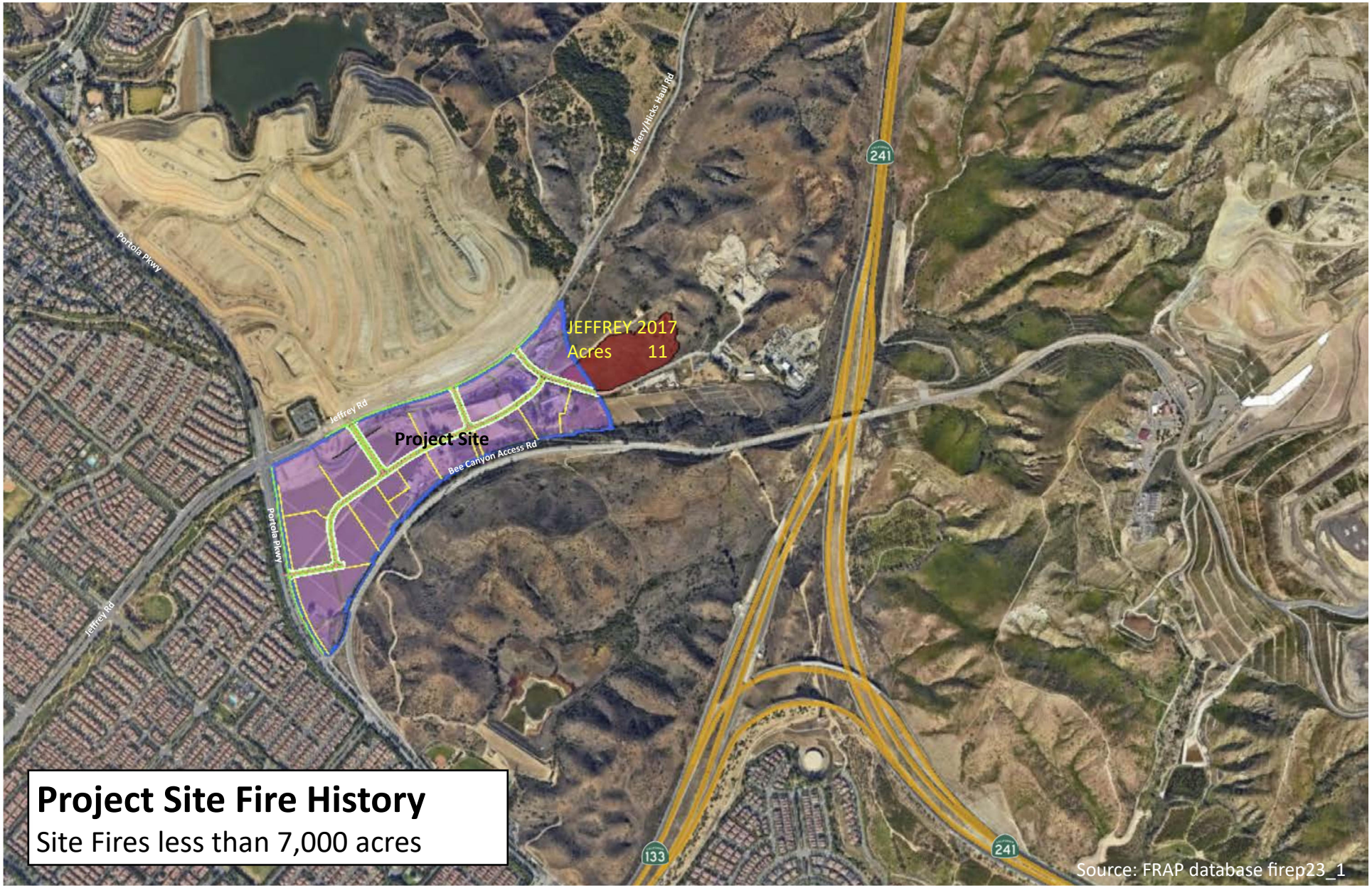


SOURCE: FireSafe Planning, Inc. 2025

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FIGURE 4.19-3
Fire History
Irvine Gateway Village Project EIR

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SOURCE: FireSafe Planning, Inc. 2025

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FIGURE 4.19-4

Fire History Without Large Fires

Irvine Gateway Village Project EIR

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5 Other CEQA Considerations

5.1 Effects Found Not to Be Significant

Section 15128 of the California Environmental Quality Act (CEQA) Guidelines requires that an environmental impact report (EIR) briefly describe potential environmental effects that were determined not to be significant and therefore were not discussed in detail in the EIR. The environmental issue discussed below is not considered significant, and the reasons for the conclusion of non-significance are included.

Mineral Resources

The proposed project would have no potential to impact mineral resources. Mineral resources in the State of California are classified into Mineral Resource Zones (MRZs) pursuant to the California Surface Mining and Reclamation Act of 1974. According to the Conservation and Open Space Element of the City's General Plan and shown in Figure 10, Mineral, Oil, and Gas Resources, of the Conservation and Open Space Element, there are no areas in the City that are designated as MRZ-2, which represent regionally significant mineral resources (City of Irvine 2024). The proposed project site is designated MRZ-4, indicating insufficient information to assign any other MRZ designation. Additionally, according to the Conservation and Open Space Element, there are no known gas, oil, or geothermal fields in the City and no active gas wells. The Conservation and Open Space Element concludes that there are no mineral resources in the City. Therefore, development of the proposed project would have no impact related to mineral resources.

5.2 Significant and Unavoidable Environmental Impacts

Pursuant to CEQA Guidelines Section 15126.2(b), an EIR must address any significant environmental impacts, including those that can be mitigated but not reduced to less-than-significant levels, that may occur as a result of implementation of a project. As described in Chapter 4, Environmental Analysis, of this Draft EIR, 18 issue areas were analyzed in detail. Table 1-1 in Chapter 1, Executive Summary, summarizes the project's impacts, mitigation measures, and levels of significance before and after mitigation. According to the analysis presented in Chapter 4, the proposed project would result in significant unavoidable impacts related to agriculture and forestry resources, air quality, greenhouse gas (GHG) emissions, recreation, and transportation, as summarized below.

Agriculture and Forestry Resources

As described in detail in Section 4.2, Agriculture and Forestry Resources, of this Draft EIR, the proposed project would result in the conversion of 67.46 acres of Important Farmland to urban, non-agricultural uses, and the permanent loss of that Important Farmland. Therefore, the proposed project would have a significant and unavoidable environmental impact related to the conversion of farmland to non-agricultural uses.

Air Quality

As described in detail in Section 4.3, Air Quality, of this Draft EIR, the proposed project would have a significant and unavoidable impact related to the conflict with or obstruction of implementation of the applicable air quality plan, even with the implementation of MM-AQ-1 through MM-AQ-8. It would also have a significant and unavoidable impact due to a cumulatively considerable net increase of a criteria pollutant for which the project region is

nonattainment under an applicable federal or state ambient air quality standard, even with the implementation of MM-AQ-1 through MM-AQ-8 and MM-GHG-1. As such, the project would also have a have a significant and unavoidable impact related to a cumulative effect on air quality resources, even with the implementation of MM- AQ- 1 through MM-AQ-8 and MM-GHG-1.

Greenhouse Gas Emissions

As described in detail in Section 4.8, Greenhouse Gas Emissions, of this Draft EIR, the proposed project would have a significant and unavoidable impact related to the generation of GHG emissions, either directly or indirectly, that may have a significant impact on the environment, even with the implementation of MM-GHG-1 through MM-GHG-4. The project would also have a significant and unavoidable impact related to a conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs and would have a significant and unavoidable impact related to a cumulative effect on GHG emissions, even with the implementation of MM-GHG-1 through MM-GHG-4.

Land Use and Planning

As described in detail in Section 4.11, Land Use and Planning, of this Draft EIR, the proposed project would have a significant and unavoidable impact related to a conflict with an applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect (GHG emissions), resulting in significant and unavoidable land use and planning impacts at the project level and cumulatively, despite implementation of MM-GHG-1 through MM-GHG-4.

Recreation

As described in detail in Section 4.15, Recreation, of this Draft EIR, the proposed project would have a significant and unavoidable impact related to the construction or expansion of recreational facilities that might have an adverse physical effect on the environment because the project would involve the construction and expansion of recreational facilities and would have significant and unavoidable impacts in the areas of air quality, GHG emissions, and transportation. Other cumulative projects that involve the construction of recreational facilities would result in adverse physical effects on the environment due to the construction or expansion of such facilities. Because the project involves the construction and operation of recreational facilities, all significant and unavoidable cumulative impacts that would have a physical effect on the environment would be considered cumulative impacts related to adverse physical effects on the environment associated with the construction and operation of recreational facilities. Despite the mitigation provided for these impacts (see Section 4.15), impacts would remain significant and unavoidable.

Transportation

As described in detail in Section 4.16, Transportation, of this Draft EIR, the proposed project would have a significant and unavoidable impact related to a conflict or inconsistency with CEQA Guidelines Section 15064.3(b), even with implementation of MM-TRA-1 through MM-TRA-3, and would have a significant and unavoidable cumulative effect on transportation resources, even with implementation of MM-TRA-1 through MM-TRA-4.

5.3 Significant Irreversible Changes

Section 15126.2(d) of the CEQA Guidelines requires that an EIR analyze the extent to which a project's primary and secondary effects would impact the environment and commit nonrenewable resources to uses that future generations will not be able to reverse. The use of nonrenewable resources is irreversible. Nonrenewable resources that would be used on site during construction and operation include natural gas, other fossil fuels, water, concrete, steel, and lumber. The proposed project would result in the commitment of such resources (the proposed project's energy consumption is discussed in greater detail in Section 4.6, Energy, of this Draft EIR).

Use of nonrenewable resources during the initial and continued phases of the proposed project is typically irreversible, because a large commitment of such resources makes removal or non-use thereafter unlikely. Primary impacts—and particularly, secondary impacts (such as a highway that provides increased access to a previously inaccessible area)—generally commit future generations to similar uses. Also, irreversible damage can result from environmental accidents associated with a project.

Implementation of the proposed project would occur on vacant land in the City of Irvine. Proposed development would include the irreversible commitment of natural resources, energy, and human resources. Implementation of the proposed project would increase the intensity of use of the site compared to existing conditions. Ongoing maintenance and operation of the proposed project would entail a further irreversible commitment of energy resources in the form of petroleum products (diesel fuel and gasoline), natural gas, and electricity. The proposed project has incorporated voluntary sustainable design factors, as described in Chapter 3, Project Description, of this Draft EIR. As such, the proposed project is not anticipated to consume substantial amounts of energy in a wasteful manner (see Section 4.18, Utilities and Service Systems, and Section 4.6, Energy, for details), and it would not result in significant impacts from consumption of utilities. However, long-term impacts would result from a conversion of prime and statewide important agricultural land to other uses, an increase in vehicular trip length and associated air quality impacts, and an increase in GHG emissions.

Commitment of Nonrenewable Resources

Commitment of nonrenewable resources includes issues related to increased energy consumption, loss of agricultural lands, and lost access to mining reserves. There would be an irretrievable commitment of labor, capital, and materials used during construction and operation of the project. Nonrenewable resources committed would primarily be in the form of fossil fuels such as fuel, oil, natural gas, and gasoline used by equipment associated with construction of the project. Consumption of other nonrenewable or slowly renewable resources would also occur during construction. These resources would include lumber and other forest products; sand and gravel; asphalt; and metals such as steel, copper, and lead.

The proposed project would change the uses operating on the project site. As described in Section 4.2 of this Draft EIR, 67.46 acres of Important Farmland would be converted to urban, non-agricultural uses under the proposed project. The proposed conversion of mapped Important Farmland to a non-agricultural use would be commitment of nonrenewable resources.

To ensure that energy implications are considered in project decisions, CEQA requires that EIRs include a discussion of the potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy (California Public Resources Code Section 21100[b][3]). Energy conservation implies that a project's cost effectiveness must be reviewed not only in dollars but also in terms of

energy requirements. For many projects, cost effectiveness may be determined more by energy efficiency than by initial dollar costs. A lead agency may consider the extent to which an energy source serving the project has already undergone environmental review that adequately analyzed and mitigated the effects of energy production.

Consistent with both California Public Resources Code Section 21100(b)(3) and a ruling set forth by the court in *California Clean Energy Committee v. City of Woodland*, potentially significant energy implications of a project must be considered in an EIR to the extent relevant and applicable to the project. Accordingly, based on the energy consumption thresholds set forth in Appendices F and G of the CEQA Guidelines, the project's estimated energy demands (both short-term construction and long-term operational demands) were evaluated (see Section 4.6 of this Draft EIR). The overall purpose of the energy analysis was to evaluate whether the project would result in the wasteful, inefficient, or unnecessary consumption of energy.

As further assessed in the energy analysis in Section 4.6 of this Draft EIR, for new development such as that proposed by the project, compliance with California Code of Regulations Title 24 energy efficiency requirements is considered demonstrable evidence of efficient use of energy. The proposed project would provide for and promote energy efficiencies beyond those required under other applicable federal and state standards and regulations, and in so doing would meet or exceed all Title 24 standards.

5.4 Irreversible Damage from Environmental Accidents

Potential environmental accidents of concern include those events that would adversely affect the environment or the public due to the type or quantity of materials released and the receptors exposed to that release. Demolition and construction activities associated with the project would involve some risk of environmental accidents. However, these activities would be conducted in accordance with all applicable federal, state, and local regulations, and would follow professional industry standards for safety. Once the project is operational, the use, transport, and storage of any materials that could cause environmental accidents would comply with applicable federal, state, and local regulations, ensuring that any hazardous materials used on site would be safely and appropriately handled to preclude any irreversible damage to the environment that could result if hazardous materials were released from the site.

5.5 Growth-Inducing Impacts

Section 15126.2(d) of the CEQA Guidelines requires that an EIR evaluate the growth-inducing impacts of a proposed project, as follows:

> Discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects that would remove obstacles to population growth (a major expansion of a wastewater treatment plant might, for example, allow for more construction in service areas). Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. Also, discuss the characteristics of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.

To address this issue, potential growth-inducing effects are examined through analysis of the following criteria (as interpreted from CEQA Guidelines Section 15126.2[e]):

1. Would this project remove obstacles to growth, e.g., through the construction or extension of major infrastructure facilities that do not presently exist in the project area, or through changes in existing regulations pertaining to land development?
2. Would this project result in the need to expand one or more public services to maintain desired levels of service?
3. Would this project encourage or facilitate economic effects that could result in other activities that could significantly affect the environment?
4. Would approval of this project involve some precedent-setting action that could encourage and facilitate other activities that could significantly affect the environment?

Should a project meet any one of the above-listed criteria, it may be considered growth inducing. Generally, growth-inducing projects either are located in isolated, undeveloped, or underdeveloped areas, necessitating the extension of major infrastructure such as sewer and water facilities or roadways, or they encourage premature or unplanned growth. Note that the CEQA Guidelines require an EIR to "discuss the ways" a project could be growth inducing and to "discuss the characteristics of some projects that may encourage … activities that could significantly affect the environment" (14 CCR 15126.2[e]). However, the CEQA Guidelines do not require that an EIR predict (or speculate) specifically where such growth would occur, in what form it would occur, or when it would occur. The answers to such questions require speculation, which CEQA discourages; refer to CEQA Guidelines Section 15145. In accordance with the CEQA Guidelines and based on the above-listed criteria, the project's potential growth-inducing impacts are analyzed below. Refer to Section 4.13, Population and Housing, concerning the project's potential to induce substantial unplanned population growth in the project area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).

1. Would this project remove obstacles to growth, e.g., through the construction or extension of major infrastructure facilities that do not presently exist in the project area, or through changes in existing regulations pertaining to land development?

The proposed project would include the extension of utilities onto the project site, which is currently largely undeveloped and sits adjacent to undeveloped land to the north. However, the proposed project site is immediately adjacent to existing residential development and the utility extensions would accommodate only the residential development proposed under the project. The area to the north of the project site is a large swath of open space called the Northern Open Space Preserve, which includes the approximately 700-acre Gateway Preserve. This preserve would not be developed regardless of the uses developed adjacent to it. As such, the extension of utilities to the project site would not remove obstacles to growth in the adjacent undeveloped areas. The project would also include an extension of the multi-use Jeffrey Open Space Trail (JOST) northward 2,750 feet from its current northern terminus at Portola Parkway to the newly constructed South Park and would include a pedestrian bridge over Portola Parkway. However, the proposed project's extension of the JOST would support the overall City-wide vision for the JOST to provide a linkage from the Pacific Ocean to the Santa Ana Mountains and Cleveland National Forest. The project's JOST extension would develop the previously envisioned northern terminus of the JOST and would provide a connection to the adjacent Northern Open Space Preserve. It would not promote or remove obstacles to growth into these areas.

2. Would this project result in the need to expand one or more public services to maintain desired levels of service?

The proposed project involves the development of approximately 1,360 two- to three-story homes, which could support an estimated 3,604 residents. These residents would put additional demand on existing public services, including fire, police, schools, parks, and other public services.

Fire Protection

As discussed in detail in Section 4.14, Public Services, the proposed project would generate approximately 324 fire department calls per year. It is anticipated that Orange County Fire Authority (OCFA) would be able to accommodate the proposed project without the need for new or physically altered government facilities. Further, the proposed project site is located adjacent to a developed portion of the City that is in OCFA's existing service area, which eliminates the need to extend OCFA's service area. Per City Municipal Code Section 2-9-604, the proposed project would require payment of a Systems Development Charge that would be used for future facility improvements necessary to ensure contribution of its fair share of the cost of facilities and equipment. Additionally, impacts to fire services are anticipated to be adequately funded by an increase in tax revenue over an extended time, relative to the increase in development intensity. Therefore, there would be no need to expand fire department services to maintain level of service.

Police Protection

The proposed project would increase the demand on existing police services, provided through the City of Irvine Police Department (IPD). However, per City Municipal Code Section 2-9-60, the proposed project would require payment of a Systems Development Charge that would be used for future facility improvements necessary to ensure contribution of the project's fair share of the cost of facilities and equipment. Additionally, impacts to police services are anticipated to be adequately funded by an increase in tax revenue over an extended time, relative to the increase in development intensity. Further, the proposed project site is in a developed portion of the City that is in IPD's existing service area, which eliminates the need to extend IPD's service area. It is anticipated that IPD would be able to accommodate the proposed project without the need for new or physically altered governmental facilities.

Schools

The proposed project would have the potential to generate approximately 476 elementary school level students, 136 middle school level students and 231 high school level students within the Irvine Unified School District. Communications with the Irvine Unified School District have indicated the following: "Students from this development have not yet been formally assigned to a neighborhood school. While not yet Board approved, students would likely attend a mix of the following schools depending on available capacity: Canyon View Elementary School, Eastwood Elementary School, Stonegate Elementary School, Jeffrey Trail Middle School, and Northwood High School. The schools may require expansion of the respective facilities depending on the number of students generated, timing of development, and available capacity. It is the District's understanding that these developments would be mitigated through fees generated from Community Facilities District 09-1" (Barron, pers. comm., 2025). In compliance with Assembly Bill 2926 and Senate Bill 50, the proposed project would require contribution of its fair share of the cost of increasing demand for school facilities through payment of development impact fees. According to Section 65996 of the California Government Code, payment of statutory fees is considered full mitigation for new development projects.

Parks

The proposed project would house approximately 3,604 residents who would use various neighborhood parks, regional parks, and other recreational facilities within the City. The proposed project would be subject to the state's Quimby Act (California Government Code Section 66477), which requires development projects to set aside land, donate conservation easements, or pay in-lieu fees for park improvements based on the existing neighborhood and community parkland area, which can range from 3 to 5 acres per 1,000 residents. The proposed project would also be in accordance with the Conservation and Open Space Element of the Irvine 2045 General Plan (City of Irvine 2024) and the Subdivision Ordinance (Chapter 10, Section 5-5-1004 of the Irvine Municipal Code), which requires developers to either dedicate park land and/or improvements, or pay fees in lieu of dedication, at a rate of 5 acres per 1,000 persons, distributed among community parks and neighborhood parks. For the proposed project, this equates to a requirement of approximately 18 acres distributed among community parks and neighborhood parks. The proposed project would include approximately 7.2 acres of parkland. The remainder of the requirements would be paid though in-lieu fees by the individual developers developing the project.

Other Public Facilities

At least a portion of the approximately 3,604 residents generated by the proposed project would patronize other types of public facilities, such as local library branches. The closest library to the project site, the Heritage Park Library, is 2.5 miles from the project site. Katie Wheeler Library and University Park Library are 2.8 miles and 5.9 miles, respectively, from the project site. Additionally, the Orange County (OC) Public Library system includes a network of 29 libraries accessible to anyone with an OC Public Library card. Books from any branch of the OC Public Library system can be requested for delivery to any other branch. The OC Public Library also has a free program called Books by Mail that delivers books and audiobooks on CD through the U.S. Postal Service to eligible homebound residents in Orange County who are unable to visit the library due to physical disability, long-term illness, or lack of transportation (OC Public Library 2024). In addition, the OC Public Library participates in and provides information on the Libby/Overdrive mobile application (OC Public Library 2025), which allows library cardholders to digitally request and check out electronic books and audiobooks from the OC Public Library catalog for reading on their personal electronic devices. The Irvine Public Library and OC Public Library systems are well-resourced library networks that would be able to accommodate the additional patrons that the proposed project could add.

3. Would this project encourage or facilitate economic effects that could result in other activities that could significantly affect the environment?

The proposed project would involve the collection of various development fees that could be used for the construction of public service facilities in the future, as determined by future need. The construction of such facilities could significantly affect the environment, depending on the environmental impact of such individual projects. However, each potential future project would be subject to review pursuant to CEQA and its impacts would be mitigated to the extent feasible.

4. Would approval of this project involve some precedent-setting action that could encourage and facilitate other activities that could significantly affect the environment?

The proposed project is limited to the construction of a residential community within a developed area of the City. It does not involve any precedent-setting activities that could encourage and facilitate other activities that could significantly affect the environment.

5.6 References

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6 Alternatives

6.1 Introduction

This chapter describes alternatives to the proposed Irvine Gateway Village Project (project), consistent with California Environmental Quality Act (CEQA) Guidelines Section 15126.6. This chapter presents the objectives of the project, a summary of its significant environmental impacts, and a description of the alternatives that were considered but eliminated from further consideration, followed by an analysis of the four alternatives evaluated, including the No Project/No Development alternative. A comparison of the three alternatives to the proposed project is provided and the environmentally superior alternative is identified.

According to CEQA Guidelines Section 15126.6, an environmental impact report (EIR) shall describe a range of reasonable alternatives to the project or to the location of the project that would feasibly attain most of the basic objectives of the project and could avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. This section of the CEQA Guidelines further requires that the discussion focus on alternatives capable of eliminating significant adverse impacts of the project or reducing them to a level of insignificance, even if these alternatives would impede to some degree the attainment of the project objectives or would be more costly. The alternatives analysis also should identify any significant effects that may result from a given alternative.

The lead agency is responsible for selecting a reasonable range of potentially feasible project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives. The range of alternatives is governed by a "rule of reason" that requires the EIR to set forth only those potentially feasible alternatives necessary to permit a reasoned choice. The alternatives are limited to those that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the EIR must examine in detail only those that the lead agency determines could feasibly attain most of the basic objectives of the project while substantially lessening any of the significant effects of the project. An EIR need not consider every conceivable alternative to a project. Rather, it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation.

An EIR is not required to consider alternatives which are infeasible. "Feasible" means capable of being accomplished in a successful manner within a reasonable period, taking into account economic, environmental, legal, social, and technological factors (CEQA Guidelines Section 15364). Among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries (projects with a regionally significant impact should consider the regional context), and whether the proponent can reasonably acquire, control, or otherwise have access to the alternative site (or already owns the alternative site). None of these factors establishes a fixed limit on the scope of reasonable alternatives. Under CEQA case law, the concept of feasibility also "encompasses 'desirability' to the extent that desirability is based on a reasonable balancing of the relevant economic, environmental, social, and technological factors" (*City of Del Mar v. City of San Diego* [1982] 133 Cal.App.3d 410, 417; *California Native Plant Society v. City of Santa Cruz* [2009] 177 Cal.App.4th 957). In assessing the feasibility of alternatives, agency decision makers may also take account of the extent to which the alternatives meet or further the agency's underlying purpose or objectives in considering a proposed project (*Sierra Club v. County of Napa* [2004] 121 Cal.App.4th 1490, 1506–1509; *Citizens for Open Government v. City of Lodi* [2012] 296 Cal.App.4th 296, 314–315; *In re Bay–Delta Programmatic Environmental Impact Report Coordinated Proceedings* [2008] 43 Cal.4th 1143, 1165, 1166).

6.2 Project Objectives

CEQA Guidelines Section 15124(b) states that the project description of an EIR shall contain "a statement of the objectives sought by the proposed project." Section 15124(b) further states that "the statement of objectives should include the underlying purpose of the project."

The underlying purpose of the project is to develop a new residential community with a variety of housing types in north Irvine. The proposed project's specific objectives are as follows:

1. **Housing Stock.** Provide diverse housing types and opportunities within the City that address a variety of lifestyles, life stages, and economic segments of the marketplace.
2. **Affordable Housing.** Consistent with Goal 4 of the City's General Plan Housing Element, provide affordable housing to support balanced housing options at the least cost possible to residents.
3. **RHNA Goals.** Contribute new housing units to the City's housing stock, to help satisfy the State of California Regional Housing Needs Assessment (RHNA) for the 2021–2029 planning period, allowing the City to advance their fair share of regional housing growth goals.
4. **City Revenue Generation.** Generate net revenue for the City of Irvine General Fund.
5. **Attractive Community and Amenities.** Develop a cohesive architectural and landscape themed community with amenities that both residents and guests seek. Create gathering spaces and encourage outdoor vehicle-free movement by providing parks, paseos, streetside green spaces, and outdoor amenity areas. Establish recreational amenities within walking distance of residential neighborhoods.
6. **Circulation Network.** Complete the comprehensive circulation network with integrated mobility options by connecting pedestrians and bicyclists traveling to a non-vehicular bridge across Portola Parkway to the broader Irvine community to the south and west of Gateway Village. Establish connectivity between land uses through the extension of the JOST to its connection point with the 700-acre Gateway Preserve via the South Park trailhead, which sustains the City's goals to enhance quality living environments through parks and open space.

The ability of each alternative evaluated in detail to meet these project objectives is evaluated in Section 6.5, Alternatives Selected for Analysis in This Draft EIR, and in Table 6-1 (provided at the end of Chapter 6.6, Environmentally Superior Alternative).

6.3 Project Impact Summary

The range of alternatives studied in the EIR must be broad enough to permit a reasoned choice by decision makers when considering the merits of the project. The analysis should focus on alternatives that are potentially feasible. Under CEQA, alternatives that are remote or speculative should not be discussed. Furthermore, alternatives should focus on reducing or avoiding significant environmental impacts associated with the project as proposed.

This section provides a summary of the proposed project impacts and emphasizes topics for which one or more impacts were determined to be potentially significant or significant. A summary of the significant and unavoidable impacts of the project is also provided below, as well as in Chapter 1, Executive Summary. A comparative analysis of each alternative evaluated in detail in Section 6.5 is provided to determine whether the alternative would reduce the potentially significant or significant and unavoidable impacts of the proposed project (see also Table 6-2, which is provided at the end of Section 6.6).

6.3.1 Summary of Project Impacts

6.3.1.1 Potentially Significant Impacts

Agriculture and Forestry Resources

As described in Section 4.1, Agriculture and Forestry Resources (Chapter 4, Environmental Analysis), the proposed project would have no impact related to conflict with agricultural zoning or use or a Williamson Act contract; it would also not result in "other changes" such as edge effects resulting in the loss of agricultural land/uses. Furthermore, the proposed project would have no impact on forestry resources or forest lands. The proposed project would result in a significant and unavoidable impact related to the conversion of Prime and Unique Farmland; cumulative agricultural impacts were also determined to be significant and unavoidable. Impacts related to conversion of farmland, along with other significant and unavoidable project impacts, are discussed in more detail in Section 6.3.2.

Air Quality

As described in Section 4.3, Air Quality, proposed project impacts related to the exposure of sensitive receptors to pollutant concentrations would be potentially significant but would be reduced to less than significant with the implementation of Mitigation Measure (MM) AQ-1 (Construction Equipment Exhaust Minimization). The project would not result in significant impacts related to other emissions, such as those leading to odors, adversely affecting people. Project impacts related to conflict with or obstruction of an air quality plan and increase in criteria pollutants, as well as cumulative air quality impacts, were determined to be significant and unavoidable.

Biological Resources

As described in Section 4.4, Biological Resources, potentially significant impacts to special-status species would be mitigated through implementation of MM-BIO-1 (Avian Nest Avoidance), MM-BIO-2 (Demarcation of Disturbance Limits), MM-BIO-3 (Pre-Construction Burrowing Owl Survey), MM-BIO-4 (Least Bell's Vireo Mitigation), MM-BIO-5 (Crotch's Bumble Bee Pre-Construction Surveys), MM-BIO-6 (Biological Monitoring), and MM-BIO-7 (Coastal California Gnatcatcher Monitoring). Potentially significant impacts to wetlands and waters regulated by the RWQCB would be mitigated through implementation of MM-BIO-8 (Waters and Wetland Mitigation). Conflicts with local policies or ordinances protecting biological resources, which would be a potentially significant impact would be mitigated through compliance with MM-BIO-9 (Tree Ordinance Tree Inventory and Permit). All impacts would be less than significant with mitigation incorporated.

Cultural Resources

As described in Section 4.5, Cultural Resources, the proposed project would have no impact related to a change in significance of a historic resource. The project would have potentially significant impacts (related to an adverse change to an archaeological resource and potential disturbance to human remains); however, these impacts, along with cumulative cultural resources impacts, would be addressed and reduced to less-than-significant levels through the application of MM-CUL-1 (Cultural Resources Sensitivity Training), MM-CUL-2 (Cultural Resources Monitoring and Inadvertent Discovery Protocols), and MM-CUL-3 (Unanticipated Discovery of Human Remains).

Geology and Soils

As described in Section 4.7, Geology and Soils, the proposed project would have no impacts or less-than-significant impacts (not requiring mitigation measures) with regard to all impact thresholds except as related to paleontological resources. Impacts to paleontological resources and cumulative paleontological impacts were determined to be less than significant through the implementation of MM-GEO-1 (Paleontological Resources Impact Mitigation Program).

Greenhouse Gas Emissions

As described in Section 4.8, Greenhouse Gas Emissions, proposed project operations would exceed the City's threshold for GHG emissions, even after mitigation. MM-GHG-1 (Electric Vehicle Charging Infrastructure), which requires installation of electric vehicle (EV) charging infrastructure, would reduce mobile source GHG emissions by encouraging transition from fossil fuel vehicles to EVs by providing necessary infrastructure. MM-GHG-2 (Energy Conservation) involves various strategies to reduce energy consumption and associated GHG emissions by increasing energy efficiency. MM-GHG-3 (Water Use Efficiency and Water Conservation) requires water efficiency strategies to reduce water consumption and associated GHG emissions. MM-GHG 4 (Solid Waste Reduction) requires several strategies to reduce solid waste generation and associated GHG emissions. However, the GHG emissions reductions achieved by implementation of these mitigation measures for the project could not be reliably quantified. As such, implementation of these mitigation measures cannot demonstrate that GHG emissions would be mitigated to a less-than-significant level. As such, the project would result in significant and unavoidable project-specific and cumulative GHG impacts regardless of the application of MM-GHG-1 through MM-GHG-4.

Hazards and Hazardous Materials

As described in Section 4.9, Hazards and Hazardous Materials, proposed project impacts related to the transport, use, or disposal of hazardous materials; hazard to the public from upset and accidental release of hazardous materials; and cumulative hazardous materials impacts would be potentially significant. However, these impacts were determined to be less than significant with the implementation of MM-HAZ-1 (Pre-Demolition Hazardous Materials Abatement) and MM-HAZ-2 (Soil Management Plan). Impacts associated with wildfire hazards would be addressed by implementing safety requirements before construction, including establishment of temporary access roads, fuel modification zones, and phased site access as required by MM-WF-1, as well as introducing a fire-resistant landscape plan for operation of the project as required by MM-WF-2. With implementation of MM-WF-1 and MM-WF-2, impacts associated with exposure of people or structures to significant risk of loss, injury, or death, would be reduced to less than significant. The proposed project was determined to have either no impact or less-than-significant impacts in terms of the other impact thresholds in this section.

Land Use and Planning

As described in Section 4.14, Land Use and Planning, the proposed project would result in no impact related to physically dividing an established community. However, the proposed project would conflict with certain key attributes of the 2022 CARB Scoping Plan Update, Appendix D. Therefore, the proposed project would conflict with a land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect, resulting in significant and unavoidable land use and planning impacts at the project level and cumulatively, despite implementation of MM-GHG-1 through MM-GHG-4 and other mitigation measures ensuring consistency with the City's General Plan.

Recreation

As described in Section 4.15, Recreation, the proposed project would result in a less-than-significant impact related to the deterioration of existing neighborhood and regional parks. However, the proposed project would result in significant and unavoidable impacts regarding the construction or expansion of recreational facilities, as well as cumulative impacts, despite implementation of mitigation measures specified throughout the Draft EIR that would be applicable to recreational resources impacts.

Transportation

As described in Section 4.16, Transportation, the proposed project would have less-than-significant impacts related to potential conflict with transportation plans, programs, ordinances, or policies as well as emergency access; none of these impacts require mitigation measures. The project would result in a less-than-significant impact, with implementation of MM-TRA-4 (Traffic Signal Installation), with regard to potential transportation hazards. Finally, the project would result in significant and unavoidable impacts related to vehicle miles traveled (VMT) and cumulative transportation effects even after the implementation of MM-TRA-1 (Affordable and Below Market Rate Housing), MM-TRA-2 (Pedestrian Network Improvement), MM-TRA-3 (Expanded Bikeway Network), and MM-TRA-4.

Tribal Cultural Resources

As described in Section 4.17, Tribal Cultural Resources, the proposed project would have a less-than-significant impact related to tribal cultural resources listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources. As described in that section, the project could have a potentially significant impact related to tribal cultural resources determined by a lead agency and California Native American tribes. However, this impact, along with cumulative tribal cultural resources impacts, would be addressed and reduced to a less-than-significant level through the application of MM-TCR-1 (Tribal Cultural Resources Monitoring).

Wildfire

As described in Section 4.19, Wildfire, the proposed project would result in potentially significant impacts related to wildfire exposure and installation and maintenance of infrastructure. These impacts were determined to be reduced to a less-than-significant level through the implementation of MM-WF-1 (Pre-Construction Requirements) and MM-WF-2 (Fire-Resistant Landscape Plan). The project was determined to have a less-than-significant impacts related to the impairment of an adopted emergency response plan or emergency evacuation plan as well as the exposure of people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

6.3.1.2 Other Impacts

All other impacts of the proposed project related to aesthetics (Section 4.1), energy (Section 4.6), hydrology and water quality (Section 4.10), noise (Section 4.12), population and housing (Section 4.13), public services (Section 4.14), and utilities and service systems (Section 4.18) would be less than significant or would not occur, as described in Chapter 4 of this Draft EIR and summarized in this chapter.

6.3.2 Significant and Unavoidable Project Impacts

As described in Chapter 4, Environmental Analysis, and as listed above, the proposed project would result in the following significant and unavoidable impacts that can be reduced through implementation of mitigation measures identified in Chapter 4 but not to less-than-significant levels. The significant and unavoidable impacts of the proposed project are summarized in Sections 6.3.2.1 through 6.3.2.5, organized by resource topic and threshold question.

6.3.2.1 Agriculture and Forestry

1. Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

The proposed project would convert 67.46 acres of agricultural farmland to non-agricultural uses, resulting in a significant and unavoidable project-specific and cumulative agricultural impact. There are no feasible mitigation measures to reduce the significance of this impact.

The project site includes 64.48 acres of Prime Farmland and 2.98 acres of Unique Farmland. Thus, the total Important Farmland on the project site is 67.46 acres. Under the proposed project, the site, including 67.46 acres of Important Farmland, would be converted to an urban, non-agricultural, residential use that would include parks, paseos, and an extension of the Jeffrey Open Space Trail (JOST).

Conversion of Important Farmland within the project site was considered and found significant in a previous EIR. The Northern Sphere Program EIR (City of Irvine 2002a) analyzed the impacts of converting agricultural lands and found that implementation of the General Plan Amendment and Zone Change covering the project site would result in significant and unavoidable impacts related to the conversion of Important Farmland. As discussed in the Northern Sphere Program EIR, mitigation measures involving the retention of agricultural land as well as the purchase or transfer of development rights to preserve agricultural land would be infeasible for the proposed project due to economic factors, such as escalating land costs, affecting general agricultural viability in the City and the region. Mitigation measures, such as the implementation of the City's Agricultural Legacy Program, contemplated in the Northern Sphere Program EIR, aimed at reducing or avoiding impacts related to the proposed project's loss of mapped Important Farmlands would not reduce agricultural impacts to a less-than-significant level because agricultural conversion has been occurring in the project vicinity since 2002. Furthermore, implementation of the proposed project would pose a conflict with the Agricultural Legacy Program, which is intended to reduce and partially mitigate agricultural impacts, specific to the project site, analyzed in the 2002 Northern Sphere EIR. Therefore, there are no feasible mitigation measures that would reduce or avoid the loss of 67.46 acres of mapped Important Farmland caused by the development of the proposed project.

6.3.2.2 Air Quality

1. Would the project conflict with or obstruct implementation of the applicable air quality plan?

The project would result in a significant and unavoidable impact relating to a potential conflict with the South Coast Air Quality Management District (SCAQMD) 2022 Air Quality Management Plan (AQMP) even after implementation of all feasible mitigation measures. This would also contribute to a significant impact on the cumulative level.

Criteria air pollutant emissions resulting from project operation would exceed the criteria pollutant thresholds established by SCAQMD for volatile organic compound (VOC) emissions. Potential conflict with the SCAQMD AQMP would be addressed though the implementation of MM-AQ-1 through MM-AQ-4, which would be required to reduce criteria air pollutant emissions during construction of the project. MM-AQ-1 (Construction Equipment Exhaust Minimization) would require the use of Tier 4 Final construction equipment for off-road equipment over 50 horsepower. MM-AQ-2 (Additional Construction Equipment Emission Reductions) would require additional equipment reductions through the use of alternatively fueled equipment over 25 horsepower where commercially available. MM-AQ-3 (Use of Super-Compliant Low-VOC Paint During Construction) would require the use of low-VOC architectural coatings during construction. MM-AQ-4 would limit truck and equipment idling to 5 minutes during construction. To reduce VOC emissions during operation, the project would also implement MM-AQ-5 (Low-VOC Cleaning Supplies and Paint Educational Program) and MM-AQ-6 (Use of Low-VOC Cleaning Supplies and Paint for Spaces Operated by Homeowner's Association). Moreover, MM-AQ-7 (Use of Zero-Emission Landscape Equipment for Homeowner's Association Land), MM-AQ-8 (Landscape Maintenance Equipment Emission Reduction), and MM-GHG-1 (Installation of Additional Electric Vehicle Chargers Beyond Title 24 Compliance) would also be applicable to reduce operational emissions.

Even with implementation of all applicable mitigation measures described above (MM-AQ-1 through MM-AQ-8 and MM-GHG-1), the project would exceed SCAQMD's mass daily regional operational thresholds. As such, the project's criteria air pollutant emissions would be significant and unavoidable. Therefore, the project would have the potential to increase the frequency or severity of a violation of federal or state ambient air quality standards. Because the project would generate emissions that exceed the SCAQMD regional thresholds, the project would be inconsistent with the AQMP, resulting in a significant and unavoidable impact.

2. Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

Proposed project operational emissions would continue to exceed the SCAQMD significance threshold for VOCs even after implementation of mitigation measures. Accordingly, the potential of the project to violate any air quality standard or contribute substantially to an existing or projected air quality violation with mitigation would be a significant and unavoidable impact. This would also contribute to a significant impact on the cumulative level.

The project-generated construction activities would result in criteria air pollutant emissions, but they would be below the SCAQMD construction thresholds after accounting for implementation of MM-AQ-1 through MM- AQ-4. Operation of the proposed project would exceed the criteria air pollutant operational thresholds established by the SCAQMD for emissions of VOCs even after the implementation of MM-AQ-1 through MM- AQ-8 and MM-GHG-1 (summarized above). Similarly, the overlapping construction and operation emissions during the interim operation phases would exceed the criteria air pollutant operational thresholds established by SCAQMD for emissions of VOCs and oxides of nitrogen (NO_x), resulting in a significant and unavoidable operational emissions impact even after the implementation of all feasible mitigation.

6.3.2.3 Greenhouse Gas Emissions

1. Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

The proposed project could generate greenhouse gas (GHG) emissions, either directly or indirectly, that may have a significant impact on the environment. Emissions during project operations would exceed the SCAQMD threshold, even after mitigation. This would also contribute to a significant impact on the cumulative level.

The estimated total GHG emissions during construction would be approximately 15,357 metric tons (MT) carbon dioxide equivalent (CO_2e) over the construction period. Estimated project-generated construction emissions amortized over 30 years would be approximately 512 MT CO_2e per year. Operation of the project would result in approximately 12,507 MT CO_2e per year and would be approximately 13,019 MT CO_2e per year with amortized construction emissions. Operational emissions would be above the 3,000 MT CO_2e per year threshold recommended by the City, and GHG emissions associated with long-term operation of the project would be potentially significant.

As such, the project would implement MM-GHG-1 through MM-GHG-4 to reduce the GHG emissions associated with long-term operation of the project. MM-GHG-1 (Electric Vehicle Charging Infrastructure), which requires installation of EV charging infrastructure, would reduce mobile source GHG emissions by encouraging transition from fossil fuel vehicles to EVs by providing necessary infrastructure. MM-GHG-2 (Energy Conservation) involves various strategies to reduce energy consumption and associated GHG emissions by increasing energy efficiency. MM-GHG-3 (Water Use Efficiency and Water Conservation) requires water efficiency strategies to reduce water consumption and associated GHG emissions. MM-GHG-4 (Solid Waste Reduction) requires several strategies to reduce solid waste generation and associated GHG emissions. However, the GHG emissions reductions achieved by implementation of these mitigation measures for the project could not be reliably quantified. As such, implementation of these mitigation measures cannot demonstrate that GHG emissions would be mitigated to a less-than-significant level.

Therefore, because operational GHG emissions cannot feasibly be reduced to less than 3,000 MT CO_2e per year, the project would exceed the City's threshold for GHG emissions even with implementation of all feasible mitigation, resulting in a significant and unavoidable impact regarding the potential to generate GHG emissions.

2. Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

The proposed project would represent a potential conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. This would be a significant and unavoidable impact at both the project level and the cumulative level.

The project would conflict with key attributes of the 2022 California Air Resources Board Scoping Plan Update, Appendix D (CARB 2022), as well as the environmental goals of the Southern California Association of Governments 2024–2050 Regional Transportation Plan/Sustainable Communities Strategy (SCAG 2024); therefore, the project would conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs despite implementation of the mitigation measures noted

above. Impacts to a potential conflict an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs would be significant and unavoidable, even after implementation of all feasible mitigation measures.

6.3.2.4 Land Use and Planning

2. Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

As described in Section 6.3.2.3, Greenhouse Gas Emissions, the proposed project would represent a potential conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs (an environmental effect). This represents a significant and unavoidable impact at both the project level and the cumulative level. This impact would not be reduced to a less-than-significant level despite implementation of the GHG mitigation measures noted above.

6.3.2.5 Recreation

2. Would the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

The proposed project would result in a significant and unavoidable impact related to the construction or expansion of recreational facilities that might have an adverse physical effect on the environment. As discussed in Chapter 4, Environmental Analysis, and summarized in Chapter 1, Executive Summary, the project would have significant and unavoidable impacts related to agriculture and forestry, air quality GHG emissions, and transportation. Because the proposed project includes the construction of parks and JOST extension, their potential adverse physical effects on the environment are assessed throughout this Draft EIR. Mitigation is required to reduce impacts in several environmental resource areas, as summarized in Table 1-1, Summary of Project Impacts. However, agricultural, air quality, GHG, and transportation impacts relating to the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment, would remain significant and unavoidable after mitigation; this would also contribute to a significant and unavoidable cumulative impact.

6.3.2.6 Transportation

2. Would the project conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b)?

The proposed project would have a significant and unavoidable impact related to conflicts or inconsistencies with CEQA Guidelines Section 15064.3(b) due to increased VMT, even after mitigation. This would also contribute to a significant impact on the cumulative level.

A VMT analysis was prepared using the Irvine Transportation Analysis Model V1.8. The analysis was prepared in accordance with the City's adopted Traffic Study Guidelines, which provide screening criteria and impact thresholds for evaluating a project's potential impact on VMT. The detailed analysis results are provided in Appendix I, Traffic Study. Three mitigation measures were identified as applicable measures for the proposed project to address VMT impacts: MM-TRA-1 (Affordable and Below Market Rate Housing), MM- TRA-2 (Pedestrian Network Improvement), and MM-TRA-3 (Expanded Bikeway Network).

Assuming that each proposed project mitigation measure could achieve its maximum VMT reduction value, the implementation of MM-TRA-1 through MM-TRA-3 could reduce VMT by a total of 9.5%, which is less than the project's expected VMT impact of 25.7%. Detailed calculations of the VMT reductions with mitigation are provided in Appendix I, Traffic Study. The mitigation measures are provided in full in Section 4.16.5 of this Draft EIR. Even with mitigation incorporated, the proposed project would have a significant and unavoidable impact on VMT.

6.4 Alternatives Considered but Eliminated

This section discusses alternatives that were considered but were eliminated from detailed consideration because they did not meet most of the basic project objectives; they were found to be infeasible for technical, environmental, or social reasons; or they did not avoid or substantially lessen significant environmental impacts of the proposed project. Section 15126.6(c) of the CEQA Guidelines indicates that the range of potential alternatives shall include those that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects. The EIR should briefly describe the rationale for selecting the alternatives to be discussed. The EIR should also identify any alternatives that were considered by the lead agency but were rejected as infeasible, and should briefly explain the reasons underlying the lead agency's determination. Among the factors that may be used to eliminate alternatives from detailed consideration in an EIR are (1) failure to meet most of the basic project objectives, (2) infeasibility, or (3) inability to avoid significant environmental impacts.

As a result of the City's ongoing project planning process, the following alternatives were reviewed but eliminated from further consideration as alternatives to the proposed project, as explained below:

1. Alternative Location Within the City
2. Increased Residential Density/Modified Footprint

6.4.1 Alternative Location Within the City

CEQA does not require that an analysis of alternate sites always be included in an EIR. CEQA Guidelines Section 15126.6(f)(2) provides guidance regarding consideration of one or more alternative locations for a proposed project, stating that putting the project in another location should be considered if doing so would allow significant effects of the project to be avoided or substantially lessened. Only locations that would avoid or substantially lessen any of the significant effects of the project need to be considered for inclusion in the EIR. However, if the surrounding circumstances make it reasonable to consider an alternative site, then a project alternative should be considered and analyzed in the EIR. Pursuant to CEQA Guidelines Section 15126.6(f)(2), in making the decision to include or exclude analysis of an alternative site, the "key question and first step in analysis is whether any of the significant effects of the project would be avoided or substantially lessened by putting the project in another location. Only locations that would avoid or substantially lessen any of the significant effects of the project need to be considered for inclusion in the EIR."

During the project planning process, alternative locations for the proposed project were considered. However, given that the majority of the City has been built out with urban development and uses, there are few available sites of a size that could support residential development of a similar size to the proposed project, which is proposed on an approximately 105-acre site. The project includes goals related to the creation of housing stock and enhancement of the City's circulation network. The project would include approximately 1,360 residential units as well as new development of parks, a community garden, paseos, and a 2,750-foot extension of the JOST. The project would

connect the 700-acre Gateway Preserve via the South Park trailhead, which sustains the City's goals to enhance quality living environments through parks and open space. The proposed project site is the only location where this connection could be achieved due to the built-out nature of the City. Therefore, this alternative has been eliminated from consideration.

6.4.2 Increased Residential Density/Modified Footprint

An alternative design including an increased residential density on a modified project site footprint was also considered during the project planning process. This alternative was designed to include 1,236 residential units on 82 gross acres; of this total, approximately 60% of the units would be composed of higher-density housing types such as attached townhomes and three-story apartment buildings, for a total of 927 market rate and 309 affordable units. This alternative would provide a higher-density housing option with both market rate and affordable unit types, with almost all clustered buildings. To accommodate this alternative, the project site layout would be changed from that of the proposed project. Due to the proposed increase in residential densities within a designated Very High Fire Hazard Severity Zone (VHFHSZ), development under this alternative would require a larger fuel modification zone to protect against potential wildfire risks. Under this alternative, development would need be sited farther away from Hicks Canyon Wash and/or Bee Canyon Road to the east to accommodate a larger fuel modification zone, thereby shifting and reducing the site's development footprint.

This modified design alternative was determined to be infeasible due to physical and financial constraints. The reduced project footprint would not allow for the same range of housing options as the proposed project; for the alternative to be financially viable, it would need to support denser residential unit types, contained in taller multifamily buildings, and fewer affordable unit types compared to the proposed project. Furthermore, the reduced project site footprint would result in less acreage available for on-site parks, community gardens, paseos, and other amenities for residents and the public. Another key consideration is the provision of homeowner's insurance for this alternative. It currently is difficult for new attached condominium/apartment developments sited in VHFHSZs to receive homeowner's insurance. This consideration further reduces the alternative's financial feasibility.

It is anticipated that the Increased Residential Density/Modified Footprint Alternative would not be able to meet several objectives of the proposed project. Specifically, this alternative would not provide diverse types of housing or the same amount of affordable housing as the proposed project. It would also not be able offer the same opportunity for parks, trails, and other public/residential amenities. For these reasons, this alternative has been eliminated from consideration.

6.5 Alternatives Selected for Analysis in This Draft EIR

This section describes the alternatives to the proposed project that were selected and analyzed according to CEQA Guidelines Section 15126.6(a) after elimination of some considered alternatives, as explained in Section 6.4, Alternatives Considered but Eliminated. The analyzed alternatives, including the No Project Alternative, represent a reasonable range of alternatives to the project that would feasibly attain most of the project's basic objectives and would avoid or substantially lessen the significant adverse environmental effects of the project, as listed in Section 6.3, Project Impact Summary, and described in detail in Chapter 4, Environmental Analysis.

The following three alternatives were selected for comparative analysis in this EIR and are described in detail in the subsections below:

1. **No Project/No Development.** This alternative involves the circumstances under which the project would not proceed and legacy agricultural uses would resume on the project site.
2. **No Project/Community Park.** This alternative involves the circumstances under which the project would not proceed and the project site would be developed solely with parks and recreational facilities, consistent with the project site's General Plan and zoning designations of Recreation. Development under this alternative would be consistent with City of Irvine Parks Master Plan, which identifies a new community park ("Gateway Park") on the proposed project site.
3. **Reduced Residential.** This alternative involves a reduced residential development scenario with fewer residential units and structures and a smaller buildout footprint than the proposed project. The alternative, consistent with the proposed project, includes parks, paseos, and an extension of the JOST. This alternative's residential unit count would be reduced by 30%: 645 market-rate units and 216 affordable units, for a total of 861 units. Accordingly, it is assumed that this alternative's residential development footprint would also be reduced by 30%. Therefore, this alternative is assumed to maintain more open space than the proposed project for residents and the public.

6.5.1 Alternative 1: No Project/No Development

6.5.1.1 Description

CEQA Guidelines Section 15126.6(e) generally provides that "[t]he 'no project' analysis shall discuss the existing conditions at the time the notice of preparation is published, … as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services." Section 15126(e)(3)(B) provides that, where, as here, a proposed project is something "other than a land use or regulatory plan," the "No Project" alternative is "the circumstance under which the project does not proceed." The purpose of describing and analyzing a No Project alternative is to allow decision makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project (CEQA Guidelines Section 15126.6[e][1]). "[W]here failure to proceed with the project will not result in preservation of existing environmental conditions, the analysis should identify the practical result of the project's non-approval and not create and analyze a set of artificial assumptions that would be required to preserve the existing physical environment" (CEQA Guidelines Section 15126.6[e][3][B]).

The underlying purpose of the proposed project is to provide housing stock. Under this No Project/No Development alternative, all existing conditions are generally based on those existing in 2024, when the Notice of Preparation (NOP) was released; at this time, the project site consists primarily of active agricultural fields with equipment storage and laydown areas in the northern portion of the site. According to the California Department of Conservation, the site includes 64.46 acres of designated prime farmland, with small areas of unique farmland (DOC 2020).

Under this alternative, none of the components of the proposed project would be implemented; there would be no development of residential units or extension of the JOST. The project site would continue to be available for agricultural uses. As noted in Section 4.2 of the EIR, despite the project site's Recreation zoning designation, agricultural activities have continued at the project site consistent with Objective L-10, Policy (k) of the General Plan Conservation and Open Space Element (City of Irvine 2002b). Under this alternative, it is assumed that agricultural uses would continue, consistent with this General Plan policy, and no future development of recreation, parks, or residential uses would occur.

The No Project/No Development alternative would not provide additional housing stock or provide an improved circulation network. As a result, the No Project/No Development alternative would require the City to pursue other projects to achieve these overarching objectives. These projects would require subsequent CEQA review.

6.5.1.2 Impact Analysis

Aesthetics

Under the No Project/No Development alternative, the proposed project would not be implemented. The existing conditions described in Section 4.1, Aesthetics, would be maintained because the proposed project development would not be implemented. All visual impacts of the project would be avoided with the No Project/No Development alternative (see Table 6-2). All aesthetic impacts that would be less than significant under the proposed project would be no impact under this alternative (no impact). Additionally, the less-than-significant cumulative impacts related to aesthetics would not occur under the No Project/No Development alternative (no impact).

Agriculture and Forestry Resources

Under the No Project/No Development alternative, the proposed project would not be implemented. The existing conditions described in Section 4.2, Agriculture and Forestry Resources, would be generally maintained because the proposed project development would not be implemented. All agricultural impacts of the proposed project would be avoided with the No Project/No Development alternative (see Table 6-2). Therefore, the significant and unavoidable impact related to the conversion of Prime Farmland associated with the proposed project would not occur under this alternative (no impact). The less-than-significant impact identified for the proposed project related to other changes in the existing environment that could result in the conversion of farmland would not occur with this alternative (no impact). Consistent with the proposed project, this alternative would also have no impact to forest lands and forestry resources. Additionally, the significant and unavoidable cumulative impacts related to agricultural resources would not occur with the No Project/No Development alternative (no impact).

Air Quality

Under the No Project/No Development alternative, the proposed project would not be implemented. The existing conditions described in Section 4.3, Air Quality, would be generally maintained because the proposed project development would not be implemented. All air quality impacts of the proposed project would be avoided with the No Project/No Development alternative (see Table 6-2). Therefore, the significant and unavoidable impact relating to a potential conflict with the SCAQMD 2022 AQMP would not occur under this alternative (no impact). Furthermore, the significant and unavoidable impact related to the cumulatively considerable increase in criteria air pollutants—specifically, operational emissions—would not occur under this alternative (no impact). The less-than-significant impact (with mitigation) identified for the proposed project related to the exposure of sensitive receptors to pollutant concentrations would not occur with this alternative (no impact). The less-than-significant impact identified for the proposed project related to other emissions would not occur with this alternative (no impact). Additionally, the significant and unavoidable cumulative impacts related to air quality would not occur with the No Project/No Development alternative (no impact).

Biological Resources

Under the No Project/No Development alternative, the proposed project would not be implemented. The existing conditions described in Section 4.4, Biological Resources, would be generally maintained because the proposed project development would not be implemented. All biological resource impacts of the proposed project would be avoided with the No Project/No Development alternative (see Table 6-2). Consistent with the proposed project, this alternative would have no impact on native wildlife nursery sites or conflict with the provisions of an adopted Habitat Conservation Plan or Natural Community Conservation Plan (no impact). The less-than-significant riparian habitat impact associated with the proposed project would not occur under this alternative (no impact). Furthermore, the less-than-significant impacts (with mitigation) related to special-status species, state or federally protected wetlands, and conflict with local policies protecting biological resources associated with the proposed project would not occur under this alternative (no impact). Additionally, the less-than-significant cumulative impacts related to cultural resources would not occur under the No Project/No Development alternative (no impact).

Cultural Resources

Under the No Project/No Development alternative, the proposed project would not be implemented. The existing conditions described in Section 4.5, Cultural Resources, would be generally maintained because the proposed project development would not be implemented. All cultural resource impacts of the proposed project would be avoided with the No Project/No Development alternative (see Table 6-2). Consistent with the proposed project, this alternative would continue to have no impact to historical resources (no impact). Furthermore, the less-than-significant impacts (with mitigation) related to archaeological resources and human remains associated with the proposed project would not occur under this alternative (no impact). Additionally, the less-than-significant cumulative impacts related to cultural resources would not occur under the No Project/No Development alternative (no impact).

Energy

Under the No Project/No Development alternative, the proposed project would not be implemented. The existing conditions described in Section 4.6, Energy, would be maintained because the proposed project development would not be implemented. All energy impacts of the project would be avoided with the No Project/No Development alternative (see Table 6-2). All energy impacts that would be less than significant under the proposed project would not occur under this alternative (no impact). Additionally, the less-than-significant cumulative impacts related to energy would not occur under the No Project/No Development alternative (no impact).

Geology and Soils

Under the No Project/No Development alternative, the proposed project would not be implemented. The existing conditions described in Section 4.7, Geology and Soils, would be generally maintained because the proposed project development would not be implemented. All geology and soils impacts of the proposed project would be avoided with the No Project/No Development alternative (see Table 6-2). Consistent with the proposed project, this alternative would continue to have no impact related to earthquake faulting. The less-than-significant impact (with mitigation) related to paleontological resources associated with the proposed project would not occur under this alternative (no impact). Less-than-significant impacts from the proposed project related to ground shaking, liquefaction, and landslides would be avoided under this alternative (no impact). Consistent with the proposed project, this alternative would continue to have no impact related to soil capability for the use of septic tanks or alternative wastewater systems because these components would not be installed. Additionally, the less-than-significant cumulative impacts related to geology and soils would not occur under the No Project/No Development alternative (no impact).

Greenhouse Gas Emissions

Under the No Project/No Development alternative, the proposed project would not be implemented. The existing conditions described in Section 4.8, Greenhouse Gas Emissions, would be generally maintained because the proposed project development would not be implemented. All GHG impacts of the proposed project would be avoided with the No Project/No Development alternative (see Table 6-2). Therefore, the significant and unavoidable impact relating to the generation of operational GHG emissions in conflict with the SCAQMD threshold would not occur under this alternative (no impact). Furthermore, the significant and unavoidable impact related to conflict with an applicable plan, policy, or regulation with the purpose of reducing GHG emissions would not occur under this alternative (no impact). Additionally, the significant and unavoidable cumulative impacts related to GHG emissions would not occur with the No Project/No Development alternative (no impact).

Hazards and Hazardous Materials

Under the No Project/No Development alternative, the proposed project would not be implemented. The existing conditions described in Section 4.9, Hazards and Hazardous Materials, would be generally maintained because the proposed project development would not be implemented. All hazards and hazardous materials impacts of the proposed project would be avoided with the No Project/No Development alternative (see Table 6-2). Therefore, the less-than-significant impact (with mitigation) related to the routine transport, use, and disposal of hazardous materials associated with the proposed project would not occur under this alternative (no impact). The less-than-significant impact related to impairment or interference with emergency response or evacuation plans would be avoided (no impact). The less-than-significant impact (with mitigation) related to exposure of people or structures to wildland fires would also be avoided (no impact). The less-than-significant impact (with mitigation) related to the potential release of hazardous materials would also not occur under this alternative (no impact). Consistent with the proposed project, this alternative would continue to have no impact related to hazardous emissions or materials in proximity to existing or proposed schools; being located on a hazardous materials site list compiled pursuant to California Government Code Section 65962.5; or being located near airport operations. Additionally, the less-than-significant cumulative impacts related to hazards and hazardous materials would not occur under the No Project/No Development alternative (no impact).

Hydrology and Water Quality

Under the No Project/No Development alternative, the proposed project would not be implemented. The existing conditions described in Section 4.10, Hydrology and Water Quality, would be maintained because the proposed project development would not be implemented. All hydrology and water quality impacts of the project would be avoided with the No Project/No Development alternative (see Table 6-2). All hydrology and water quality impacts that would be less than significant under the proposed project would not occur under this alternative (no impact). Additionally, the less-than-significant cumulative impacts related to hydrology and water quality would not occur under the No Project/No Development alternative (no impact).

Land Use and Planning

Under the No Project/No Development alternative, the proposed project would not be implemented. The existing conditions described in Section 4.11, Land Use and Planning, would be maintained because the proposed project development would not be implemented. All land use and planning impacts of the project would be avoided with the No Project/No Development alternative (see Table 6-2). The significant and unavoidable land use and planning impact related to conflict with an applicable plan, policy, or regulation with the purpose of avoiding or mitigating an

environmental effect would not occur under this alternative (no impact). Additionally, the significant and unavoidable cumulative impacts related to land use and planning would not occur under the No Project/No Development alternative (no impact).

Noise

Under the No Project/No Development alternative, the proposed project would not be implemented. The existing conditions described in Section 4.12, Noise, would be maintained because the proposed project development would not be implemented. All noise impacts of the project would be avoided with the No Project/No Development alternative (see Table 6-2). All noise impacts that would be less than significant under the proposed project would not occur under this alternative (no impact). Additionally, the less-than-significant cumulative impacts related to noise would not occur under the No Project/No Development alternative (no impact).

Population and Housing

Under the No Project/No Development alternative, the proposed project would not be implemented. The existing conditions described in Section 4.13, Population and Housing, would be maintained because the proposed project development would not be implemented. All population and housing impacts of the project would be avoided with the No Project/No Development alternative (see Table 6-2). All population and housing impacts that would be less than significant under the proposed project would not occur under this alternative (no impact). Additionally, the less-than-significant cumulative impacts related to population and housing would not occur under the No Project/No Development alternative (no impact).

Public Services

Under the No Project/No Development alternative, the proposed project would not be implemented. The existing conditions described in Section 4.14, Public Services, would be maintained because the proposed project development would not be implemented. All public services impacts of the project would be avoided with the No Project/No Development alternative (see Table 6-2). All public services impacts that would be less than significant under the proposed project would not occur under this alternative (no impact). Additionally, the less-than-significant cumulative impacts related to public services would not occur under the No Project/No Development alternative (no impact).

Recreation

Under the No Project/No Development alternative, the proposed project would not be implemented. The existing conditions described in Section 4.15, Recreation, would be generally maintained because the proposed project development would not be implemented. All recreation impacts of the proposed project would be avoided with the No Project/No Development alternative (see Table 6-2). The less-than-significant proposed project impact related to the increase in use of existing neighborhood and regional parks or other recreational facilities would not occur under this alternative (no impact). The significant and unavoidable impact relating to the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment, would not occur under this alternative (no impact). Additionally, the significant and unavoidable cumulative impacts related to recreation would not occur with the No Project/No Development alternative (no impact).

Transportation

Under the No Project/No Development alternative, the proposed project would not be implemented. The existing conditions described in Section 4.16, Transportation, would be generally maintained because the proposed project development would not be implemented. All transportation impacts of the proposed project would be avoided with the No Project/No Development alternative (see Table 6-2). Therefore, the significant and unavoidable impact related to conflicts or inconsistencies with CEQA Guidelines Section 15064.3(b) due to increased VMT would not occur under this alternative (no impact). The less-than-significant impacts (with mitigation) related to potential conflict with transportation programs, ordinances, or policies; increase in transportation hazards; and emergency access would also not occur under this alternative (no impact). Additionally, the significant and unavoidable cumulative impacts related to transportation would not occur with the No Project/No Development alternative (no impact).

Tribal Cultural Resources

Under the No Project/No Development alternative, the proposed project would not be implemented. The existing conditions described in Section 4.17, Tribal Cultural Resources, would be generally maintained because the proposed project development would not be implemented. All tribal cultural resource impacts of the proposed project would be avoided with the No Project/No Development alternative (see Table 6-2). Therefore, the less-than-significant impact related to tribal cultural resources listed or eligible for listing pursuant to Public Resources Code Section 5020.1(k) would be avoided (no impact). Furthermore, the less-than-significant impact (with mitigation) related to tribal cultural resources determined by the lead agency, considering the significance to a California Native American tribe, would not occur under this alternative (no impact). Additionally, the less-than-significant cumulative impacts (with mitigation) related to cultural resources would not occur under the No Project/No Development alternative (no impact).

Utilities and Service Systems

Under the No Project/No Development alternative, the proposed project would not be implemented. The existing conditions described in Section 4.18, Utilities and Service Systems, would be maintained because the proposed project development would not be implemented. All utilities and service systems impacts of the project would be avoided with the No Project/No Development alternative (see Table 6-2). All utilities and service systems impacts that would be less than significant under the proposed project would not occur under this alternative (no impact). Additionally, the less-than-significant cumulative impacts related to utilities and service systems would not occur under the No Project/No Development alternative (no impact).

Wildfire

Under the No Project/No Development alternative, the proposed project would not be implemented. The existing conditions described in Section 4.19, Wildfire, would be generally maintained because the proposed project development would not be implemented. All wildfire impacts of the proposed project would be avoided with the No Project/No Development alternative (see Table 6-2). Therefore, the less-than-significant impacts (with mitigation) related to the spread of wildfire and installation or maintenance of infrastructure that may exacerbate fire risk would not occur under this alternative (no impact). The less-than-significant impacts related to emergency response and evacuation and exposure of people or structures to significant risks as a result of runoff, post-fire slope instability, or drainage changes would not occur under this alternative (no impact). Additionally, the less-than-significant cumulative impacts related to wildfire would not occur under the No Project/No Development alternative (no impact).

6.5.1.3 Ability to Meet Project Objectives

The No Project/No Development alternative would not result in any physical changes to the project site. Under this alternative, the project site would continue to be available for legacy agricultural uses. The project site would not be developed with residential uses or improved with pedestrian or bicyclist facilities. Therefore, the No Project/No Development alternative would not meet any of the identified project objectives (see Table 6-1). In particular, this alternative would not provide housing stock or affordable housing to advance compliance with the City's RHNA Goals (Objective 1, Objective 2, and Objective 3); generate revenue for the City's General Fund (Objective 4); create an attractive community with private and public amenities (Objective 5); or improve the City's circulation network by establishing connectivity between land uses through the extension of the JOST (Objective 6).

6.5.2 Alternative 2: No Project/Community Park

6.5.2.1 Description

The purpose of the No Project alternative and associated analysis is provided in detail in Section 6.5.1, Alternative 1: No Project/No Development. As stated, the purpose of describing and analyzing a No Project alternative is to allow decision makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project (CEQA Guidelines Section 15126.6[e][1]). Alternative 2: No Project/Community Park provides another scenario under the no project scenario where the proposed project site is developed with its General Plan and zoning designations of Recreation rather than being left vacant or as continued agricultural uses. This alternative involves the circumstances under which the project does not proceed and the project site is developed solely with parks and recreational facilities, consistent with the project site's General Plan and zoning designations of Recreation. Development under this alternative would be consistent with City of Irvine Parks Master Plan, which identifies the new Gateway Park on the proposed project site. This park was envisioned to include both passive and active recreation opportunities as well as a linkage between the City and the Northern Open Space Preserve. The City's Parks Master Plan (City of Irvine 2017) envisioned the development of Gateway Park as follows:

> …(to include) four softball-soccer field overlays, six tennis courts, six basketball courts, one sand volleyball court, one handball court, a playground and a community center. Based on community outreach priorities identified in this Master Plan, as well as the fact that numerous sports fields and courts will be provided nearby at the OCGP [Orange County Great Park] Sports Park, there may be an opportunity to vary the amenities originally planned for this site. Considering the site's proximity to the Northern Open Space Preserve as well as its location at the terminus of the Jeffrey Open Space Trail, it may be possible to design the site as a link between Irvine and its surrounding open space, utilizing recreational amenities compatible with this context. A key feature of this park could be an 18-hole disc golf course, relocated from Deerfield Park. Gateway Park will include a dog park. Gateway may also be an ideal setting for an outdoor classroom, and/or art space, atelier, nature trails, universal or thematic playground or a large reservable picnic shelter/pavilion for events and programs.

As noted above, the underlying purpose of the proposed project is to provide housing stock and improve the City's circulation network. Under this No Project/Community Park alternative, all existing conditions are generally based on those existing in 2024, when the NOP was released; at this time, the project site consisted primarily of active agricultural fields, with equipment storage and laydown areas in the northern portion of the site.

Under the No Project/Community Park alternative, none of the residential components of the proposed project would be implemented; there would be no development of residential units. However, the project site would be developed with a new park that would extend the JOST and provide connectivity between existing urban land uses to the west of the project site through the extension of the JOST to its connection point with the 700-acre Gateway Preserve to the east. Under this alternative, it is assumed that existing agricultural uses would cease. The exact amount of surface-level ground disturbance required for this alternative is unknown at this time. For the purposes of this analysis, it is assumed that footprint of surface-level ground disturbance associated with the No Project/Community Park alternative could be as extensive as, but not exceed, that of the proposed project. It is also assumed that construction of this alternative would involve a shorter construction timeline, with fewer construction activities and equipment, as compared to the proposed project. In summary, this alternative would not provide additional housing stock; however, it would improve pedestrian and bicyclist connectivity. As a result, the No Project/Community Park alternative would require the City to pursue other projects to achieve all the overarching objectives, especially those involving housing. These projects would require subsequent CEQA review.

6.5.2.2 Impact Analysis

Aesthetics

Under the No Project/Community Park alternative, the proposed project would not be implemented. Under this alternative, it is assumed the project site would be developed with a community park that would include both active and passive forms of recreation. This alternative would require the conversion of land used for agricultural purposes to community park amenities. The less-than-significant impacts for aesthetics under the proposed project would also be less than significant for the No Project/Community Park alternative, but the impacts overall would be lessened.

As discussed in Section 4.1.4, Impacts Analysis, the development of a community park would involve the construction of structures, utilities, landscaping, and lighting that would alter the existing views across the project site, but because the development footprint would be less dense, the less-than-significant impact under the proposed project would be lessened under the No Project/Community Park alternative (less-than-significant impact, reduced). Similar to the project, the No Project/Community Park alternative would not impact scenic resources (no impact). With regard to conflicts with applicable zoning and other regulations governing scenic quality, impacts under the No Project/Community Park alternative would also be less than significant, but because this alternative would be consistent with the General Plan and zoning, the impacts would be lessened compared with the proposed project (less-than-significant impact, reduced). Both the proposed project and the No Project/Community Park alternative would introduce new sources of nighttime lighting, which would constitute a less-than-significant impact, but the No Project/Community Park alternative would have reduced impacts compared to the proposed project because there would be less lighting overall and after 10:00 p.m. night lighting at parks is reduced so as not to disturb surrounding residential areas (less-than-significant impact, reduced). Additionally, the less-than-significant cumulative impacts related to aesthetics would be lessened under the No Project/Community Park alternative (less-than-significant impact, reduced).

Agriculture and Forestry Resources

Under the No Project/Community Park alternative, the proposed project would not be implemented. Under this alternative, it is assumed that the project site would be developed with a community park that would include both active and passive forms of recreation. This alternative would require the conversion of agricultural land for the development of community park amenities. Therefore, the proposed project conditions, including the conversion of agricultural lands, would be similar to those described in Section 4.2, Agriculture and Forestry Resources. Under the

No Project/Community Park alternative, it is assumed that the conversion of 67.46 acres from agricultural (Important Farmland) to non-agricultural uses would occur for the development of a community park (significant and unavoidable impact) (see Table 6-2). The less-than-significant impact identified for the proposed project related to other changes in the existing environment that could result in the conversion of farmland would also be less than significant under this alternative because the community park use would not result in edge effects that would jeopardize adjacent agricultural uses. Consistent with the proposed project, this alternative would continue to have no impact on conflict with existing zoning for agricultural use or a Williamson Act contract, or conflict with existing zoning of forest land of timberland, or loss of forest lands and forestry resources, because it is located at the same site. Considering the impact discussion above, the significant and unavoidable cumulative impacts related to agricultural resources would also occur with the No Project/Community Park alternative due to the loss in Important Farmland.

Air Quality

Under the No Project/Community Park alternative, the proposed project would not be implemented. Under this alternative, it is assumed that the project site would be developed with a community park that would include both active and passive forms of recreation; it would also create a linkage for pedestrians and bicyclists from existing urban uses to the west, via extension of the JOST, with the 700-acre Gateway Preserve to the east. Implementation of this alternative would result in reduced air pollutant emissions in terms of construction and operation. Furthermore, this alternative would be consistent with City's General Plan land use designation of Recreation. It would not require a General Plan Amendment as the proposed project does; it would also therefore be consistent with SCAQMDs AQMP per its screening approach. According to Tier 1 of the SCAQMD AQMP screening thresholds, any project consistent with its jurisdiction's General Plan land use designation is also consistent with the district's AQMP. Therefore, unlike the proposed project, which would have significant and unavoidable impacts related to conflict with or obstruction of implementation of the applicable air quality plan, the No Project/Community Park alternative would not conflict with or obstruct implementation of the applicable air quality plan (less-than-significant impact) (see Table 6-2).

The significant and unavoidable proposed project impact related to the cumulatively considerable increase in criteria air pollutants, specifically, operational emissions, would be reduced under this alternative. The proposed project would result in a significant and unavoidable operational impact due to its modeled levels of VOCs, which are associated with consumer products use by residents, reapplication of architectural coatings, and the use of landscaping equipment. Although the No Project/Community Park alternative is anticipated to use landscaping equipment, it would not include consumer products use by residents or the reapplication of architectural coatings at nearly the same scale or frequency as the proposed project. Therefore, the alternative would not result in significant operational air pollutant emissions (less-than-significant impact).

The less-than-significant impact (with mitigation) identified for the proposed project related to the exposure of sensitive receptors to pollutant concentrations would occur at a reduced level under the No Project/Community Park alternative; this alternative would involve a shorter construction timeline, with fewer construction activities and equipment, and would involve operations resulting in pollutant concentrations with fewer health risks (less-than-significant impact). The less-than-significant impact identified for the proposed project related to other emissions would also have a less-than-significant impact under this alternative, but at a reduced level because the community park land use would not result in the emissions adversely affecting a substantial number of people; furthermore, unlike the proposed project, it would not emit odors generated from residential uses such as cooking or application of architectural coatings (less-than-significant impact, reduced). Additionally, considering the impacts described herein, the significant and unavoidable cumulative impacts related to air quality would be less than significant with the No Project/Community Park alternative (less-than-significant impact).

Biological Resources

Under the No Project/Community Park alternative, the proposed project would not be implemented. Under this alternative, it is assumed that the project site would be developed with a community park that would include both active and passive forms of recreation; it would also create a linkage for pedestrians and bicyclists from existing urban uses to the west, via extension of the JOST, with the 700-acre Gateway Preserve to the east. All biological resource impact conclusions of the proposed project would be the same under the No Project/Community Park alternative (see Table 6-2); this is explained because the amount of surface-level ground disturbance—which is the primary activity that could affect biological resources—required for this alternative is unknown at this time. For the purposes of this analysis, it is assumed that footprint of surface-level ground disturbance associated with the No Project/Community Park alternative could be as extensive as, but not exceed, that of the proposed project. Consistent with the proposed project, this alternative would continue to have impact on native wildlife nursery sites or conflict with the provisions of an adopted Habitat Conservation Plan or Natural Community Conservation Plan (no impact). The less-than-significant riparian habitat impact associated with the proposed project occur at the same degree under this alternative (less-than-significant impact). Furthermore, the less-than-significant impacts (with mitigation) related to special-status species, state or federally protected wetlands, and conflict with local policies protecting biological resources associated with the proposed project would be the same under this alternative (less-than-significant impact with mitigation). The same mitigation measures (MM-BIO-1 through MM-BIO-9) applied to the proposed project would be required to address these impacts under this alternative. Additionally, the less-than-significant cumulative impacts (with mitigation) related to biological resources would be the same under the No Project/Community Park alternative.

Cultural Resources

Under the No Project/Community Park alternative, the proposed project would not be implemented. Under this alternative, it is assumed that the project site would be developed with a community park that would include both active and passive forms of recreation; it would also create a linkage for pedestrians and bicyclists from existing urban uses to the west, via extension of the JOST, with the 700-acre Gateway Preserve to the east. All cultural resource impact conclusions of the proposed project would be the same under the No Project/Community Park alternative (see Table 6-2); this is explained because the amount of surface-level ground disturbance—which is the primary activity that could affect archaeological resources—required for this alternative is unknown at this time. For the purposes of this analysis, it is assumed that footprint of surface-level ground disturbance associated with the No Project/Community Park alternative could be as extensive as, but not exceed, that of the proposed project. Consistent with the proposed project, this alternative would continue to have no impact to historical resources. Furthermore, the less-than-significant impacts (with mitigation) related to archaeological resources and human remains associated with the proposed project would be the same under this alternative because it has the potential to involve the same amount of surface-level ground disturbance. The same mitigation measures (MM-CUL-1 through MM-CUL-3—sensitivity training, resource monitoring, and inadvertent discovery protocols) applied to the proposed project would be required to address these impacts under this alternative. Additionally, the less-than-significant cumulative impacts (with mitigation) related to cultural resources would be the same under the No Project/ Community Park alternative.

Energy

Under the No Project/Community Park alternative, the proposed project would not be implemented. Under this alternative, it is assumed the project site would be developed with a community park that would include both active and passive forms of recreation. This alternative would require the conversion of land used for agricultural purposes

to community park amenities. The less-than-significant impacts for energy under the proposed project would also be less than significant for the No Project/Community Park alternative, but the impacts overall would be lessened.

Energy impacts would be reduced because this alternative would involve the construction of fewer/smaller structures, thereby resulting in a shorter construction timeline and fewer construction activities and less equipment and energy use. This alternative would also result in smaller and fewer structures that would therefore have reduced energy demands once operational. Energy demand would also be comparatively reduced because the alternative proposes a community park use that has less demand for energy compared to the proposed residential project. Therefore, this alternative would not result in wasteful, inefficient, or unnecessary consumption of energy resources or conflict with or obstruct a state or local plan for renewable energy or energy efficiency. As a result, these project-specific and cumulative impacts, which were determined to be less than significant under the proposed project, would be similar but reduced under this alternative (less-than-significant impact, reduced).

Geology and Soils

Under the No Project/Community Park alternative, the proposed project would not be implemented. Under this alternative, it is assumed that the project site would be developed with a community park that would include both active and passive forms of recreation; it would also create a linkage for pedestrians and bicyclists from existing urban uses to the west, via extension of the JOST, with the 700-acre Gateway Preserve to the east. All geology and soils impact conclusions of the proposed project would be the same under the No Project/Community Park alternative (see Table 6-2). Consistent with the proposed project, this alternative would have no impact related to earthquake faulting because it is subject to the same risks due to its location on the same project site. The less-than-significant proposed project impacts related to ground shaking, liquefaction, and landslides would also be less than significant under this alternative because of its location on the same project site and its required compliance with existing building safety and construction regulations. Proposed project impacts related to location on an unstable geologic unit or soil, or location on expansive soil, would be less than significant; these impacts would also be less than significant under this alternative because the location would not change. Consistent with the proposed project, this alternative would have no impact related to soil capability for the use of septic tanks or alternative wastewater systems as these components would not be installed. The less-than-significant impact (with mitigation) related to paleontological resources associated with the proposed project would also be less than significant (with mitigation) under this alternative because the footprint associated with potential surface-level ground disturbance would not be larger. Additionally, the less-than-significant cumulative impacts with mitigation related to geology and soils would be the same under No Project/Community Park alternative.

Greenhouse Gas Emissions

Under the No Project/Community Park alternative, the proposed project would not be implemented. Under this alternative, it is assumed that the project site would be developed with a community park that would include both active and passive forms of recreation; it would also create a linkage for pedestrians and bicyclists from existing urban uses to the west, via extension of the JOST, with the 700-acre Gateway Preserve to the east. All GHG impacts of the proposed project would be reduced with the No Project/Community Park alternative (see Table 6-2) in terms of both construction and operation. Construction of this alternative would require fewer activities and less equipment over shorter durations compared to the proposed project, resulting in less GHG emissions. Operations associated with this alternative would generate less GHG emissions related to vehicle trips because there would be no residents and fewer employees. Furthermore, energy use (generation of electricity consumed by the project and natural gas use); solid waste disposal; water supply, treatment, and distribution; and use of refrigerants would either be greatly reduced or eliminated under this alternative. Therefore, the significant and unavoidable impact

relating to the generation of operational GHG emissions in conflict with the SCAQMD threshold would be reduced to a less-than-significant level under this alternative (less-than-significant impact). Mitigation measures prescribed for the proposed project related to solid waste reduction and residential parking would not apply to this alternative and therefore would not be necessary to reduce impacts for the alternative. Furthermore, the significant and unavoidable proposed project impact related to conflict with an applicable plan, policy, or regulation with the purpose of reducing GHG emissions would be less than significant under this alternative (less-than-significant impact). Therefore, the significant and unavoidable cumulative impacts related to GHG emissions would be reduced to a less-than-significant level under the No Project/Community Park alternative (less-than-significant impact).

Hazards and Hazardous Materials

Under the No Project/Community Park alternative, the proposed project would not be implemented. Under this alternative, it is assumed that the project site would be developed with a community park that would include both active and passive forms of recreation; it would also create a linkage for pedestrians and bicyclists from existing urban uses to the west, via extension of the JOST, with the 700-acre Gateway Preserve to the east. Construction of this alternative would require demolition of existing on-site structures, utilities, and related features. As discussed in Section 4.9.1.2, Hazardous Materials, on-site structures may contain hazardous building materials, such as asbestos, lead based paints, and universal wastes, and hazardous materials used for on-site operations, such as paints and petroleum products. If these materials are disturbed during demolition activities without proper abatement, they could result in a significant hazard to the public or environment through routine transport or disposal. Also discussed in Section 4.9.1.1, Previous Environmental Investigations, and Section 4.9.1.2, contaminated soils are present on the project site. These contaminants include organochlorine pesticides and possible undocumented or unknown subsurface contamination due to past commercial and agricultural use of the project site. Movement, transportation, and disposal of contaminated soils without proper characterization and management procedures could result in a significant hazard to the public or environment through routine transport or disposal without appropriate procedures.

Consistent with the proposed project, these issues would pose the same level of impact under the No Project/ Community Park alternative because they are associated with the existing setting of the project site. These impacts could be mitigated to less-than-significant levels with the implementation of the same mitigation measures prescribed for the proposed project, MM-HAZ-1 and MM-HAZ-2, which require pre-demolition hazardous materials abatement and implementation of a soil management plan. Therefore, the No Project/Community Park alternative would have the same less-than-significant impacts (with mitigation) as the proposed project related to the routine transport, use, and disposal and potential release of hazardous materials. Consistent with the proposed project, due to its location at the same project site, this alternative would also have no impact related to hazardous emissions or materials in proximity to existing or proposed schools; being located on a site included on a list of hazardous materials sites compiled pursuant to California Government Code Section 65962.5; or being located near airport operations. The proposed project's less-than-significant impact relating to impairing implementation of or physically interfering with an adopted emergency response plan or emergency evacuation plan would continue to be less than significant, but at a reduced level (less-than-significant impact, reduced). Impacts under the proposed project relating to exposure people or structures to risk involving wildland fires would continue to be less than significant with mitigation, but at a reduced level (less-than-significant impact with mitigation, reduced); impacts associated with wildfire hazards would be addressed by implementing safety requirements before construction, including establishment of temporary access roads, fuel modification zones, and phased site access as required by MM-WF-1, as well as introducing a fire-resistant landscape plan for operation of the project as required by MM-WF-2. Considering the impact discussion above, the less-than-significant cumulative impacts (with mitigation) related to hazards and hazardous materials would continue to be less than significant (with mitigation), but at a reduced level, under the No Project/Community Park alternative (less-than-significant impact with mitigation, reduced).

Hydrology and Water Quality

Under the No Project/Community Park alternative, the proposed project would not be implemented. Under this alternative, it is assumed the project site would be developed with a community park that would include both active and passive forms of recreation.

Consistent with the proposed project, the No Project/Community Park alternative would have less-than-significant project-specific and cumulative impacts on hydrology and water quality because it would not support a new residential population. Therefore, implementation of this alternative would result in the generation of less impervious surface and surface water runoff and a comparatively lesser impact related to compliance with water quality standards and drainage patterns (less-than-significant impact, reduced). Implementation of this alternative also would result in less water demand compared to the proposed project; therefore, it would result in lesser impacts to groundwater recharge (less-than-significant impact, reduced). The alternative would be located at the same project site and would generally use and store similar possible pollutants, so impacts related to pollution due to inundation would remain the same (no impact). The proposed project's less-than-significant impacts relating to conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan would be reduced under this alternative (less-than-significant, reduced). Considering the impact discussion above, the less-than-significant cumulative impacts related to hydrology and water quality would also occur under the No Project/Community Park alternative, but at a reduced level (less-than-significant impact, reduced).

Land Use and Planning

Under the No Project/Community Park alternative, the proposed project would not be implemented. Under this alternative, it is assumed the project site would be developed with a community park that would include both active and passive forms of recreation. This alternative would be consistent with City's General Plan land use and zoning designations of Recreation and thus would have fewer impacts overall because it would not necessitate a General Plan Amendment or zone change.

Consistent with the proposed project, the No Project/Community Park alternative would also have less-than-significant project-specific impacts on land use and planning because it would not physically divide an established community (no impact) or conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect (less-than-significant impact); for the latter, the significant and unavoidable proposed project impact related to conflict with an applicable plan, policy, or regulation with the purpose of avoiding or mitigating environmental effects (GHG emissions) would be less than significant under this alternative. Therefore, the significant and unavoidable cumulative impacts would be reduced to a less-than-significant level under the No Project/Community Park alternative (less-than-significant impact) (see Table 6-2).

Noise

Under the No Project/Community Park alternative, the proposed project would not be implemented. Under this alternative, it is assumed the project site would be developed with a community park that would include both active and passive forms of recreation and it would also create a linkage for pedestrians and bicyclists from existing urban uses to the west, via extension of the JOST, with the 700-acre Gateway Preserve to the east. The impact conclusions for noise under the proposed project would be the same for this alternative, but the impacts overall would be lessened.

Noise impacts would be reduced because this alternative would involve the construction of fewer/smaller structures, thereby resulting in a shorter construction timeline and fewer construction activities and equipment that could generate noise and vibration. This alternative would also result in smaller and fewer structures that would have reduced operational noise sources. Therefore, consistent with the proposed project, this alternative would not generate a substantial temporary or permanent increase in ambient noise or vibration levels in the vicinity of the project (less-than-significant impact, reduced). The alternative would be located at the same site as the proposed project; therefore, consistent with the proposed project, it would have no impact related to the exposure of airport noise. As a result, cumulative impacts, which were determined to be less than significant under the proposed project, would be reduced with this alternative (less-than-significant impact, reduced).

Population and Housing

Under the No Project/Community Park alternative, the proposed project would not be implemented. Under this alternative, it is assumed the project site would be developed with a community park that would include both active and passive forms of recreation. Unlike the proposed project, this alternative would not result in the development of new residential units or associated residential population. Consistent with the proposed project, the No Project/ Community Park alternative would have less-than-significant project-specific and cumulative impacts, or no impacts, on population and housing because it would not be growth inducing (it would serve the existing City of Irvine residents in an almost entirely built-out city; less-than-significant impact) or displace existing people or housing (no impact; see Table 6-2).

Public Services

Under the No Project/Community Park alternative, the proposed project would not be implemented. Under this alternative, it is assumed the project site would be developed with a community park that would include both active and passive forms of recreation.

Consistent with the proposed project, the No Project/Community Park alternative would also have less-than-significant project-specific and cumulative impacts on public services because it would not generate as much demand for the City's police department, fire department, schools, or other public facilities (less-than-significant impact, reduced) (see Table 6-2).

Recreation

Under the No Project/Community Park alternative, the proposed project would not be implemented. Under this alternative, it is assumed that the project site would be developed with a community park that would include both active and passive forms of recreation and it would also create a linkage for pedestrians and bicyclists from existing urban uses to the west, via extension of the JOST, with the 700-acre Gateway Preserve to the east. The less-than-significant proposed project impact related to the increase in use of existing neighborhood and regional parks or other recreational facilities would not occur under this alternative (no impact). Development under this alternative would result in new active and passive recreation opportunities within the City that could alleviate City-wide recreation demands and therefore reduce the use and deterioration of existing parks and recreational facilities, thereby extending the lifespans of those facilities.

The significant and unavoidable impact relating to the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment, would also occur under this alternative. Additionally, the significant and unavoidable cumulative impacts related to recreation would also occur with the No Project/Community Park alternative.

Transportation

Under the No Project/Community Park alternative, the proposed project would not be implemented. Under this alternative, it is assumed that the project site would be developed with a community park that would include both active and passive forms of recreation. Consistent with the proposed project, this alternative would also create a linkage for pedestrians and bicyclists from existing urban uses to the west, via extension of the JOST, with the 700-acre Gateway Preserve to the east. This alternative would generate fewer vehicle trips; according to San Diego Association of Governments guidance on vehicular traffic generation rates, community park uses generate fewer trips than the proposed project's residential use (SANDAG 2002). All transportation impacts of the proposed project would be the same or reduced under the No Project/Community Park alternative (see Table 6-2).

The less-than-significant impact related to potential conflict with transportation programs, ordinances, or policies would be the same under this alternative because it does not propose any components that are different from the proposed project and that would pose a potential conflict. The proposed project would maintain the existing walkways/sidewalks, on-street (Class II) bicycle lanes, and JOST in the vicinity of the project site, as well as enhancing pedestrian connectivity with new facilities. Consistent with the City's circulation policies, this alternative would provide safe, convenient, and direct pedestrian access to surrounding land uses; plan and enhance a comprehensive bicycle network that encourages increased use of bicycles; and provide multi-use trails. Therefore, the No Project/Community Park alternative would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities (less-than-significant impact).

The No Project/Community Park alternative does not meet the screening criteria identified in the City's Traffic Study Guidelines. However, because the alternative involves the development of a community park, the VMT impact analyzed below includes a qualitative analysis that describes the alternative's impact on VMT within the surrounding community. This approach is consistent with CEQA Guidelines Section 15064.3(b)(1), Criteria for Analyzing Transportation Impacts, and Section 15064.3(b)(3), Qualitative Analysis, which mention that if existing models or methods are not available to estimate the VMT for the particular project being considered, a lead agency may analyze the project's vehicle miles qualitatively. Such qualitative analysis would evaluate factors such as the availability of transit, proximity to other destinations, etc.

This alternative would consist of a community park that would primarily serve the immediate community of north Irvine, as well as other neighborhoods within the City. The alternative would include new active and passive recreation facilities. The City has other parks with similar recreational opportunities. However, the location of the project site would reduce the need for park users in north Irvine to travel to other parks within the City; therefore, it would reduce vehicle trip length. The No Development/Community Park alternative would draw local traffic and would be used primarily by local residents. Therefore, based on the alternative's proposed uses, its location in an area where similar uses are not provided, and the alternative's potential to divert traffic from parks much farther away, the alternative is anticipated to have a less-than-significant impact on VMT. As detailed in Section 6.3.2.5, Transportation, the proposed project would have a significant and unavoidable impact related to conflicts or inconsistencies with CEQA Guidelines Section 15064.3(b) due to increased VMT, even after mitigation. Therefore, implementation of the No Project/Community Park alternative would result in a reduced impact to VMT (less than significant).

Consistent with the proposed project, the less-than-significant impacts (with mitigation) related to increase in transportation hazards due to a geometric design feature or incompatible uses would be reduced to less than significant under this alternative (less-than-significant impact). Less-than-significant impacts relating to inadequate emergency access were identified for the proposed project, given its proposed and existing

surrounding circulation network. It is assumed that this alternative would implement an internal circulation network with less potential for inadequate emergency access compared to the proposed project because it would generate less VMT (less-than-significant impact, reduced). Considering the impact discussion above, the significant and unavoidable cumulative transportation impacts under the proposed project would be reduced under the No Project/Community Park alternative (less-than-significant impact). Therefore, proposed project mitigation measures are not required to address VMT impacts for the No Project/Community Park alternative.

Tribal Cultural Resources

Under the No Project/Community Park alternative, the proposed project would not be implemented. The existing conditions described in Section 4.17, Tribal Cultural Resources, would be generally maintained because the proposed project development would not be implemented. Under this alternative, it is assumed that the project site would be developed with a community park that would include both active and passive forms of recreation; it would also create a linkage for pedestrians and bicyclists from existing urban uses to the west, via extension of the JOST, with the 700-acre Gateway Preserve to the east. All tribal cultural resource impact conclusions of the proposed project would be the same under the No Project/Community Park alternative (see Table 6-2); this is explained because the amount of surface-level ground disturbance—which is the primary activity that could affect tribal cultural resources—required for this alternative is unknown at this time. For the purposes of this analysis, it is assumed that footprint of surface-level ground disturbance associated with the No Project/ Community Park alternative could be as extensive as, but not exceed, that of the proposed project. The less-than-significant impact related to tribal cultural resources listed or eligible for listing pursuant to Public Resources Code Section 5020.1(k) would be the same. The less-than-significant impact (with mitigation) related to tribal cultural resources determined by the lead agency, considering the significance to a California Native American tribe, would also be the same. Additionally, the less-than-significant cumulative impacts (with mitigation) related to tribal cultural resources would be the same under the No Project/Community Park alternative.

Utilities and Service Systems

Under the No Project/Community Park alternative, the proposed project would not be implemented. Under this alternative, it is assumed the project site would be developed with a community park that would include both active and passive forms of recreation.

Consistent with the proposed project, the No Project/Community Park alternative would also have less-than-significant project-specific and cumulative impacts on utilities and service systems because it would not support a new residential population and associated demands on utilities and service systems. Although this alternative may require the relocation or construction of new or expanded water or wastewater treatment, stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects, the demand would be far less (less-than-significant impact). Compared to the proposed project, this alternative would not generate as much demand for water, wastewater treatment, electricity, natural gas, and solid waste management (less-than-significant impacts, reduced) (see Table 6-2) because it would not result in a new permanent resident population drawing on these services for the long term.

Wildfire

Under the No Project/Community Park alternative, the proposed project would not be implemented. Under this alternative, it is assumed that the project site would be developed with a community park that would include both active and passive forms of recreation. No residential units would be developed. All wildfire impacts of the proposed

project would be reduced under the No Project/Community Park alternative (see Table 6-2) because development under this alternative would not result in a new residential population. It is also assumed that construction of this alternative would involve a shorter construction timeline, with fewer construction activities and equipment, compared to the proposed project. Therefore, the No Project/Community Park alternative would result in reduced wildfire risks in terms of both construction and operation.

For these reasons, the proposed project's less-than-significant impacts related to substantial impairment of an adopted emergency response plan or emergency evacuation plan would continue to be less than significant, but at a reduced level (less-than-significant impacts, reduced). The less-than-significant impacts (with mitigation) from the proposed project related to the spread of wildfire and installation or maintenance of infrastructure that may exacerbate fire risk would also be less than significant (with mitigation) under this alternative, but the impact would be reduced (less-than-significant impact with mitigation, reduced). Mitigation measures prescribed for the proposed project to address these impacts would apply to this alternative. These include implementing pre-construction measures to reduce fire risks during construction and a fire-resistant landscape plan. The less-than-significant proposed project impact related to the exposure of people or structures to significant risks as a result of runoff, post-fire slope instability, or drainage changes would also occur, but at a reduced level, under this alternative (less-than-significant impact, reduced). This impact would be reduced under this alternative because development would result in no residential occupants but would support park users during the daytime and because the alternative would have fewer structures than the proposed project. Additionally, pursuant to the discussion above, the less-than-significant cumulative impacts (with mitigation) related to wildfire under the proposed project would also be less than significant (with mitigation) under the No Project/Community Park alternative, but at a reduced level (less-than-significant impact with mitigation, reduced).

6.5.2.3 Ability to Meet Project Objectives

The No Project/Community Park alternative would not result in the development of residential units. As described in Section 6.5.2.1, under this alternative, the project would be developed with a community park that would include both active and passive forms of recreation and associated facilities; it would also create a linkage for pedestrians and bicyclists from existing urban uses to the west, via extension of the JOST, with the 700-acre Gateway Preserve to the east.

The No Project/Community Park alternative would not meet any of the proposed project objectives related to the provision of residential units (see Table 6-1). In particular, this alternative would not provide housing stock or affordable housing to advance compliance with the City's RHNA Goals (Objective 1, Objective 2, and Objective 3).

Although implementation of this alternative could generate some direct revenue for the City, in the form of charging fees for active park uses, the proposed project would generate substantially more funds through the sale of new residential units and additional expenditure by those new residents throughout the City. Therefore, the No Project/Community Park alternative would generate relatively less revenue to be made available for the City's General Fund, partially meeting Objective 4 (see Table 6-1).

The No Project/Community Park alternative would create gathering spaces and encourage outdoor vehicle-free movement by providing passive and active recreational facilities, including green spaces and outdoor amenity areas. These amenities would be within walking distance of nearby neighborhoods. The alternative would not create a residential community with private amenities that are architecturally themed. Therefore, the No Project/Community Park alternative would partially meet Objective 5 (see Table 6-1).

Consistent with the proposed project, implementation of the No Project/Community Park alternative would complete the comprehensive circulation network with integrated mobility options by connecting pedestrians and bicyclists traveling to a non-vehicular bridge across Portola Parkway to the broader Irvine community to the south and west of Gateway Village. The alternative would establish connectivity between land uses through the extension of the JOST to its connection point with the 700-acre Gateway Preserve via the South Park trailhead, which sustains the City's goals to enhance quality living environments through parks and open space. Therefore, the No Project/ Community Park alternative would meet Objective 6 (see Table 6-1).

6.5.3 Alternative 3: Reduced Residential

6.5.3.1 Description

The Reduced Residential alternative includes development at a reduced residential density, overall residential buildout footprint, and layout compared to the proposed project.. This alternative would include the development of approximately 645 market-rate units and 216 affordable units, for a total of 861 units. The architectural design and themes of this alternative, and associated building materials, are assumed to be consistent with the proposed project. This alternative represents a 30% reduction in residential units, associated residents, and overall residential buildout footprint. The alternative would have the same non-housing components, including the extension of the JOST as well as the new parks and paseos, with additional open space in place of the higher residential unit count in the proposed project. Under this alternative, it is assumed that the additional open space available would be sited in the northern portion of the project site, thereby avoiding Hicks Canyon Wash and providing a natural buffer from the existing riparian (drainage) area and habitat. The proposed circulation system would be consistent with the project's proposed roadways and bikeways. Construction activities—including durations, phasing, and equipment—required for this alternative are assumed to be less extensive than for the proposed project. General operations and maintenance activities related to residential uses under this alternative are anticipated to be similar to those of the proposed project, but reduced by 30%.

As noted above, the underlying purpose of the proposed project is to provide housing stock and improve the City's circulation network. Under this Reduced Residential alternative, all existing conditions are generally based on those existing in 2024, when the NOP was released; at this time, the project site consisted primarily of active agricultural fields with equipment storage and laydown areas in the northern portion of the site. Because this alternative involves a reduced number of residential units, revenue associated with future home sales would be less compared to the proposed project (see Section 6.5.3.3).

6.5.3.2 Impact Analysis

Aesthetics

Under the Reduced Residential alternative, the proposed project would be implemented with a 30% reduction in residential units. Under this alternative, it is assumed that the project site would be developed with a reduced overall residential buildout footprint compared to the proposed project. The alternative would have the same non-housing components, including the extension of the JOST as well as the new parks and paseos, with additional open space in place of the higher residential unit count in the proposed project. General operations and maintenance activities related to residential uses under this alternative are anticipated to be similar to those of the proposed project, but reduced by 30%.

Consistent with the proposed project, the Reduced Residential alternative would also have less-than-significant project-specific and cumulative impacts on aesthetics. Because the alternative would be developed with fewer structures of similar architectural design and themes, covering a smaller overall buildout footprint, aesthetic impacts would continue to be less than significant but would be reduced compared to the proposed project (less-than-significant impact, reduced) (see Table 6-2). Similar to the proposed project, the Reduced Residential alternative would not impact scenic resources (no impact). With regard to conflicts with applicable zoning and other regulations governing scenic quality, impacts under this alternative would also be less than significant. Because the alternative would involve the same use and a relatively smaller buildout footprint and massing, this impact would be reduced compared to the proposed project (less-than-significant impact, reduced). Both the proposed project and the Reduced Residential alternative would utilize similar lighting fixtures. However, because this alternative occupies a smaller residential buildout footprint, it would require less outdoor lighting; therefore, lighting impacts would continue to be less than significant but would be reduced compared to the proposed project (less-than-significant impact, reduced). Considering the impacts discussed above, the less-than-significant cumulative impacts related to aesthetics would also occur with the Reduced Residential alternative but would be comparatively reduced (less-than-significant impact, reduced).

Agriculture and Forestry Resources

Under the Reduced Residential alternative, the proposed project would be implemented with a 30% reduction in residential units. Under this alternative, it is assumed that the project site would be developed with a reduced overall residential buildout footprint compared to the proposed project. The alternative would have the same non-housing components, including the extension of the JOST as well as the new parks and paseos, with additional open space in place of the higher residential unit count in the proposed project. General operations and maintenance activities related to residential uses under this alternative are anticipated to be similar to those of the proposed project, but reduced by 30%.

This alternative would require the conversion of agricultural land for the development of a residential village. Therefore, the proposed project conditions, including the conversion of agricultural lands, would be similar to those described in Section 4.2, Agriculture and Forestry Resources. Under the Reduced Residential alternative, it is assumed that the conversion of 67.46 acres from agricultural (Important Farmland) to non-agricultural uses would occur (significant and unavoidable impact) (see Table 6-2). The less-than-significant impact identified for the proposed project related to other changes in the existing environment that could result in the conversion of farmland would also be less than significant under this alternative because it proposes operations similar to the proposed project. Consistent with the proposed project, this alternative would also have no impact on forest lands and forestry resources because it is located at the same site. Considering the impacts discussed above, the significant and unavoidable cumulative impacts related to agricultural resources would also occur with the Reduced Residential alternative due to the loss in Important Farmland.

Air Quality

Under the Reduced Residential alternative, the proposed project would be implemented with a 30% reduction in residential units. Under this alternative, it is assumed that the project site would be developed with a reduced overall residential buildout footprint compared to the proposed project. The alternative would have the same non-housing components, including the extension of the JOST as well as the new parks and paseos, with additional open space in place of the higher residential unit count in the proposed project. General operations and maintenance activities related to residential uses under this alternative are anticipated to be similar to those of the proposed project, but reduced by 30%.

The significant and unavoidable proposed project impact related to the cumulatively considerable increase in criteria air pollutants—specifically, operational emissions—would be reduced but would still be significant and unavoidable under this alternative (significant and unavoidable, but reduced). The proposed project would result in a significant and unavoidable operational impact due to its anticipated levels of VOCs, which are associated primarily with the application/reapplication of architectural coatings. Because this alternative would involve a residential development of a similar magnitude to that of the proposed project, even though reduced, it would also result in a significant and unavoidable impact associated with the use of VOCs. Although the alternative would result in 30% fewer occupants and overall building footprint, the use of VOCs via the application/reapplication of architectural coatings is anticipated to be of a similar magnitude compared to the proposed project. Regarding construction impacts, compared to the proposed project, construction activities would be less extensive. Therefore, construction air quality impacts would also be less than significant with mitigation under this alternative, but would be reduced (less-than-significant impact with mitigation, reduced).

The less-than-significant impact (with mitigation) identified for the proposed project related to the exposure of sensitive receptors to pollutant concentrations would occur at a reduced level under the Reduced Residential alternative because it is expected to involve a shorter construction timeline and less extensive construction activities (less-than-significant impact with mitigation, reduced). The less-than-significant impact identified for the proposed project related to other emissions would also be the same under this alternative because it would generate the same types of emissions because of similarities in both construction and operations. Additionally, considering the impacts described herein, the significant and unavoidable cumulative impacts related to air quality would be the same under the Reduced Residential alternative, but comparatively reduced (significant and unavoidable, reduced).

Biological Resources

Under the Reduced Residential alternative, the proposed project would be implemented with a 30% reduction in residential units. Under this alternative, it is assumed that the project site would be developed with a reduced overall residential buildout footprint compared to the proposed project. The alternative would have the same non-housing components, including the extension of the JOST as well as the new parks and paseos, with additional open space in place of the higher residential unit count in the proposed project. General operations and maintenance activities related to residential uses under this alternative are anticipated to be similar to those of the proposed project, but reduced by 30%.

All biological resource impact conclusions of the proposed project would either be the same, or reduced, under the Reduced Residential alternative (see Table 6-2); the amount of surface-level ground disturbance—which is the primary activity that could affect biological resources—required for this alternative is assumed to be reduced compared to the proposed project. Consistent with the proposed project, this alternative would continue to have no impact on native wildlife nursery sites or conflict with the provisions of an adopted Habitat Conservation Plan or Natural Community Conservation Plan (no impact). The less-than-significant riparian habitat impact associated with the proposed project would be reduced under this alternative because additional open space would be sited where the existing riparian (drainage) area is located, in the northern portion of the project site (less-than-significant impact, reduced) and filling in Hicks Canyon Wash for the development of South Park and “C” Street could be avoided. Further, the less-than-significant impacts (with mitigation) related to special-status species, state or federally protected wetlands, and conflict with local policies protecting biological resources associated with the proposed project would be reduced under this alternative because it involves less ground disturbance and would be sited farther away from an existing riparian (drainage) area (less-than-significant impact with mitigation, reduced). The same mitigation measures (MM-BIO-1 through MM-BIO-9) applied to the proposed project would be

required to address these impacts under this alternative. Additionally, the less-than-significant cumulative impacts (with mitigation) related to biological resources would be reduced under the No Project/Community Park alternative (less-than-significant impact with mitigation, reduced).

Cultural Resources

Under the Reduced Residential alternative, the proposed project would be implemented with a 30% reduction in residential units. Under this alternative, it is assumed that the project site would be developed with a reduced overall residential buildout footprint compared to the proposed project. The alternative would have the same non-housing components, including the extension of the JOST as well as the new parks and paseos, with additional open space in place of the higher residential unit count in the proposed project. General operations and maintenance activities related to residential uses under this alternative are anticipated to be similar to those of the proposed project, but reduced by 30%.

All cultural resource impact conclusions of the proposed project would be the same, or reduced, under the Reduced Residential alternative (see Table 6-2) because the amount of surface-level ground disturbance—which is the primary activity that could affect archaeological resources—required for this alternative is assumed to be reduced compared to the proposed project. Consistent with the proposed project, this alternative would also have no impact to historical resources. Furthermore, the less-than-significant impacts (with mitigation) related to archaeological resources and human remains associated with the proposed project would be reduced under this alternative because it has the potential to involve less surface-level ground disturbance (less-than-significant impact with mitigation, reduced). The same mitigation measures (MM-CUL-1 through MM-CUL-3—sensitivity training, resource monitoring, and inadvertent discovery protocols) applied to the proposed project would be required to address these impacts under this alternative. Additionally, considering this impact discussion, the less-than-significant cumulative impacts (with mitigation) related to cultural resources would be reduced under the Reduced Residential alternative (less-than-significant impact with mitigation, reduced).

Energy

Under the Reduced Residential alternative, the proposed project would be implemented with a 30% reduction in residential units. Under this alternative, it is assumed that the project site would be developed with a reduced overall residential buildout footprint compared to the proposed project. General operations and maintenance activities related to residential uses under this alternative are anticipated to be similar to those of the proposed project, but reduced by 30%.

Because this alternative includes fewer residents occupying the project site, there would be less demand for natural resources once operational. Therefore, impacts of the Reduced Residential alternative related to energy would be reduced compared to the proposed project, and this alternative would not result in wasteful, inefficient, or unnecessary consumption of energy resources or conflict with or obstruct a state or local plan for renewable energy or energy efficiency. As a result, these project-specific and cumulative energy impacts, which were determined to be less than significant under the proposed project, would be reduced with this alternative (less-than-significant impact, reduced) (see Table 6-2).

Geology and Soils

Under the Reduced Residential alternative, the proposed project would be implemented with a 30% reduction in residential units. Under this alternative, it is assumed that the project site would be developed with a reduced

overall residential buildout footprint compared to the proposed project. The alternative would have the same non-housing components, including the extension of the JOST as well as the new parks and paseos, with additional open space in place of the higher residential unit count in the proposed project.

All geology and soils impact conclusions of the proposed project would be the same under the Reduced Residential alternative (see Table 6-2). Consistent with the proposed project, this alternative would also have no impact related to earthquake faulting because it is subject to the same risks due to its location on the same project site. The less-than-significant impact (with mitigation) related to paleontological resources associated with the proposed project would be the same under this alternative because the footprint associated with potential surface-level ground disturbance would not be larger. The less-than-significant proposed project impacts related to ground shaking, liquefaction, and landslides would also be less than significant under this alternative because of its location on the same project site and its required compliance with existing building safety and construction regulations. Consistent with the proposed project, this alternative would also have no impact related to soil capability for the use of septic tanks or alternative wastewater systems, because these components would not be installed. Additionally, considering the discussion above, the less-than-significant cumulative impacts (with mitigation) related to geology and soils would be the same under the Reduced Residential alternative.

Greenhouse Gas Emissions

Under the Reduced Residential alternative, the proposed project would be implemented with a 30% reduction in residential units. Under this alternative, it is assumed that the project site would be developed with a reduced overall residential buildout footprint compared to the proposed project. The alternative would have the same non-housing components, including the extension of the JOST as well as the new parks and paseos, with additional open space in place of the higher residential unit count in the proposed project. General operations and maintenance activities related to residential uses under this alternative are anticipated to be similar to those of the proposed project, but reduced by 30%.

All GHG impacts of the proposed project would be the same or less under the Reduced Residential alternative (see Table 6-2) in terms of both construction and operation. Construction of this alternative is assumed to be less expensive than under the proposed project, therefore resulting in reduced GHG emissions. While it is anticipated that operations associated with this alternative would generate less GHG emissions related to vehicle trips because there would be fewer residents, this reduction is not anticipated to reduce GHG emissions to a level below the SCAQMD significance threshold of 3,000 MT CO_2e (significant and unavoidable impact, reduced). Furthermore, energy use (generation of electricity consumed by the project and natural gas use); solid waste disposal; water supply, treatment, and distribution; and use of refrigerants would be greatly reduced under this alternative, but not to a level below the SCAQMD threshold (significant and unavoidable impact, reduced). Furthermore, the significant and unavoidable proposed project impact related to conflict with an applicable plan, policy, or regulation with the purpose of reducing GHG emissions would also be significant and unavoidable, although it would be lessened (significant and unavoidable impact, reduced). Considering the impacts described herein, the significant and unavoidable cumulative impacts related to GHG emissions would be significant and unavoidable, but lessened, under the Reduced Residential alternative (significant and unavoidable impact, reduced).

Hazards and Hazardous Materials

Under the Reduced Residential alternative, the proposed project would be implemented with a 30% reduction in residential units. Under this alternative, it is assumed that the project site would be developed with a reduced overall residential buildout footprint compared to the proposed project. The alternative would have the same non-

housing components, including the extension of the JOST as well as the new parks and paseos, with additional open space in place of the higher residential unit count in the proposed project. General operations and maintenance activities related to residential uses under this alternative are anticipated to be similar to those of the proposed project, but reduced by 30%.

Construction of this alternative would require the same demolition of existing on-site structures, utilities, and related features as the proposed project. As discussed in Section 4.9, Hazards and Hazardous Materials, proposed project construction activities, including demolition, could result in a significant hazard to the public or environment through routine transport or disposal of hazardous materials. Consistent with the proposed project, these issues would pose the same level of impact under the Reduced Residential alternative because they are associated with the existing setting of the project site. These impacts could be mitigated to less-than-significant levels with the implementation of the same mitigation measures prescribed for the proposed project, which require pre-demolition hazardous materials abatement and implementation of a soil management plan. Therefore, the Reduced Residential alternative would have the same less-than-significant (with mitigation) impacts as the proposed project related to the routine transport, use, and disposal and potential release of hazardous materials. Consistent with the proposed project, due to its location at the same project site, this alternative would also have no impact related to hazardous emissions or materials in proximity to existing or proposed schools; being located on a site included on a list of hazardous materials sites compiled pursuant to California Government Code Section 65962.5; or being located near airport operations. The proposed project's less-than-significant impact relating to impairing implementation of or physically interfering with an adopted emergency response plan or emergency evacuation plan would continue to be less than significant (less-than-significant impact; reduced). Impacts under the proposed project relating to exposure people or structures to risk involving wildland fires would continue to be less than significant with mitigation, but at a reduced level because relatively fewer residents would inhabit the project site (less-than-significant impact, reduced); impacts associated with wildfire hazards would be addressed by implementing safety requirements before construction, including establishment of temporary access roads, fuel modification zones, and phased site access as required by MM-WF-1, as well as introducing a fire-resistant landscape plan for operation of the project as required by MM-WF-2. Considering the impact discussion above, the less-than-significant cumulative impacts (with mitigation) related to hazards and hazardous materials under the proposed project would continue to be less than significant with mitigation, but at a reduced level, under the Reduced Residential alternative (less-than-significant impact, reduced).

Hydrology and Water Quality

Under the Reduced Residential alternative, the proposed project would be implemented with a 30% reduction in residential units. Under this alternative, it is assumed that the project site would be developed with a reduced overall residential buildout footprint compared to the proposed project. The alternative would have the same non-housing components, including the extension of the JOST as well as the new parks and paseos, with additional open space in place of the higher residential unit count in the proposed project. General operations and maintenance activities related to residential uses under this alternative are anticipated to be similar to those of the proposed project, but reduced by 30%.

Because this alternative would include fewer residents occupying the project site, there would be less demand for natural resources, such as potable water. Compared to the proposed project, this alternative would result in the generation of a reduced amount of impervious surfaces and surface water runoff; therefore, its impact related to compliance to water quality standards and drainage patterns would continue to be less than significant but would be reduced (less-than-significant impact, reduced). Implementation of this alternative would result in less water demand compared to the proposed project; therefore, it would result in reduced impacts to groundwater recharge (less-than-

significant impact, reduced). The alternative would be located at the same project site and would generally use and store similar residential pollutants, so impacts related to inundation would remain the same (no impact). Considering the impact discussion above, the less-than-significant cumulative impacts related to hydrology and water quality would remain, at a reduced level, under the Reduced Residential alternative (less-than-significant impact, reduced).

Land Use and Planning

Under the Reduced Residential alternative, the proposed project would be implemented with a 30% reduction in residential units. Under this alternative, it is assumed that the project site would be developed with a reduced overall residential buildout footprint compared to the proposed project. The alternative would have the same non-housing components, including the extension of the JOST as well as the new parks and paseos, with additional open space in place of the higher residential unit count in the proposed project. General operations and maintenance activities related to residential uses under this alternative are anticipated to be similar to those of the proposed project, but reduced by 30%.

The alternative proposes the same land use as the proposed project and would therefore have the same land use and planning impacts. Consistent with the proposed project, the Reduced Residential alternative would not physically divide an established community (no impact). However, the significant and unavoidable proposed project impact related to conflict with an applicable plan, policy, or regulation with the purpose of reducing environmental effects (GHG emissions) would also be significant and unavoidable, although it would be lessened (significant and unavoidable impact, reduced). Considering the impacts described herein, the significant and unavoidable cumulative impacts related to land use and planning would be significant and unavoidable, but lessened, under the Reduced Residential alternative (significant and unavoidable impact, reduced).

Noise

Under the Reduced Residential alternative, the proposed project would be implemented with a 30% reduction in residential units. Under this alternative, it is assumed that the project site would be developed with a reduced overall residential buildout footprint compared to the proposed project. The alternative would have the same non-housing components, including the extension of the JOST as well as the new parks and paseos, with additional open space in place of the higher residential unit count in the proposed project. General operations and maintenance activities related to residential uses under this alternative are anticipated to be similar to those of the proposed project, but reduced by 30%.

The alternative would have reduced noise impacts because it would support fewer residents, thereby generating relatively less operational noise (less-than-significant impact, reduced). Construction noise and vibration levels would be slightly reduced under this alternative because of less extensive construction (less-than-significant impact, reduced). As a result, the project-specific and cumulative impacts that were determined to be less than significant or to not occur under the proposed project would be the same or reduced with this alternative (less-than-significant impact, reduced).

Population and Housing

Under the Reduced Residential alternative, the proposed project would be implemented with a 30% reduction in residential units. Under this alternative, it is assumed that the project site would be developed with a reduced overall residential buildout footprint compared to the proposed project. The alternative would have the same non-housing components, including the extension of the JOST as well as the new parks and paseos, with additional open space in

place of the higher residential unit count in the proposed project. General operations and maintenance activities related to residential uses under this alternative are anticipated to be similar to those of the proposed project, but reduced by 30%.

This alternative would not result in the displacement of people or housing because the project site currently does not contain housing. Considering the analysis in Section 4.13, Population and Housing, the proposed project's potential population, housing, and employment growth is not considered substantial. Therefore, because this alternative represents a 30% reduction in residential units, growth-inducing impacts would also be less than significant but would be reduced compared to the proposed project (less-than-significant impact, reduced). Consistent with the proposed project, the Reduced Residential alternative would have less-than-significant project-specific and cumulative impacts to population and housing because it would not be growth inducing or displace existing people or housing (see Table 6-2).

Public Services

Under the Reduced Residential alternative, the proposed project would be implemented with a 30% reduction in residential units. Under this alternative, it is assumed that the project site would be developed with a reduced overall residential buildout footprint compared to the proposed project. The alternative would have the same non-housing components, including the extension of the JOST as well as the new parks and paseos, with additional open space in place of the higher residential unit count in the proposed project. General operations and maintenance activities related to residential uses under this alternative are anticipated to be similar to those of the proposed project, but reduced by 30%.

Because this alternative would include fewer residents occupying the project site, there would be reduced demand for public services. The alternative would not generate as much demand for the City's police department, fire department, schools, or other public facilities (less-than-significant impact, reduced). The less-than-significant cumulative impacts related to public services would also occur, at a reduced level, under the Reduced Residential alternative (less-than-significant impact, reduced).

Recreation

Under the Reduced Residential alternative, the proposed project would be implemented with a 30% reduction in residential units. Under this alternative, it is assumed that the project site would be developed with a reduced overall residential buildout footprint compared to the proposed project. The alternative would have the same non-housing components, including the extension of the JOST as well as the new parks and paseos, with additional open space in place of the higher residential unit count in the proposed project. General operations and maintenance activities related to residential uses under this alternative are anticipated to be similar to those of the proposed project, but reduced by 30%.

The less-than-significant proposed project impact related to the increase in use of existing neighborhood and regional parks or other recreational facilities would also be less than significant under this alternative. Consistent with the proposed project impact conclusion, it is expected that the population would use existing neighborhood parks, regional parks, and other recreational facilities in the City. However, the incremental impact of this additional population on the use of existing recreational facilities would not result in substantial physical deterioration of these facilities or acceleration thereof, even if the population exclusively used the existing facilities. This impact would also be less than significant but would be reduced compared to the proposed project due to the 30% reduction in new residents and associated lesser demand on existing parks and recreational facilities (less-than-significant impact, reduced).

The significant and unavoidable impact relating to the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment, would also occur under this alternative. Additionally, the significant and unavoidable cumulative impacts related to recreation would also occur with the Reduced Residential alternative, but at a lessened level (significant and unavoidable impact, reduced).

Transportation

Under the Reduced Residential alternative, the proposed project would be implemented with a 30% reduction in residential units. Under this alternative, it is assumed that the project site would be developed with a reduced overall residential buildout footprint compared to the proposed project. The alternative would have the same non-housing components, including the extension of the JOST as well as the new parks and paseos, with additional open space in place of the higher residential unit count in the proposed project. General operations and maintenance activities related to residential uses under this alternative are anticipated to be similar to those of the proposed project, but reduced by 30%. The alternative would also have a similar circulation network for vehicles, bicyclists, and pedestrians. All transportation impacts of the proposed project would be equal or reduced under the Reduced Residential alternative (see Table 6-2).

The less-than-significant impact related to potential conflict with transportation programs, ordinances, or policies under the proposed project would also occur under this alternative because it does not propose any components that are different from the proposed project and that would pose a potential conflict. The proposed project would maintain the existing walkways/sidewalks, on-street (Class II) bicycle lanes, and JOST in the vicinity of the project site, as well as enhancing pedestrian connectivity with new facilities. Consistent with the City's circulation policies, this alternative would also provide safe, convenient, and direct pedestrian access to surrounding land uses; would plan and enhance a comprehensive bicycle network that encourages increased use of bicycles; and would provide multi-use trails. Therefore, this alternative would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities, and impacts would be the same as those under the proposed project (less-than-significant impact).

Even with implementation of mitigation measures prescribed for the proposed project, the Reduced Residential alternative would have a similarly significant and unavoidable impact related to conflicts or inconsistencies with CEQA Guidelines Section 15064.3(b) due to VMT. Although the alternative would generate less VMT because of the reduction in residents, the impact would still be significant because the City's VMT threshold is based on VMT per capita; therefore, although there would be less VMT, the rate of VMT generated (VMT per capita) is not anticipated to be significantly reduced compared to the proposed project (significant and unavoidable impact, reduced).

Consistent with the proposed project, the less-than-significant impacts (with mitigation) related to an increase in transportation hazards due to a geometric design feature or incompatible uses would be less than significant (with mitigation) under this alternative (less-than-significant impact with mitigation). Consistent with the proposed project, this alternative would also implement MM-TRA-4 (Traffic Signal Installation), requiring the project to install a new traffic signal on Jeffrey Road. Less-than-significant impacts relating to inadequate emergency access were identified for the proposed project, given its proposed and existing surrounding circulation network. This alternative would implement the same internal circulation network, with the same potential for inadequate emergency access as the proposed project (less-than-significant impact). Considering the impact discussion above, the cumulative transportation impacts under this alternative would be the same as those under the proposed project (significant and unavoidable impact).

Tribal Cultural Resources

Under the Reduced Residential alternative, the proposed project would be implemented with a 30% reduction in residential units. Under this alternative, it is assumed that the project site would be developed with a reduced overall residential buildout footprint compared to the proposed project. The alternative would have the same non-housing components, including the extension of the JOST as well as the new parks and paseos, with additional open space in place of the higher residential unit count in the proposed project. General operations and maintenance activities related to residential uses under this alternative are anticipated to be similar to those of the proposed project, but reduced by 30%.

All tribal cultural resource impact conclusions of the proposed project would be the same, or reduced, under the Reduced Residential alternative (see Table 6-2) because the amount of surface-level ground disturbance—which is the primary activity that could affect tribal cultural resources—required for this alternative is assumed to be reduced compared to the proposed project. Consistent with the proposed project, the less-than-significant impact related to tribal cultural resources listed or eligible for listing pursuant to Public Resources Code Section 5020.1(k) would be the same. The less-than-significant impact (with mitigation) related to tribal cultural resources determined by the lead agency, considering the significance to a California Native American tribe, would be reduced (less than significant with mitigation, reduced). Additionally, the less-than-significant cumulative impacts (with mitigation) related to tribal cultural resources would be reduced under the Reduced Residential alternative (less than significant with mitigation, reduced).

Utilities and Service Systems

Under the Reduced Residential alternative, the proposed project would be implemented with a 30% reduction in residential units. Under this alternative, it is assumed that the project site would be developed with a reduced overall residential buildout footprint compared to the proposed project. The alternative would have the same non-housing components, including the extension of the JOST as well as the new parks and paseos, with additional open space in place of the higher residential unit count in the proposed project. General operations and maintenance activities related to residential uses under this alternative are anticipated to be similar to those of the proposed project, but reduced by 30%.

Compared with the proposed project, the Reduced Residential alternative would have less-than-significant project-specific and cumulative impacts on utilities and service systems, but lessened, because it would support a reduced number of residents and associated demands on utilities and service systems (less-than-significant impact, reduced). Consistent with the proposed project, this alternative would not require or result in the relocation or construction of new or expanded water or wastewater treatment, stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects (less-than-significant impact). Compared to the proposed project, this alternative would not generate as much demand for water, wastewater treatment, electricity, natural gas, and solid waste management (less-than-significant impact, reduced) (see Table 6-2).

Wildfire

Under the Reduced Residential alternative, the proposed project would be implemented with a 30% reduction in residential units. Under this alternative, it is assumed that the project site would be developed with a reduced overall residential buildout footprint compared to the proposed project. The alternative would have the same non-housing components, including the extension of the JOST as well as the new parks and paseos, with additional

open space in place of the higher residential unit count in the proposed project. General operations and maintenance activities related to residential uses under this alternative are anticipated to be similar to those of the proposed project, but reduced by 30%. The alternative would have a similar circulation network for vehicles, bicyclists, and pedestrians.

All wildfire impacts of the proposed project would be equal or slightly reduced under the Reduced Residential alternative (see Table 6-2) because development under this alternative would also entail new residents occupying the site.

For these reasons, the less-than-significant impacts (with mitigation) under the proposed project related to the spread of wildfire and installation or maintenance of infrastructure that may exacerbate fire risk would be the same under this alternative (less-than-significant impact with mitigation). Mitigation measures prescribed for the proposed project to address these impacts would apply to this alternative. These include MM-WF-1 and MM-WF-2 (implementing pre-construction measures to reduce fire risks during construction and a fire-resistant landscape plan). The less-than-significant proposed project impacts related to emergency evacuation and response and exposure of people or structures to significant risks as a result of runoff, post-fire slope instability, or drainage changes would also occur, but at a reduced level, under this alternative because relatively fewer residents would inhabit the project site (less-than-significant impact, reduced). Additionally, pursuant to the discussion above, the less-than-significant cumulative impacts (with mitigation) related to wildfire would continue to be less than significant (with mitigation), but at a reduced level, under the Reduced Residential alternative.

6.5.3.3 Ability to Meet Project Objectives

The Reduced Residential alternative would result in the development of residential units. As described in Section 6.5.3.1, development of this alternative represents a 30% reduction in residential units and associated residents. The alternative would retain the same non-housing components, including the extension of the JOST as well as the new parks and paseos. The architectural design and themes of this alternative and the associated building materials are assumed to be consistent with those of the proposed project. The proposed circulation system would be consistent with the project's proposed roadways and bikeways.

The Reduced Residential alternative would meet the proposed project objectives related to the provision of residential units (see Table 6-1). In particular, this alternative would provide housing stock and affordable housing to advance compliance with the City's RHNA Goals (Objective 1, Objective 2, and Objective 3). Although this alternative would reduce the provision of housing compared to the proposed project, it would still partially meet these objectives. Specifically, 25% of housing units under this alternative would still be allocated for affordable housing. Implementation of this alternative would provide diverse housing types, including affordable units, to advance the City's RHNA Goals.

Implementation of this alternative would generate revenue for the City; however, the alternative would generate relatively less revenue than the proposed project because it would provide fewer housing units for rent and sale. Therefore, the Reduced Residential alternative would partially meet Objective 4 (see Table 6-1).

The Reduced Residential alternative, consistent with the proposed project, would create gathering spaces and encourage outdoor vehicle-free movement by providing passive and active recreational facilities, including green spaces and outdoor amenity areas. It would also establish recreational amenities within walking distance of residential neighborhoods. As noted above, the alternative would implement the same architectural design and themes as the proposed project. Therefore, the Reduced Residential alternative would meet Objective 5 (see Table 6-1).

Consistent with the proposed project, implementation of the Reduced Residential alternative would complete the comprehensive circulation network with integrated mobility options by connecting pedestrians and bicyclists traveling to a non-vehicular bridge across Portola Parkway to the broader Irvine community to the south and west of Gateway Village. The alternative would establish connectivity between land uses through the extension of the JOST to its connection point with the 700-acre Gateway Preserve via the South Park trailhead, which sustains the City's goals to enhance quality living environments through parks and open space. Therefore, the Reduced Residential alternative would meet Objective 6 (see Table 6-1).

6.6 Environmentally Superior Alternative

CEQA Guidelines Section 15126.6(a) requires that an EIR's analysis of alternatives identify the "environmentally superior alternative" among all of those considered. In addition, Section 15126.6(e)(2) states that if the environmentally superior alternative is the No Project alternative, the EIR must also identify an environmentally superior alternative among the other alternatives. Furthermore, Public Resources Code Sections 21002 and 21081 require lead agencies to adopt feasible mitigation measures or feasible alternatives to substantially lessen or avoid otherwise significant adverse environmental effects, unless specific economic, legal, social, technological, or other conditions make such mitigation measures or alternatives infeasible.

Table 6-2 presents a comparison of the project-level and cumulative impacts of the proposed project and the alternatives.

Based on the discussion in Section 6.3.2, Significant and Unavoidable Project Impacts, the proposed project would result in significant and unavoidable impacts to agriculture, due to the conversion of farmland; air quality, related to conflict with the SCAQMD AQMP and operational VOC thresholds; GHG emissions, due to emissions during project operations and conflict with an applicable GHG plan; land use and planning, due to conflict with an applicable GHG plan; recreation, due to the construction of recreational facilities; and transportation, due to increased VMT.

The No Project/No Development alternative (Alternative 1) would avoid all of the impacts of the proposed project, including the significant and unavoidable impacts referenced above (see Table 6-2). Based on the above analysis and the summary of impacts presented in Table 6-2, the environmentally superior alternative would be Alternative 1: No Project/No Development, because this alternative would consist of no physical development of the project site and would reduce the level of impacts for all proposed project environmental impacts that are either less than significant with mitigation or significant and unavoidable. However, this alternative is a CEQA "No Project" alternative and therefore cannot be considered the environmentally superior alternative.

The No Project/Community Park alternative (Alternative 2) reduces project impacts to the next greatest extent. As shown in Table 6-2 and discussed in Section 6.5.2, implementation of this alternative would reduce significant and unavoidable proposed project air quality, GHG emissions, land use and planning, and transportation impacts to a less-than-significant level. Implementation of this alternative would also reduce less-than-significant project impacts related to aesthetics, energy, hazards and hazardous materials, hydrology and water quality, noise, public services, utilities and service systems, and wildfire; these impacts would remain less than significant but would be lessened. However, consistent with Alternative 1, this alternative is also a CEQA "No Project" alternative; therefore, it cannot be considered the environmentally superior alternative.

Therefore, the Reduced Residential alternative (Alternative 3) is the environmentally superior alternative. Implementation of this alternative would not avoid any of the significant and unavoidable proposed project impacts discussed above. However, it would lessen the severity of significant and unavoidable proposed project impacts

related to air quality, biological resources, GHG, land use and planning, and transportation because it would house fewer residents than the proposed project and avoid sensitive biological areas to the extent feasible. Furthermore, the alternative would also reduce some of the less-than-significant project impacts related to energy, hazards and hazardous materials, hydrology and water quality, noise, public services, utilities and service systems, and wildfire. Because this alternative would include fewer residents occupying the project site, there would be lessened demand for natural resources and services as well as less exposure to health and safety risks. Furthermore, because this alternative involves less extensive construction than the proposed project because of its smaller buildout footprint, it would result in relatively reduced construction-related impacts. For these reasons, the environmentally superior alternative is Alternative 3: Reduced Residential.

Table 6-1. Ability of Alternatives to Meet Project Objectives

Objective	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 No Project/ Community Park	Alternative 3 Reduced Residential
Objective 1: Housing Stock. Provide diverse housing types and opportunities within the City that address a variety of lifestyles, life stages, and economic segments of the marketplace.	Meets objective	Does not meet objective	Does not meet objective	Partially meets objective
Objective 2: Affordable Housing. Consistent with Goal 4 of the City's General Plan Housing Element, provide affordable housing to support balanced housing options at the least cost possible to residents.	Meets objective	Does not meet objective	Does not meet objective	Partially meets objective
Objective 3: RHNA Goals. Contribute new housing units to the City's housing stock, to help satisfy the State of California Regional Housing Needs Assessment (RHNA) for the 2021–2029 planning period, allowing the City to advance their fair share of regional housing growth goals.	Meets objective	Does not meet objective	Does not meet objective	Partially meets objective
Objective 4: City Revenue Generation. Generate net revenue for the City of Irvine General Fund.	Meets objective	Does not meet objective	Partially meets objective	Partially meets objective
Objective 5: Attractive Community and Amenities. Develop a cohesive architectural and landscape themed community with amenities that both residents	Meets objective	Does not meet objective	Partially meets objective	Meets objective

Table 6-1. Ability of Alternatives to Meet Project Objectives

Objective	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 No Project/ Community Park	Alternative 3 Reduced Residential
and guests seek. Create gathering spaces and encourage outdoor vehicle-free movement by providing parks, paseos, streetside green spaces, and outdoor amenity areas. Establish recreational amenities within walking distance of residential neighborhoods.				
Objective 6: Circulation Network. Complete the comprehensive circulation network with integrated mobility options by connecting pedestrians and bicyclists traveling to a non-vehicular bridge across Portola Parkway to the broader Irvine community to the south and west of Gateway Village. Establish connectivity between land uses through the extension of the JOST to its connection point with the 700-acre Gateway Preserve via the South Park trailhead, which sustains the City's goals to enhance quality living environments through parks and open space.	Meets objective	Does not meet objective	Meets objective	Meets objective

Table 6-2. Comparison of Impacts from the Alternatives

Environmental Issue	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 No Project/ Community Park	Alternative 3 Reduced Residential
Aesthetics				
1: Would the project have a substantial adverse effect on a scenic vista?	Less than significant (LS)	No impact (NI)	LS↓	LS
2: Would the project substantially damage scenic resources, including, but not	NI	NI	NI	NI

Table 6-2. Comparison of Impacts from the Alternatives

Environmental Issue	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 No Project/ Community Park	Alternative 3 Reduced Residential
limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?				
3: In non-urbanized areas, would the project substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would it conflict with applicable zoning and other regulations governing scenic quality?	LS	NI	LS↓	LS↓
4: Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	LS	NI	LS↓	LS↓
Would the project have a cumulative effect on aesthetics?	LS	NI	LS↓	LS↓
Agriculture and Forestry				
1: Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	Significant and unavoidable (SU)	NI	SU	SU
2: Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?	NI	NI	NI	NI
3: Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by	NI	NI	NI	NI

Table 6-2. Comparison of Impacts from the Alternatives

Environmental Issue	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 No Project/ Community Park	Alternative 3 Reduced Residential
Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104[g])?				
4: Would the project result in the loss of forest land or conversion of forest land to non-forest use?	NI	NI	NI	NI
5: Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	LS	NI	LS	LS
Would the project have a cumulative effect on agriculture and forestry resources?	SU	NI	SU	SU
Air Quality				
1: Would the project conflict with or obstruct implementation of the applicable air quality plan?	SU	NI	LS	SU
2: Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	SU	NI	LS	SU↓
3: Would the project expose sensitive receptors to substantial pollutant concentrations?	Less than significant with mitigation incorporated (LSM)	NI	LS	LSM↓
4: Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	LS	NI	LS↓	LS
Would the project have a cumulative effect on air quality resources?	SU	NI	LS	SU↓

Table 6-2. Comparison of Impacts from the Alternatives

Environmental Issue	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 No Project/ Community Park	Alternative 3 Reduced Residential
Biological Resources				
1: Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	LSM	NI	LSM	LSM↓
2: Would the project 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?	LS	NI	LS	LS↓
3: Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	LSM	NI	LSM	LSM↓
4: Would the project 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?	NI	NI	NI	NI
5: Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	LSM	NI	LSM	LSM

Table 6-2. Comparison of Impacts from the Alternatives

Environmental Issue	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 No Project/ Community Park	Alternative 3 Reduced Residential
6: Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	NI	NI	NI	NI
Would the project have a cumulative effect on biological resources?	LSM	NI	LSM	LSM↓
Cultural Resources				
1: Would the project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	NI	NI	NI	NI
2: Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	LSM	NI	LSM	LSM↓
3: Would the project disturb any human remains, including those interred outside of dedicated cemeteries?	LSM	NI	LSM	LSM↓
Would the project have a cumulative effect on cultural resources?	LSM	NI	LSM	LSM↓
Energy				
1: Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	LS	NI	LS↓	LS↓
2: Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	LS	NI	LS↓	LS↓
Would the project have a cumulative effect on energy resources?	LS	NI	LS↓	LS↓

Table 6-2. Comparison of Impacts from the Alternatives

Environmental Issue	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 No Project/ Community Park	Alternative 3 Reduced Residential
Geology and Soils				
1: Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
a. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42?	NI	NI	NI	NI
b. Strong seismic ground shaking?	LS	NI	LS	LS
c. Seismic related ground failure including liquefaction?	LS	NI	LS	LS
d. Landslides?	LS	NI	LS	LS
2: Would the project 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?	LS	NI	LS	LS
3: Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	LS	NI	LS	LS
4: Would the project 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?	NI	NI	NI	NI
5: Would the project directly or indirectly destroy a unique	LSM	NI	LSM	LSM

Table 6-2. Comparison of Impacts from the Alternatives

Environmental Issue	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 No Project/ Community Park	Alternative 3 Reduced Residential
paleontological resource or site or unique geologic feature?				
Would the project have a cumulative effect on geology and soils resources?	LSM	NI	LSM	LSM
Greenhouse Gas Emissions				
1: Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	SU	NI	LS	SU↓
2: Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	SU	NI	LS	SU↓
Would the project have a cumulative effect on greenhouse gas emissions?	SU	NI	LS	SU↓
Hazards and Hazardous Materials				
1: Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	LSM	NI	LSM	LSM
2: Would the project 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?	LSM	NI	LSM	LSM
3: Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	NI	NI	NI	NI
4: Would the project be located on a site that is included on a list of hazardous materials sites compiled pursuant to	NI	NI	NI	NI

Table 6-2. Comparison of Impacts from the Alternatives

Environmental Issue	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 No Project/ Community Park	Alternative 3 Reduced Residential
Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				
5: For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	NI	NI	NI	NI
6: Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	LS	NI	LS↓	LS
7: Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	LSM	NI	LSM↓	LSM↓
Would the project have a cumulative effect on hazards or hazardous materials?	LSM	NI	LSM↓	LSM↓
Hydrology and Water Quality				
1: Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	LS	NI	LS↓	LS
2: Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	LS	NI	LS↓	LS↓
3: Would the project substantially alter the existing drainage pattern of the site or area, including through the	LS	NI	LS↓	LS↓

Table 6-2. Comparison of Impacts from the Alternatives

Environmental Issue	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 No Project/ Community Park	Alternative 3 Reduced Residential
alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: **a.** Result in substantial erosion or siltation on or off site; **b.** Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site; **c.** 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; or **d.** Impede or redirect flood flows?				
4: In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation?	NI	NI	NI	NI
5: Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	LS	NI	LS↓	LS↓
Would the project have a cumulative effect on hydrology or water quality resources?	LS	NI	LS↓	LS↓
Land Use and Planning				
1: Would the project physically divide an established community?	NI	NI	NI	NI
2: Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	SU	NI	LS	SU↓

Table 6-2. Comparison of Impacts from the Alternatives

Environmental Issue	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 No Project/ Community Park	Alternative 3 Reduced Residential
Would the project have a cumulative effect on land use resources?	SU	NI	LS	SU↓
Noise				
1: Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	LS	NI	LS↓	LS↓
2: Would the project result in generation of excessive groundborne vibration or groundborne noise levels?	LS	NI	LS↓	LS↓
3: For a project located within the vicinity of a private airstrip or 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?	NI	NI	NI	NI
Would the project have a cumulative effect on noise resources?	LS	NI	LS↓	LS↓
Population and Housing				
1: Would the project induce substantial unplanned 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)?	LS	NI	LS	LS↓
2: Would the project displace substantial numbers of existing people or housing, necessitating the construction	NI	NI	NI	NI

Table 6-2. Comparison of Impacts from the Alternatives

Environmental Issue	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 No Project/ Community Park	Alternative 3 Reduced Residential
of replacement housing elsewhere?				
Would the project have a cumulative effect on housing and/or population resources?	NI	NI	NI	NI
Public Services				
1: Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
Fire protection?	LS	NI	LS↓	LS↓
Police protection?	LS	NI	LS↓	LS↓
Schools?	LS	NI	LS↓	LS↓
Parks?	LS	NI	LS↓	LS↓
Other public facilities?	LS	NI	LS↓	LS↓
Would the project have a cumulative effect on public services resources?	LS	NI	LS↓	LS↓
Recreation				
1: Would the project 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?	LS	NI	NI	LS↓
2: Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	SU	NI	SU	SU
Would the project have a cumulative effect on recreation resources?	SU	NI	SU	SU↓
Transportation				
1: Would the project conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	LS	NI	LS	LS

Table 6-2. Comparison of Impacts from the Alternatives

Environmental Issue	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 No Project/ Community Park	Alternative 3 Reduced Residential
2: Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	SU	NI	LS	SU↓
3: Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	LSM	NI	LS	LSM
4: Would the project result in inadequate emergency access?	LS	NI	LS↓	LS
Would the project have a cumulative effect on transportation resources?	SU	NI	LS	SU
Tribal Cultural Resources				
1: Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is: **a.** Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)? **b.** A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the	LSM	NI	LSM	LSM↓

Table 6-2. Comparison of Impacts from the Alternatives

Environmental Issue	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 No Project/ Community Park	Alternative 3 Reduced Residential
criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?				
Would the project have a cumulative effect on tribal cultural resources?	LSM	NI	LSM	LSM↓
Utilities and Service Systems				
1: Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment, or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	LS	NI	LS	LS
2: Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	LS	NI	LS↓	LS↓
3: Would the project result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	LS	NI	LS↓	LS↓
4: Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	LS	NI	LS↓	LS↓

Table 6-2. Comparison of Impacts from the Alternatives

Environmental Issue	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 No Project/ Community Park	Alternative 3 Reduced Residential
5: Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	LS	NI	LS↓	LS↓
Would the project have a cumulative effect on utilities and/or service systems resources?	LS	NI	LS↓	LS↓
Wildfire				
1: Would the project substantially impair an adopted emergency response plan or emergency evacuation plan?	LS	NI	LS↓	LS↓
2: Due to slope, prevailing winds, and other factors, would the project exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	LSM	NI	LSM↓	LSM↓
3: Would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	LSM	NI	LSM↓	LSM
4: Would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	LS	NI	LS↓	LS↓
Would the project have a cumulative effect on wildfire?	LSM	NI	LSM↓	LSM↓

Notes: NI = no impact; LS = less-than-significant impact; LSM = less-than-significant impact with mitigation incorporated; SU = significant and unavoidable impact; ↑ = increased compared to proposed project; ↓ = reduced compared to proposed project.

6.7 References

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7 List of Preparers

7.1 City of Irvine

Pete Carmichael, Assistant City Manager
Stephanie Frady, Community Development Director
Alyssa Matheus, Planning Manager
Sun-Sun Tvedten Murillo, PE, Transportation Planning Manager
Lisa Thai, PTP, Principal Transportation Planner
Ann Wuu, Principal Planner
Erica Hong, Senior Planner

7.2 Brookfield Residential

Derek Spalding, Development Director, Land and Housing Development

7.3 Dudek

Rachel Struglia, PhD, AICP – Project Manager
Laura Masterson, Environmental Analyst – Land Use, Recreation, Public Services, Other CEQA Considerations
Daniel Hoffman, Environmental Analyst – Agricultural and Forestry Resources, Land Use, Alternatives
Tracy Ortega, Environmental Analyst – Cultural Resources, Tribal Cultural Resources, Geology and Soils, Hazards and Hazardous Materials, Public Services, Wildfire
Brian Grattidge, Senior Project Manager – Senior Reviewer, Agricultural and Forestry Resources
Galen Hagen, Biologist, Project Manager – Senior Reviewer, Biological Resources
Tracy Park, Biologist – Biological Resources, California Gnatcatcher Surveys, Least Bell's Vireo Surveys
Valerie Goodwin, Biologist – Biological Resources
Shana Carey, Biologist – Burrowing Owl Surveys
Luz Badillo, Biologist – Burrowing Owl Surveys
Kimberly Narel, Biologist – Burrowing Owl Surveys
Tricia Wotipka, Wetlands Ecologist, Project Manager – Senior Regulatory Specialist
Josh Elson, Biologist – Least Bell's Vireo Surveys
Megan Minter, Biologist – Least Bell's Vireo Surveys
Callie Amoaku, Biologist – Crotch's Bumble Bee Surveys
Audrey Herschberger, PE – Hazards and Hazardous Materials, Senior Reviewer
Perry Russell, PG, CEG – Hydrology and Water Quality
Roshanne Bakhtiary, Archaeologist
Jennifer De Alba, Cultural Technician
Dana Lodico, PE, INCE Bd. Cert. – Noise
Lisa Valdez, Senior Transportation Specialist – Transportation
Daria Sarraf, Project Manager – Senior Reviewer, Air Quality, Greenhouse Gas Emissions, and Energy
Nicholas Lorenzen, Air Resources Specialist – Air Quality, Greenhouse Gas Emissions, and Energy
Collin Paludi, Air Resources Specialist – Air Quality, Greenhouse Gas Emissions, and Energy
Stuart Fraser, RLA, Project Manager – Habitat Mitigation and Monitoring Plan

Marcelo Ceballos Jr., QAL, Habitat Restoration Specialist – Habitat Mitigation and Monitoring Plan
Laurel Porter, ELS(D), Senior Technical Editor
Rachel Dobrolenski, Publications Specialist
Lis Varela, Publications Specialist
Marcel Fuentes, Production Specialist

7.4 Project Team

LSA Associates

Ken Wilhelm, Principal – Transportation, Mobility

Cherry Tree Capital Partners

Chris Marsh

Fuscoe Engineering Inc.

John Olivier, PE
Winnie Tham

SWA Group

Daniel Dobson, SWA Group

KTGY

Melanni Wiranta
Alan Scales