Draft Environmental Impact Report No. 621
West Alton Parcel Development Plan

IP#16-376
State Clearinghouse Number 2014121065

COUNTY OF ORANGE
OC Real Estate/Land Development Division
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Santa Ana, California 92701
Contact: Eric Hull

December 9, 2016

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Prepared for:
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Acronym List

Acronym	Acronym and Abbreviation Description
A	
AAM	Annual Arithmetic Mean
AB	Assembly Bill
ac	acres
ACC	Advanced Clean Cars Program (CARB)
ACM	asbestos-containing material
ADT	average daily trips made by vehicles or persons in a 24-hour period
af	acre-feet
Afu	artificial man-made fills
afy	acre-feet per year
a.k.a.	also known as
AM	morning (before noon)
AMC	antecedent moisture condition
AOU	American Ornithologists' Union
APA	American Planning Association
APHO	Aerial Photograph/Features Anomalies
ARDA	Amended and Restated Development Agreement
ASMP	Airport System Master Plan
AST	aboveground storage tank
ASTM	American Society for Testing and Materials
AT&SF	Atchison, Topeka, and Santa Fe Railway
B	
B/C	branch connector
BAT	best available technology economically achievable
BCE	Before Common Era
BCT	best conventional pollutant control technology
BFE	Base Flood Elevation
bgs	below ground surface
BMPs	Best Management Practices (or Programs)
BOE	Board of Education
BRAC	Base Realignment and Closure
BTEX	Benzene, toluene, ethylbenzene, and xylene
BTU/yr	British thermal units per year
C	
°C	degrees Celsius
c.	circa
C&D	construction and demolition
CAA	Clean Air Act (federal)
CAAQS	California Ambient Air Quality Standards
CAFÉ	Corporate Average Fuel Economy
CAIT	Climate Analysis Indicators Tool
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CAL FIRE	California Department of Forestry and Fire Protection
CALGreen	California Green Building Standards Code
CalOSHA	California Occupational Safety and Health Administration

Acronym	Acronym and Abbreviation Description
CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
CAP	criteria air pollutant
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CBC	California Building Code
CBSC	California Building and Standards Code
CC&Rs	Covenants, Conditions, and Restrictions
CDFG	California Department of Fish and Game[1]
CDFW	California Department of Fish and Wildlife
CDMG	California Department of Mines and Geology
CDPR	California Department of Parks and Recreation
CDR	Center for Demographic Research
C-D roadway	Collector-distributor roadway
CE	Common Era
CEC	California Energy Commission
CEO	Chief Executive Officer
CEQA	California Environmental Quality Act of 1970
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
CGS	California Geological Survey
CH_4	methane
CHRIS	California Historical Resource Information System
CIP	Capital Improvement Program (or Plan)
CMA	Congestion Management Agency
CMP	Congestion Management Plan (or Program)
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CNRA	California Natural Resources Agency
CO	carbon monoxide
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
COC	chemical of concern
COG	Council of Governments
COOG	California Office of the Governor
COPCs	chemicals of potential concern
CPP	Comprehensive Phasing Plan
CPT	Cone penetrometer test
CRA	Cultural Resources Assessment
CRAM	California Rapid Assessment Method
CRHR	California Register of Historic Resources
CRPR	California Rare Plant Rank

[1] Note: should only be used for documents created before January 1, 2013 and in references only. Otherwise, use CDFW.

Acronym	Acronym and Abbreviation Description
CSMP	Construction Site Monitoring Plan (or Program)
CTR	California Toxics Rule
CUP	Conditional Use Permit
CWA	Clean Water Act, Federal (1977)
cy	cubic yards
D	
D	divided roadway lane
DAMP	Drainage Area Management Plan
dB	Decibel
dBA	decibel, A-weighted
DCV	Design capture volume
DECA	Defense Commissary Agency
DR	Development Requirement
diesel PM	Diesel particulate matter
DNL	Day Night Noise Level
DoD	U.S. Department of Defense
DOF	California Department of Finance
DOGGR	California Department of Conservation, Division of Oil, Gas and Geothermal Resources
DoN	U.S. Department of the Navy
DR	Development Requirement
DRMO	Defense Realization and Marketing Office
DTSC	Department of Toxic Substances Control, State of California
du	dwelling unit
du/ac	dwelling units per acre
E	
EBS	Environmental Baseline Survey
EIR	Environmental Impact Report (CEQA)
ELCR	Excess Lifetime Cancer Risk
e/o	east of
EO	Executive Order
ESA	Environmental Site Assessment
ESCP	Erosion and Sediment Control Plan
ESD	Explanation of Significant Differences
ESRL	Earth System Research Laboratory
EV	electric vehicle
F	
°F	degrees Fahrenheit
FAD	friable, accessible, and damaged (regarding asbestos-containing materials)
FE	federally Endangered species (USFWS)
FEIR	Final Environmental Impact Report (CEQA)
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act

Acronym	Acronym and Abbreviation Description
FFA	Federal Facility Agreement
FHSZ	Fire Hazard Severity Zone
FOST	Finding of Suitability to Transfer
FP	California Fully Protected
FRB	Frank R. Bowerman Landfill
FS	Feasibility Study
FSS	Final Status Survey
ft	foot/feet
FT	federally Threatened species
ft^3	cubic feet
FTA	Federal Transit Administration
FTC-S	Foothill Transportation Corridor – South
FTIP	Federal Transportation Improvement Plan
G	
gal.	gallons
GHG	Greenhouse Gas
GIS	Geographic Information Systems
GMP	Growth Management Plan
GP	General Plan
GPA	General Plan Amendment
GPC	Great Park Corporation (Orange County)
Gpcpd	gallons per capita per day
gpd	Gallons per day
gpm	gallons per minute
GWP	Global Warming Potential
H	
H_2SO_3	sulfurous acid
H_2SO_4	sulfuric acid
HCD	Housing and Community Development, State of California, Department of
HCM	Highway Capacity Manual
HCOCs	Hydrologic Conditions of Concern
HCP	Habitat Conservation Plan
HFCs	hydrofluorocarbons
HI	Hazard Index
HMMP	Habitat Management and Monitoring Plan
HOV	high-occupancy vehicle lane
HPDF	Historic Property Data File
hr	Hour
HRA	Historical Radiological Assessment
HVAC	Heating, ventilating, and air conditioning
I	
I	Interstate
IA	Implementation Agreement
IAS	Initial Assessment Study

Acronym	Acronym and Abbreviation Description
IBC	International Building Code
IBC	Irvine Business Complex
I/C	interchange
ICE	U.S. Immigration and Customs Enforcement
ICU	Intersection Capacity Utilization
ID	Identification
IFC	International Fire Code
IGR	Inter-Governmental Review
in/sec	Inches per second
IPD	Irvine Police Department
IRP	Installation Restoration Program
IRWD	Irvine Ranch Water District
IS	Initial Study (CEQA)
ITAM	Irvine Transportation Analysis Model
IUSD	Irvine Unified School District
IVC	Irvine Valley College
IWMP	Integrated Waste Management Plan
IWWTP	industrial wastewater treatment plant
J	
JCJ	Jeannette C. Justus Associates
Juris.	jurisdiction
JWA	John Wayne Airport
K	
K	Kindergarten
km	Kilometer
KSF	Thousand square feet
KVA	Kilovoltamps
kW	Kilowatt
kWh	Kilowatt Hour
kWh/yr	Kilowatt hour per year
L	
LACNHM	Natural History Museum of Los Angeles County
LAFCO	Local Agency Formation Commission
LARP	Los Alisos Water Recycling Plant
lbs/day	Pounds per day
lbs/sf	Pounds per square foot
LBP	Lead-based paint
L_{dn}	Day-Night Average Sound Level
L_{eq}	average noise level
LFTAM	Lake Forest Traffic Analysis Model
LID	Low Impact Development
LIFOC	Lease in Furtherance of Conveyance
LIP	Local implementation plan
LLD	Lifelong Learning District

Acronym	Acronym and Abbreviation Description
L_{max}	maximum noise level
L_{min}	minimum noise level
ln	lane
LOC	Location of Concern
LOS	Level of Service (traffic flow rating)
LRA	Local Redevelopment Agency
LRTP	Long Range Transportation Plan
LST	Localized significance threshold
LTFP	Long Term Facilities Plan
M	
m	meter
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual
MATES-IV	Multiple Air Toxics Exposure Study in the South Coast Air Basin
MBTA	Migratory Bird Treaty Act
MCAS	Marine Corps Air Station
MEP	Maximum Extent Practicable
MFI	Medium Family Income
MG	million gallons
mg/kg	Milligrams per kilogram
mg/m^3	milligrams per cubic meter
mgd	million gallons per day
mi	Mile
MLD	Most Likely Descendent
MLTP	Master Landscape and Trails Plan
MM	mitigation measure
MMRP	Mitigation Monitoring and Reporting Program
$MMTCO_2e$	Million metric tons of carbon dioxide equivalent
MND	Mitigated Negative Declaration (CEQA)
MPAH	Master Plan of Arterial Highways (Orange County)
mpg	miles per gallon
mph	miles per hour
MPO	Metropolitan Planning Organization
MRZ	Mineral Resource Zone
MS4	Municipal Separate Storm Sewer System
MSC	Miscellaneous Locations of Concern
msl	mean sea level
$MTCO_2e$	metric tons of carbon dioxide equivalent
$MTCO_2e/yr$	metric tons of carbon dioxide equivalent per year
MTIS	Materials Turned-In to Store
MUTCD	California Manual for Uniform Traffic-Control Devices
MWD	Metropolitan Water District of Southern California
MWDOC	Municipal Water District of Orange County
MWRP	Michelson Water Recycling Plant
N	
N_2O	Nitrous oxide

Acronym	Acronym and Abbreviation Description
N/A	Not applicable
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NAL	numeric action level
NASA	National Aeronautics and Space Association
NB	Northbound
NCES	National Center for Education Statistics
NCP	National Contingency Plan
NCCP	Natural Community Conservation Plan
ND	Nondetected
NEV	Neighborhood Electric Vehicles
NFA	No Further Action
NFI	No Further Investigation
NHTSA	National Highway Traffic Safety Administration (U.S. Department of Transportation)
NITM	North Irvine Transportation Mitigation
n/o	North of
NO	nitric oxide
NO_2	nitrogen dioxide
NOx	oxides of nitrogen (nitric oxide and nitrogen dioxide)
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent (NEPA)
NOP	Notice of Preparation (CEQA)
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NRC	Nuclear Regulatory Commission
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
O	
O_3	Ozone
O&M	Operations and Maintenance
OC	Orange County
OCFA	Orange County Fire Authority
OCFCD	Orange County Flood Control District
OCGP	Orange County Great Park
OCGPRP	Orange County Great Park Redevelopment Plan
OCHCA	Orange County Health Care Agency
OCP-2014	Orange County Projections – 2014
OCPL	Orange County Public Library
OCTA	Orange County Transportation Authority
OCTAM	Orange County Transportation Analysis Model
OEHHA	California Office of Environmental Health Hazard Assessment
OHWM	Ordinary High Water Mark
OSA	Opportunity Study Area
OSHA	Occupational Safety and Health Administration (California)
OWS	Oil Water Separators

Acronym	Acronym and Abbreviation Description
P	
PA	Planning Area
PAH	Polycyclic Aromatic Hydrocarbon
pc/mi/ln	Passenger cars per mile per lane
PC	Planned Community
PCBs	Polychlorinated Biphenyls
PCE	Tetrachloroethylene
pCi/g	picocuries per gram
PDF	Project Design Feature
PEIR	Program Environmental Impact Report
PeMS	Performance Management System (Caltrans)
PFC	perfluorocarbon
pH	hydrogen potential
PID	Photoionization detector
PM	evening (after noon)
PM	Particulate matter
PM2.5	fine particulate matter less than 2.5 micrometers in diameter
PM10	respirable particulate matter less than 10 micrometers in diameter
ppb	parts per billion
ppm	parts per million (used interchangeably with mg/L)
ppv	Peak particle velocity
PRC	Public Resources Code
PRL	Potential Release Location
PV	Photovoltaic
PWC	Public Works Center (Navy)
Q	
Qvof	very old alluvial fan deposits (a type of soil)
Qyf	young alluvial fan deposits (a type of soil)
R	
R	ramp lane
RAB	Restoration Advisory Board
RAO	Remedial Action Objective
RBC	risk-based concentrations
RCP	reinforced concrete pipe
RCP	Regional Comprehensive Plan (SCAG)
RCRA	Resource Conservation and Recovery Act (hazardous waste generator regulatory program)
RELOOC	Regional Landfill Options for Orange County
RFA	Resource Conservation and Recovery Act Facility Assessment
RHNA	Regional Housing Needs Assessment
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision (NEPA)
RPS	Renewables Portfolio Standard

Acronym	Acronym and Abbreviation Description
RSA	Regional Statistical Area
RTP	Regional Transportation Plan
RTPA	Regional Transportation Planning Agency
RUWMP	Regional Urban Water Management Plan
RV	Recreational Vehicle
RWQCB	Regional Water Quality Control Board
S	
SA	Special Animal (State of California)
SAMP	Sub-Area Master Plan
SARA	Superfund Amendments and Reauthorization Act
SB	Senate Bill
SB	Southbound
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCCIC	South Central Coastal Information Center
SCE	Southern California Edison
SCH	State Clearinghouse, State of California
SCRRA	Southern California Regional Rail Authority
SCS	Sustainable Communities Strategy
SE	State (CDFW) Endangered species
SEA	Site Evaluation Accomplished
sec	second
SEIR	Supplemental Environmental Impact Report
sf	square foot (or feet)
SF_6	sulfur hexaflouride
SFNA	School Facilities Needs Analysis
SGU	shallow groundwater unit
SHFB	Second Harvest Food Bank
SHPO	State Historic Preservation Officer, State of California
SIP	State Implementation Plan
SJAPCD	San Juaquin Valley Air Pollution Control District
SMAQMD	Sacramento Metropolitan Air Quality Management District
s/o	South of
SO_2	sulfur dioxide
SO_3	sulfur trioxide
SOx	sulfur oxides
SoCAB	South Coast Air Basin
SoCalGas	Southern California Gas Company
SP	Service Population
SR	State Route
SRA	seismic response area
SRA	source receptor area
SSC	species of special concern (State of California)
SSMP	Sewer System Management Plan
SSSC	side street stop controlled

Acronym	Acronym and Abbreviation Description
ST	State Threatened Species
SVE	soil vapor extraction
SVUSD	Saddleback Valley Unified School District
SWMU	Solid Waste Management Unit
SWP	State Water Project
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
T	
T	toll road lane
TAA	temporary accumulation areas
TAC	toxic air contaminant
TAZ	Transportation Analysis Zone
TCA	Transportation Corridor Agencies (Orange County)
TCE	Trichloroethylene
TDM	Transportation Demand Management
TDP	Transportation Design Procedures (City of Irvine)
TGD	Technical Guidance Document
TIA	Traffic (or Transportation) Impact Analysis
TIC	the Irvine Company
TMDL	Total Maximum Daily Load
TPH	Total petroleum hydrocarbons
TRPH	Total Recoverable Petroleum Hydrocarbons
TSCA	Toxic Substances Control Act (Federal)
TSF	thousand square feet
TSS	Total Suspended Solids
TTM	Tentative Tract Map
TTOD	Trails and Transit-Oriented District (City of Irvine)
U	
U	undivided roadway lane
UCD ITS	University of California, Davis Institute of Traffic Studies
UCI	University of California, Irvine
UF	acoustic utilization factor
USACE	U.S. Army Corps of Engineers
USC	*United States Code*
USCS	United Soils Classification System
USDA	U.S. Department of Agriculture
USDO	U.S. Department of Transportation
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey
UST	underground storage tank
UWMP	Urban Water Management Plan
UWR	Universal Waste Rule

Acronym	Acronym and Abbreviation Description
V	
V/C	volume-to-capacity ratio
VdB	Vibration decibels
VMT	vehicle miles traveled
VOC	volatile organic compounds
vph	vehicles per hour
VSI	visual site inspection
VTTM	Vesting Tentative Tract Map
W	
WDID	Waste Discharge Identification
WDR	Waste Discharge Requirements
WL	State Watch List Species
w/o	West of
WQMP	Water Quality Management Plan
WRI	World Resources Institute
WRMP	Water Resources Master Plan
WSA	Water Supply Assessment
WSV	Water Supply Verification
WWTP	Wastewater treatment plant
Z	
ZC	Zone Change
Symbols	
$\mu g/m^3$	micrograms per cubic meter

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1.0 EXECUTIVE SUMMARY

1.1 INTRODUCTION

The environmental impact report (EIR) process, as defined by the California Environmental Quality Act (CEQA), requires the preparation of an objective, full-disclosure document in order to (1) inform agency decision makers and the general public of the direct and indirect potentially significant environmental effects of a proposed action; (2) identify feasible or potentially feasible mitigation measures to reduce or eliminate potential significant adverse impacts; and (3) identify and evaluate a reasonable range of alternatives to the proposed project. In accordance with Section 15161 of the State CEQA Guidelines (California Code of Regulations [CCR], Title 14, Chapter 3, Sections 15000, et seq.), this EIR addresses the potential environmental impacts associated with the proposed project, as described herein, through the adoption and implementation of the West Alton Parcel Development Plan ("Development Plan" or "Project").

1.2 PROJECT LOCATION

The Project site consists of property that is or will be owned by the County of Orange (County), located in the City of Irvine (City). The Project site is located near the northeasterly edge of the former Marine Corps Air Station (MCAS) El Toro, northwest of the intersection of Alton Parkway and Irvine Boulevard in Orange County. The site is bound by Irvine Boulevard on the southwest; existing business/industrial buildings and Irvine Ranch Water District (IRWD) facilities on the south and southeast; and property owned by the Federal Bureau of Investigation (FBI), designated as Reserve Area for the Central-Coastal Subregion Natural Communities Conservation Plan (NCCP/HCP), to the north. The Project site consists of approximately 44.16 acres, including the 11.84-acre Wildlife Movement Corridor. (The exhibits depicting regional location and local vicinity are provided in Section 3.0, Project Description.)

1.3 PROJECT BACKGROUND

In July 1993, the Department of Navy (DoN) decided to close MCAS El Toro under the Base Realignment and Closure Act. Since then, several plans for reuse of the former MCAS El Toro site were considered by both the County and the City. In March 2002, the plan for the Orange County Great Park was approved when voters passed Measure W, an initiative that eliminated planned aviation uses for the MCAS El Toro site and re-designated the unincorporated land in the County General Plan for park, open space, and other uses.

Following closure of MCAS El Toro, on March 4, 2003, the County, the City, and the Irvine Redevelopment Agency entered into a tri-party, Property Tax Transfer, and Pre-Annexation Agreement (Pre-Annexation Agreement) regarding the annexation and reuse of MCAS El Toro. The parties entered into an agreement to "establish and demonstrate their mutual desire and commitment to cooperate" on the annexation proceedings and subsequent redevelopment of the former MCAS El Toro (Irvine et al, 2003). As part of the Pre-Annexation Agreement, the County is to receive certain lands at MCAS El Toro, including the Project site. The Pre-

Annexation Agreement also establishes that the County retains exclusive land use control over County-owned properties within the former MCAS El Toro.

The proposed Project site was generally vacant until the 1950s when it was graded for agricultural uses. The agricultural operations ceased in approximately 2009. Subsequently, the 11.84-acre Wildlife Movement Corridor, which bisects the Project site, has been constructed and R&S Soils is using portions of the Project site identified in the Development Plan as Planning Areas 1 and 2 for greenwaste and container nursery operations. The corridor divided the property into two developable pieces, a northern portion consisting of 21.98 acres and a southern portion consisting of 10.34 acres. The Wildlife Movement Corridor was constructed as a mitigation measure for the Alton Parkway extension that extended Alton Parkway between Irvine Boulevard and Towne Centre Drive/Rancho Parkway South to the northeast of the Project site. The corridor is currently maintained by the County of Orange and will be ultimately transferred to the City of Irvine.

1.4 PROJECT DESCRIPTION SUMMARY

The Project proposes a Development Plan for the West Alton Parcel, which would be used to guide future development on the Project site. This Development Plan contains detailed development standards and design guidelines to ensure a comprehensively planned Project. The analysis in this EIR evaluates the Development Plan, with the Conceptual Site Plan depicted on Exhibit 3-4, as a representative example of one potential development scenario that is consistent with the Development Plan and the Project vision. The Conceptual Site Plan includes a maximum of 803 multi-family residential units across two Planning Areas. A network of parks and open space is also proposed within the two planning areas. The 11.84-acre Wildlife Movement Corridor would remain largely unchanged. A more detailed discussion of the proposed Project and processing requirements is provided in Section 3.5 of this EIR and in West Alton Parcel Development Plan (Appendix A of this EIR).

General infrastructure would be provided on site to support the proposed Project, and would include streets; storm drain system improvements (including storm water detention and treatment systems); and utility lines for sewer, domestic water, recycled water, gas, electrical, communication, and closed circuit television services. Limited off-site improvements would also be required to serve the proposed Project and would be provided as part of future development, the details of which are discussed in Section 3.4, Project Processing.

1.5 PROJECT OBJECTIVES

Section 15124(b) of the State CEQA Guidelines requires "[a] statement of objectives sought by the proposed project. A clearly written statement of objectives will help the lead agency develop a reasonable range of alternatives to evaluate in the EIR and would aid the decision makers in preparing findings or a statement of overriding considerations, if necessary. The statement of objectives should include the underlying purpose of the project". The following objectives have been identified for the Project:

1. Build a project that is compatible with the surrounding existing and planned land uses in the area.

2. Create a development that would fully maximize mutual benefits from proximity to the area's employment opportunities and recreational amenities.
3. Maximize the potential for use of this County real estate asset to stimulate economic commerce in the City.
4. Promote efficient use of land through construction of a medium to high density residential development.
5. Take advantage of the ability to develop the Project site without the requirement for the extension of major infrastructure to support the development.
6. Revitalize the previously disturbed and presently underutilized Project site.
7. Develop the Project in a manner that will materially improve the jobs-housing balance of the area.
8. Use an existing County real estate asset to provide the County with a new source of revenue to support County operations and services.
9. Develop a project to provide attractive housing opportunities for young professionals to help curtail the trend of young professionals leaving the Orange County area.
10. Incorporate housing at a minimum density of 11 dwelling units/acre consistent with State of California guidance regarding the minimum density for facilitating the creation of affordable housing.
11. Provide a project with a range of density, bedroom, and unit types to facilitate the integration of up to one percent of the units as transitional housing for the region's diverse population of homeless or those at risk of becoming homeless.
12. Develop a mixed-income project that includes ten percent affordable housing on site in several different product types to help meet the diverse needs of the region's population.

1.6 PROJECT ALTERNATIVES

Section 15126.6(a) of the State CEQA Guidelines requires that "an EIR describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives". Five alternatives have been evaluated. These alternatives are summarized below and discussed and depicted graphically in Section 5.0, Alternatives to the Proposed Project, of this EIR.

The alternatives were developed to avoid or minimize impacts associated with implementation of the proposed Project. Given the nature and scale of the proposed Project, complete avoidance of significant impacts is not feasible for any alternative, including the No Project Alternative. The summaries of each alternative identify the significant impacts associated with each alternative. Table 5-1, Compatibility Comparison of Alternatives With Project Objectives, provides the compatibility comparison of the alternatives against each Project objective, and Table 5-5, Comparison of Project Alternatives Impacts to Proposed Project Impacts, provides a summary of alternative impacts compared to the proposed Project.

1.6.1 ALTERNATIVE 1 – NO PROJECT/NO DEVELOPMENT ALTERNATIVE

This alternative assumes the Project site would continue to remain in its current state. Activities like the current R&S Soils use for green waste and container nursery operations could continue.

This alternative would avoid potentially significant impacts associated with Air Quality, Greenhouse Gas (GHG) Emissions, Land Use and Planning (interim), Population and Housing, Recreation (short-term), and Transportation/Traffic. However, given the existing condition of the site, without any improvements, the Aesthetic and Hydrology and Water Quality impacts of this alternative would be greater than the proposed Project. This alternative would not meet any of the 12 Project objectives. This alternative is more fully discussed in Section 5.3.1.

1.6.2 ALTERNATIVE 2 – SINGLE-FAMILY HOMES ALTERNATIVE

Alternative 2 assumes development of single-family units to the north and south of the Wildlife Movement Corridor. Planning Area 1 would have 121 single-family units and 1.81 acres of park land, and Planning Area 2 would have 77 single-family units and 0.81 acres of park land. This alternative is discussed in greater detail in Section 5.3.2.

Overall, this alternative would have fewer impacts than the proposed Project; however, the significant and unavoidable impacts of the proposed Project related to Air Quality, GHG Emissions, Land Use and Planning (interim), Population and Housing, and Transportation/Traffic would not be avoided. Alternative 2 would result in a substantial reduction of about 69 percent of the Average Daily Trips (ADT) when compared to the Project. This would result in a substantial lessening of the number of intersections impacted in the Post-2035 scenario and cumulative scenarios when using the Highway Capacity Manual (HCM) methodology. Additionally, the reduction in the number of vehicle trips also result in a substantial reduction in the generation of air emissions, noise, and GHG emissions.

While the less-than-significant impacts related to Aesthetics, Agricultural Resources, Biological Resources, Cultural Resources, Geology and Soils, Hazards and Hazardous Materials, and Hydrology and Water Quality would be similar to the proposed Project, this alternative would have fewer impacts related to Noise, Public Services, Recreation, and Utilities. Additionally, even though the significant impact related to inconsistency with AQMP under Air Quality cannot be avoided, the overall Air Quality impacts are substantially less compared to the Project. Additionally, this alternative would avoid the potential short-term impact on Recreation (shortage of parkland) that could result if development in Planning Area 1 occurs prior to issuance of Finding of Suitability to Transfer (FOST) and construction of the proposed park within the LIFOC area, as there is sufficient parkland proposed without the park in LIFOC area.

Alternative 2 would fully meet 5 of the 12 Project Objectives outlined above (Objectives 1, 5, 6, 7, and 8) and partially meet 2 objectives (2 and 3). Similar to the Project, this alternative would be compatible with the surrounding existing and planned land uses; not be required to extend

substantial infrastructure to support the development; revitalize the underutilized site; help improve the jobs-housing balance of the area; and provide the County with a new source of revenue to support the County's operations and services. However, given the relatively low density, this alternative would not fully maximize mutual benefit from proximity to the area's employment opportunities and recreational amenities, nor would it maximize the potential for use of the Projects site to stimulate economic commerce in the City. This alternative, by developing at a substantially reduced density, would not use the land as efficiently as the Project by constructing a medium to high density residential development. Additionally, as a single-family development this alternative would be similar to much of the existing and proposed housing stock in the area and thus would not help curtail the young professionals leaving the Orange County area. Additionally, this alternative would not incorporate housing at a density of at least 11 dwelling units per acre consistent with the minimum density the State identifies for facilitating the creation of affordable housing. As a single family home alternative, this alternative would also not provide a range of density, bedroom, and unit types to facilitate the integration of one percent of the units as transitional housing that meet the needs of the region's diverse homeless and potentially homeless populations; and would not develop a mixed-income project with several different product type that would help serve the region's diverse population of households requiring affordable housing.

1.6.3 ALTERNATIVE 3 – MIXED-USE ALTERNATIVE

Alternative 3 assumes that the County would develop the site with mixed uses. The portion of the Project site south of the Wildlife Movement Corridor would be developed with 225,000 sf of commercial buildings. A total of 573 of multi-family housing units would be constructed north of the Wildlife Movement Corridor. This alternative is discussed in greater detail in Section 5.3.3.

Overall, this alternative would have greater impacts than the proposed Project in some areas, and the significant and unavoidable impacts of the proposed Project related to Air Quality, GHG Emissions, Land Use and Planning (interim), Population and Housing, Recreation (short-term), and Transportation/Traffic would not be avoided. However, while Alternative 3 would result in an increase of about 18 percent of the Average Daily Trips (ADT) when compared to the Project, under the Year 2035 Plus Project and Post-2035 Plus Project (cumulative) scenarios, this alternative would result in a substantial lessening of impacts to intersections using the HCM methodology. The increase in the number of vehicle trips would result in an increase in the generation of air emissions, noise, and GHG emissions. However, though this alternative would generate an increased amount of GHG emissions, because of its mixed-use nature and increased service population, the alternative's GHG efficiency level would be improved compared to the proposed Project and the service population based emissions are substantially reduced compared to the Project.

While impacts related to Aesthetics (visual quality), Agricultural Resources, Biological Resources, Cultural Resources, Geology and Soils, Hazards and Hazardous Materials, Hydrology and Water Quality, Public Services (Fire and Police) would be similar to the proposed Project, this alternative would have potentially greater impacts related to Aesthetics (light and glare), Noise, and Utilities (solid waste). Additionally, the overall Air Quality and Population and Housing impacts (although significant and unavoidable for inconsistency with regional plans) are greater compared to the Project. Impacts related to Public Services (schools and libraries)

and Utilities (water and wastewater) would be substantially less than the proposed Project, although this alternative would result in more impacts related to solid waste compared to the Project.

Alternative 3 would meet 10 of the 12 Project Objectives outlined above (Objectives 1, 2, 3, 5, 6, 8, 9, 10, 11, and 12) and partially meet 1 objective (4). Similar to the Project, this alternative would be compatible with the surrounding existing and planned land uses; would benefit from the area's employment opportunities and recreational amenities; would maximize the potential for use of this site to stimulate economic commerce in the City; would not be required to extend significant infrastructure to support the development; would revitalize the underutilized site; would provide the County with a new source of revenue to support County operations and services; would result in a development attractive to young professionals and help curtail their move from the Orange County area; incorporate housing at a density of at least 11 dwelling units per acre consistent with the minimum density the State identifies for facilitating the creation of affordable housing; provide a range of density, bedroom, and unit types to facilitate the integration of one percent of the units as transitional housing that meet the needs of the region's diverse homeless and potentially homeless populations; and would develop a mixed-income project with several different product type that would help serve the region's diverse population of households requiring affordable housing. However, with the elimination of units from a portion of the site, this alternative would not provide the intensity of residential development contemplated by the Project objectives across the entire site. Given that this alternative would have a significantly lower number of residential units and would result in employment-generating commercial uses in a jobs-rich area, it would not materially improve the jobs-housing balance of the area.

1.6.4 ALTERNATIVE 4 – AGE-QUALIFIED/MULTI-FAMILY ALTERNATIVE

Alternative 4 assumes that the County would develop a portion of the residences as age-qualified (over 55 years old). Planning Area 1 would be developed with 470 age-qualified units and 1.6 acres of park land, and Planning Area 2 would be developed with 230 units of multi-family units and 1.38 acres of park land. This alternative is discussed in greater detail in Section 5.3.4.

Overall, this alternative would have less impacts compared to the proposed Project, but the significant and unavoidable impacts of the proposed Project related to Air Quality, GHG Emissions, Land Use and Planning (interim), Population and Housing, Recreation (short-term), and Transportation/Traffic would not be avoided. Alternative 4 would result in a substantial reduction of long-term mobile pollutant emissions compared to the Project. Additionally, this alternative would result in a reduction of about 32 percent of the Average Daily Trips (ADT) when compared to the Project. This would result in a substantial decrease in the number of intersections impacted in the Post-2035 scenario and cumulative scenarios when using the Highway Capacity Manual (HCM) methodology. Additionally, the reduction in the number of vehicle trips also result in a reduction in noise and a substantial reduction in the generation of GHG emissions.

While less-than-significant impacts related to Biological Resources, Cultural Resources, Geology and Soils, Hazards and Hazardous Materials, Hydrology and Water Quality, and Noise

would be similar to the proposed Project, this alternative would have less impacts related to Aesthetics (slightly less), GHG Emissions, Public Services, Recreation, and Utilities. Additionally, the overall Air Quality and Population and Housing impacts (although significant and unavoidable for inconsistency with regional plans) would be less compared to the Project.

Alternative 4 would meet 10 of the 12 Project Objectives outlined above (Objectives 1, 3, 4, 5, 6, 7, 8, 10, 11, and 12) and partially meet 2 objectives (2, and 9). Similar to the Project, this alternative would be compatible with the surrounding existing and planned land uses; maximize the potential for use of this site to stimulate economic commerce in the City; promote efficient use of the land through construction of a medium to high density residential development; would not be required to extend significant infrastructure to support the development; would revitalize the underutilized site; would improve the jobs-housing balance in the area by providing a residential development and not introducing employment generating uses; would provide the County with a new source of revenue to support the County operations and services; would incorporate housing at a density of at least 11 dwelling units per acre consistent with the minimum density the State identifies for facilitating the creation of affordable housing; would provide a range of density, bedroom, and unit types to facilitate the integration of one percent of transitional housing that meet the needs of the region's diverse homeless and potentially homeless populations; and would develop a mixed-income project with several different product type that would help serve the region's diverse population of households requiring affordable housing. However, given the nature of this alternative, it would not fully benefit from proximity to the area's employment opportunities and recreational amenities and would provide units that would be attractive to young professionals only in Planning Area 2, thereby partially curtailing young professionals leaving the Orange County area.

1.6.5 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

The No Project/No Development Alternative (Alternative 1) would have the least impact to the environment because it would not involve any construction or demolition activities, nor would it generate additional population. The No Project/No Development Alternative would avoid the significant and unavoidable impacts associated with Air Quality, GHG Emissions Land Use and Planning, Population and Housing, and Transportation/Traffic. However, the beneficial impacts of the proposed Project associated with provision of additional housing and other improvements would not occur, and none of the Project objectives would be met. Additionally, given the existing condition of the site, without any improvements, the Aesthetic and Hydrology and Water Quality impacts of this alternative would be greater than the proposed Project.

Consistent with the requirements of CEQA, the remaining three alternatives were compared to the proposed Project when recommending the environmentally superior alternative. When evaluating the proposed Project compared to Alternative 2, Single-Family Homes Alternative, Alternative 3, Mixed-Use Alternative, and Alternative 4, Age-Qualified/Multi-Family Alternative, all may result in reductions in some environmental impacts. In terms of the Project's significant and unavoidable impacts associated with Air Quality, GHG Emissions, Land Use and Planning (interim), Population and Housing, Recreation (short-term) and Transportation/Traffic, none of the alternatives would eliminate the significant and

unavoidable impacts of the Project, although each of the alternative substantially reduces at least one potentially significant impact of the proposed Project.

When evaluating the proposed Project compared to Alternative 2, Single-Family Homes Alternative and Alternative 4, Age-Qualified/Multi-Family Alternative, both would result in incremental reductions in environmental impacts compared to the Proposed Project. A key factor in the reduction of impacts is associated with the number of vehicle trips generated. The vehicle trips not only result in transportation impacts, but are also associated with the generation of additional air emissions, incremental noise increases, and GHG emissions. The greater the number of trips, the greater the level of impacts in these topics areas. Alternative 2 and Alternative 4 would result in 1,550 Average Daily Trips (ADTs) and 3,359 ADTs, respectively, compared to the Project's 4,963 ADTs (69 percent and 32 percent reductions in ADTs, respectively). These reductions would result in reduced Air Quality and GHG. In addition, there would be a reduction in the noise impacts associated with Alternative 2 compared to the Project.

In terms of the environmental topics such as Agricultural Resources, Biological Resources, Cultural Resources, Geology and Soils, Hazards and Hazardous Materials, and Hydrology and Water Quality, given that Alternatives 2 through Alternative 4 would impact the same general footprint as the Project, impacts would be similar to the Project. For all these topical areas the impacts would be less than significant. Impacts related to Aesthetics vary with the nature, components, and design of each alternative. Alternative 2, Single-Family Homes Alternative would potentially have the least Aesthetics impacts compared to the Project. Overall, in terms of environmental impacts, Alternative 2 would have the greatest reduction in impacts compared to the proposed Project.

Based solely on the potential environmental impacts, Alternative 2 would have the greatest reduction in environmental impacts and would be deemed the environmentally superior alternative. However, as discussed above, compared with other alternatives, this alternative would meet the least number of Project objectives (fully meeting 5 of the 12 objectives and partially meeting 2 objectives), excluding the No-Project Alternative. Therefore, as part of the alternative selection process, the Board of Supervisors will need to balance the environmental impacts and ability to meet Project Objectives. This is further discussed in Section 1.8, Areas of Controversy/Issues to be Resolved. For further comparison of the alternatives and identification of the environmentally superior alternative, see Section 5.4.

1.7 ENVIRONMENTAL IMPACT REPORT FOCUS AND EFFECTS FOUND NOT TO BE SIGNIFICANT

In accordance with Section 15063 of the State CEQA Guidelines, the County prepared an Initial Study/Environmental Checklist for the proposed Project and distributed it, along with the Notice of Preparation (NOP), to responsible and interested agencies and to key interest groups. The IS/NOP was distributed to agencies and individuals for a 30-day review period beginning on December 19, 2014. In addition, notices regarding the availability of the NOP were distributed to all property owners and occupants of businesses within 500 feet of the Project site. The NOP was also posted on the County website.

A Scoping Meeting was held on January 9, 2015, from 1:00 PM to 3:00 PM at Building 317 off Marine Way, in Irvine. County staff were available to answer any questions about the proposed Project. A handout that provided an overview of the proposed Project, the Project alternatives, and Project schedule was distributed. Comment cards were available for attendees to submit at the meeting or to mail to County staff. Approximately 10 people attended the Scoping Meeting (9 people signed the sign-in sheet).

In response to the comments received, the County provided additional opportunity for input on the scope of the EIR, and the comment period extended from June 6, 2015 through July 3, 2015. The extension was noticed in the newspaper and approximately 400 notices were sent to the adjacent cities and properties. An additional Scoping Meeting was held on October 23, 2015, with a comment period that extended from October 9, 2015 through November 7, 2015. A summary of the issues raised in the NOP comment letters is provided in Section 2.3 of this EIR. Copies of the NOP/Initial Study, its distribution list, comments received on the NOP, and the handouts made available at the Scoping Meetings are included in Appendix B of this EIR. A total of eight comment letters were received during the 30-day NOP review period. Four additional comment letters were received after the end of the NOP review period. During the additional scoping periods, two more comments were received.

The EIR addresses all potential significant effects identified in the Environmental Checklist, as well as several topical areas that the County decided to include in the EIR, though the Initial Study determined there would be no significant Project impacts. The following topical areas are addressed in this EIR:

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

Section 2.3 provides an overview of the EIR review process and a summary of the issues that will not receive further evaluation in the EIR.

1.8 AREAS OF CONTROVERSY/ISSUES TO BE RESOLVED

Section 15123(b)(3) of the State CEQA Guidelines requires that an EIR identify issues to be resolved, including the choice among alternatives and whether or how to mitigate the Project's significant effects on the environment. With respect to the proposed Project, the following issues remains unresolved:

- As discussed in Section 4.15, Transportation/Traffic, the Project-related traffic impacts occur at locations that are outside the County jurisdiction. Therefore, County would be unable to implement the measures to mitigate or minimize the impacts. A number of the impacts would be mitigated through County participation in the North Irvine Transportation Mitigation (NITM) Program. Other mitigation measures require

modification to improvements previously planned for locations in the NITM area that did not anticipate additional improvements required to reduce the Project's impacts to a level of less than significant. Inclusion of these improvements in the NITM Program and inclusion of the County as a NITM member (or alternative fair–share agreement with the City) would provide a mechanism for the County to mitigate potentially significant impacts through a fair-share contribution toward the improvements, but implementation of that measure is not entirely within the control of the County. Additional CEQA documentation would be required for implementation of some of the required improvements. However, it should be noted, since the improvements are outside of the County jurisdiction and are not covered by the Pre-Annexation Agreement, agencies other than the County would reasonably be the lead agency on the roadway improvements.

- The Project to be acted on by the County of Orange is the adoption of the Development Plan for the West Alton Parcel. As indicated above, the Development Plan would be used to guide future development on the Project site. The Project, as well as the alternatives presented, are merely concepts for developing the Project site. The adoption of the Development Plan does not require that the Project presented as the Land Use Plan and Conceptual Site Plan (Exhibits 3-4 and 3-5, respectively) would have to be implemented precisely as shown; however, these concepts are just one potential scenario to implement the vision for the Project site.

  In adopting the Development Plan, a key issue to be resolved is the vision for the Project site. In identifying this vision, there is a need to balance the potential for environmental impacts and the ability to meet the Project objectives. Section 15021(a) of the State CEQA Guidelines states, "CEQA establishes a duty for public agencies to avoid or minimize environmental damage where feasible". However, this is not a requirement that the ability to avoid or minimize environmental damage is the only factor to be considered when adopting a Project. Section 15021(d) of the State CEQA Guidelines further states, "a public agency has an obligation to balance a variety of public objectives, including economic, environmental, and social factors and in particular the goal of providing a decent home and satisfying living environment for every Californian". In light of this "duty to minimize environmental damage and balance competing public objectives", the County considered the abilities of each alternative to meet the Project Objectives when recommending an alternative for evaluation as "the Project" in this EIR. All of the alternatives would result in significant, unavoidable impacts. As required by CEQA, alternatives were developed that would lessen the severity of the impacts. As discussed in Sections 1.6.5 and 5.4, Alternative 2 has been identified as the environmentally superior alternative. This determination is based strictly on potential environmental impacts. However, as discussed above, Alternative 2 would meet the least number of Project objectives (fully meeting 4 of the 12 objectives and partially meeting 4 objectives).[1] For example. this alternative provides the lowest number of residential units and would serve a more limited segment of the Orange County population due to the higher cost associated with a low density, single family

[1] A full discussion of the ability of each alternative to meet the Project objectives is provided in Section 5.0, Alternatives. As part of the conclusion for each alternative, there is an assessment comparing the ability of the alternative to the Project to meet the Project objectives. Additionally, a summary comparison of the ability of the Project and each of the alternatives to meet the Project objectives is provided in Table 5-1.

home development. These and other factors will be evaluated when the decision makers take action on the Project and confirm the vision and goals for the site that are identified in the Development Plan.

- Grading cannot commence until remediation is completed, FOST is issued by the DoN, and regulatory agencies have issued their approval. If development within Planning Area 1 is to start prior to issuance of FOST, the LIFOC area would need to be avoided. This area is identified on the Conceptual Site Plan as parkland (see Exhibit 3-4). Therefore, if Project development occurs prior to issuance of FOST, there would be a temporary shortage of parkland provided by the Project. This would be an interim significant impact associated with the Project and all alternatives.

1.9 SUMMARY OF SIGNIFICANT EFFECTS AND MITIGATION PROGRAM

Table 1-1 presents a summary of the potential environmental effects of the Project; measures to mitigate impacts to the extent feasible; and expected status of effects following implementation of the mitigation measures. The more detailed evaluation of these issues is presented in Sections 4.1 through 4.16. The level of significance provided in the 'Project Impact' columns denotes the level of significance prior to mitigation. There is also an indicator in the column identified as 'Level of Significance After Mitigation,' which makes a determination if the mitigation measures would reduce the impact to a level of less than significant. If the text of the mitigation measure is too lengthy to include in tabular format, it is briefly summarized in the table and the mitigation measure number is noted. All mitigation measures are listed in their entirety in the appropriate portion of Section 4.0.

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TABLE 1-1
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE

Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
Section 4.1 - Aesthetics			
Threshold 4.1-1 Substantially degrade the existing visual character or quality of the site and its surroundings.	Short-term construction activities and infrastructure improvements would have less than significant impacts on visual quality and views of the Project site from surrounding areas. Proposed development under the Development Plan would change the visual quality of the Project site, but compliance with the design guidelines and development standards in the Development Plan would improve the visual quality of the Project site and the surrounding area compared to existing conditions and prevent the substantial degradation of the visual character of the Project site and its surrounding areas. Impacts on visual quality would be less than significant.	No mitigation is required.	Less Than Significant
Threshold 4.1-2 Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area.	Proposed development would introduce new sources of light and glare that would increase lighting levels on the Project site. Distance from light-sensitive uses provided by streets and setbacks, existing developments, and landscaping to the south of the Project site; compliance with the design guidelines on lighting, as contained in the Development Plan; and DR AES-1 and DR AES-2 would prevent substantial light and glare spillover and changes in the lighting levels that would have a significant and adverse effect on daytime and nighttime views in the area including the adjacent wildlife areas. Impacts related to new sources of substantial light and glare would be less than significant.	**DR AES-1** Prior to issuance of any building permit, the County or its designee shall demonstrate that exterior lighting has been designed to be diffused, shielded, and low intensity and located so that direct rays are confined to the Project site in a manner meeting the approval of the Manager of Building & Safety or designee. **DR AES-2** Prior to the approval of final inspection, the County or its designee shall provide a letter from the electrical engineer, licensed landscape architect, or licensed professional designer that a field test has been performed after dark and the light rays are consistent with the Development Plan. Specifically, the County or its designee shall submit a photometric study that demonstrates that lighting levels will not increase over 0.25 foot-candle over ambient conditions at the Project border with the NCCP/HCP Reserve and Wildlife Movement Corridor. The letter shall be submitted to the Manager of Inspection for review and approval. (Note: High voltage lighting requires a licensed electrical engineer stamp.) No mitigation is required.	Less Than Significant
Section 4.2 – Agriculture and Forestry Resources			
Threshold 4.2-1 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?	The proposed Project would not result in the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use. Therefore, there would be no impact.	No mitigation is feasible.	No Impact
Threshold 4.2-2 Conflict with existing zoning for agricultural use, or a Williamson Act contract?	A portion of the Project site is designated 1.1, Exclusive Agriculture under the City's zoning ordinance. Though the development of the Project would be inconsistent with the City of Irvine Zoning Ordinance, the zoning requirements do not apply to the Project and thus the Project will not have a significant impact in that regard. No portion of the Project site is covered by a Williamson Act contract. Therefore, there would be no Williamson Act impact.	No mitigation is required.	No Impact

TABLE 1-1
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE

Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
Threshold 4.2-3 Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use?	The Project would not involve changes in the environment, which due to their location or nature, could result in the conversion of Farmland to non-agricultural use because the surrounding area is either developed or slated for urban development or the agricultural areas are enrolled in the City agricultural mitigation program (Agricultural Legacy Program). Therefore, the potential Project impacts associated with conversion of other Farmland to non-agricultural uses is less than significant.	No mitigation is required.	Less Than Significant
Section 4.3 – Air Quality			
Threshold 4.3-1 Conflict with or obstruct implementation of the applicable air quality plan.	The proposed Project and the associated long-term emissions are not included in current regional air quality plans. Therefore, the Project conflicts with the current SCAQMD AQMP. MM LU-1 states that County shall provide the Project data to the Center for Demographic Research and request inclusion of the Project into the Orange County Projections (OCP) dataset, which will be used for the regional planning programs. This would allow for the anticipated growth to be included in future long-range planning documents and would eliminate the conflict. However, incorporation of the updated growth projections into the OCP dataset and the AQMP is not within the County's control. Therefore, the impact would be significant and unavoidable.	Refer to **MM LU-1** in Section 4.10, Land Use and Planning, below.	Significant and Unavoidable
Threshold 4.3-2 Violate any air quality standard or contribute substantially to an existing or projected air quality violation.	Construction mass (regional) criteria pollutant emissions and local construction emissions, with implementation of DR AQ-1 through DR AQ-3, would not exceed SCAQMD CEQA significance thresholds and would be less than significant. Although not required to reduce impacts to a less than significant level, implementation of DR AQ-4 would reduce construction emissions. Operational mass (regional) criteria pollutant emissions would not exceed the SCAQMD CEQA significance thresholds and would be less than significant. Implementation of DR AQ-5 would avoid emissions from indoor residential fireplaces. MM GHG-1 and MM GHG-2 would potentially reduce vehicle travel and mobile emissions. It would be speculative to attribute specific numerical increases in adverse health impacts to the Project's emissions, especially as the Project's direct impacts are less than significant and the relative size of the Project's contributions are so small. Local CO emissions would not have the potential to exceed applicable standards and would be less than significant.	**DR AQ-1** During construction of the Project, the County or its designee shall comply with South Coast Air Quality Management District (SCAQMD) Rules 402 and 403, in order to minimize short-term emissions of dust and particulates. SCAQMD Rule 402 requires that air pollutant emissions not be a nuisance off site. SCAQMD Rule 403 requires that fugitive dust be controlled with the best available control measures so that the presence of such dust does not remain visible in the atmosphere beyond the property line of the emission source. This requirement shall be included as notes on the contractor specifications. Table 1 of Rule 403 prescribes the best available control measures that are applicable to all construction projects and is included in Appendix C of the Environmental Impact Report (EIR) for this Project. The County or its designee shall provide the Manager of Building & Safety, or designee, with an SCAQMD-approved Dust Control Plan or other sufficient proof of compliance with Rule 403, prior to issuance of a grading permit. **DR AQ-2** Architectural coatings shall be selected so that the volatile organic compound (VOC) content of the coatings is compliant with SCAQMD Rule 1113. This requirement shall be included as notes on the contractor specifications. The specifications for each project within the Development Plan area shall be reviewed by the Manager of Building & Safety, or designee, for compliance with this requirement prior to issuance of a building permit. **DR AQ-3** Prior to issuance of each grading and building permit, the County or its designee shall provide plans and specifications demonstrating that construction documents require the construction contractors to implement the measure listed below. The contractor shall comply with the identified requirements, and verification that the contractor has complied shall be confirmed by the Manager of Building & Safety, or designee, during construction.	Less Than Significant

TABLE 1-1
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE

Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
		All off-road diesel-powered construction equipment greater than 50 horsepower (hp) shall meet Tier 3 off-road emissions standards. In addition, all construction equipment shall be outfitted with Best Available Control Technology (BACT) devices certified by the California Air Resources Board (CARB). Any emissions-control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations. **DR AQ-4** Prior to issuance of each grading and building permit, the County or its designee shall provide plans and specifications demonstrating that construction documents require the construction contractors to implement the following measures or provide information and data that demonstrate that implementation would not be feasible or practicable: a. Electricity shall come from power poles rather than diesel- or gasoline-fueled generators, compressors, or similar equipment; b. Construction parking shall be configured to minimize traffic interference; c. Construction trucks shall be routed away from congested streets and sensitive receptors; d. Construction activities that affect traffic flow on the arterial system shall be scheduled to off-peak hours to the extent practicable; e. Temporary traffic controls, such as a flag person(s), shall be provided where necessary to maintain smooth traffic flow, as necessary; f. Dedicated turn lanes for movement of construction equipment on and off site and signal synchronization shall be provided as necessary to maintain smooth traffic flow; g. All construction equipment shall be tuned and maintained in accordance with the manufacturer's specifications; h. Diesel truck idling time shall be five minutes or less, both on and off site; i. Work crews shall shut off diesel equipment when not in use; and j. Contractors and construction workers shall be encouraged to use ride-sharing and commute using Metrolink. The contractor shall comply with the identified requirements, and verification that the contractor has complied shall be confirmed by the Manager of Building & Safety, or designee, during construction. **DR AQ-5** Fireplaces shall be limited to residential common areas, and none shall be provided in residential units. The specifications for each residential project within the Development Plan area shall be	

TABLE 1-1
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE

Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
		reviewed by the Manager of Building & Safety, or designee, for compliance with this requirement prior to issuance of a building permit. Refer to **MM GHG-1 and MM GHG-2** in Section 4.7, Greenhouse Gas Emissions, below.	
Threshold 4.3-3 Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).	Long-term operational and short-term construction emissions of nonattainment pollutants and their precursors would be less than the applicable significance thresholds established by SCAQMD. Thus, the long-term operational and short-term construction emissions would not be cumulatively considerable and would be less than significant. The conclusions of significance take into consideration the Project's implementation of DR AQ-1 through DR AQ-5 as well as MM GHG-1 and MM GHG-2 that would potentially reduce vehicle travel.	Refer to **DR AQ-1 through DR AQ-5** above and **MM GHG-1 and MM GHG-2** in Section 4.7, Greenhouse Gas Emissions, below.	Less Than Significant
Threshold 4.3-4 Expose sensitive receptors to substantial pollutant concentrations.	Exposure of sensitive receptors to criteria pollutants from on-site construction to CO at congested intersections or to off-site and future on-site receptors from TACs would be less than significant.	No mitigation is required.	Less Than Significant
Section 4.4 – Biological Resources			
Threshold 4.4-1 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 Services?	The Project would directly impact marginally suitable habitat for special status species. With implementation of DR BIO-1, which includes a pre-construction burrowing owl survey, direct impacts would be considered adverse, but less than significant. The Project has the potential to indirectly impact species using open space adjacent to the Project boundary. With implementation of DR AES-1 and DR AES-2 (light shielding/screening) and DR HAZ-4 (building setbacks), potential lighting and noise impacts will be less than significant. Potential impacts on coastal California gnatcatcher and least Bell's vireo would be less than significant as a result of implementation of DR BIO-2 (construction-related minimization measures), MM BIO-1 (pre-construction surveys and noise abatement for least Bell's vireo), and MM BIO-2 (glass design to minimize bird strikes). Impacts on active nests of migratory birds and/or raptors will be less than significant because of the implementation of DR BIO-3 (construction activities limited to the non-nesting season or a pre-construction nesting/bird survey and implementation of buffers excluding work activities around active nests, if observed during the pre-construction survey). Therefore, the Project's potential impact on special status species would be less than significant impact with mitigation.	Refer to **DR AES-1 and DR AES-2** in Section 4.1, Aesthetics, above, and **DR HAZ-4** in Section 4.8, Hazards and Hazardous Materials, below. **DR BIO-1** Per the *Staff Report on Burrowing Owl Mitigation* (CDFG 2012), the County, or its designee, shall ensure that a pre-construction survey for the burrowing owl is conducted by a qualified Biologist no less than 14 days prior to any ground disturbance for development of the Project site. The pre-construction survey will include the Project site plus a 500-foot buffer (if access is available). If no active burrows are found, no further mitigation would be required. If an active burrow is observed outside the breeding season (September 1 to January 31) and it cannot be avoided, the burrowing owl shall be excluded from the burrow following methods described in CDFG 2012. One-way doors shall be used to exclude owls from the burrows. Once the burrow is unoccupied, as verified by site monitoring and scoping, the burrow shall be closed by a qualified Biologist who shall excavate the burrow by hand. If a burrow will be closed, the County or its designee shall contact CDFW to determine whether compensatory mitigation shall be required for the loss of the active burrow. If an active burrow is observed outside the breeding season (September 1 to January 31) and it can be avoided, a protective buffer shall be placed around the burrow per CDFG 2012 guidelines. The buffer shall range from 160 feet to 1,640 feet depending on the level of impact and the time of year. The County, or its designee, shall contact the CDFW to determine whether a reduced buffer can be accommodated without adversely impacting occupied burrows. If an active burrow is observed during the breeding season (February 1 to August 31), the active burrow shall be protected until nesting activity has ended. A protective buffer shall be placed	Less Than Significant

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Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
		around the active burrow per CDFG 2012 guidelines. The buffer shall range from 650 to 1,640 feet depending on the level of impact and the time of year. The County, or its designee, shall contact CDFW to determine whether a reduced buffer can be accommodated without adversely impacting occupied burrows. Construction shall be allowed to proceed when the qualified Biologist has determined that fledglings have left the nest. Additionally, the County, or its designee, shall contact CDFW to determine whether compensatory mitigation shall be required for the long-term loss of the nesting burrow due to construction of the Project. Upon completion of the pre-construction burrowing owl survey, a Letter Report shall be prepared and submitted to the Manager of Building and Safety, or designee, for review and approval prior to any ground disturbing activities. If an active burrow is observed, the Letter Report shall include a description of the protective buffer that has been designated and a summary of any correspondence with CDFW. **DR BIO-2** Prior to issuance of any grading permits for activities within 500 feet of coastal sage scrub habitat, the Manager of Building and Safety, or designee shall verify the Project Applicant is following the Construction-related Minimization Measures that are required by the NCCP/HCP, as identified below. A. Prior to the commencement of clearing operations or other activities involving significant soil disturbance, all areas of coastal sage scrub habitat to be avoided under the provisions of the NCCP/HCP shall be identified with temporary fencing or other markers clearly visible to construction personnel. Additionally, prior to the commencement of grading operations or other activities involving disturbance of coastal sage scrub, a survey will be conducted to locate gnatcatchers and cactus wrens within 100 feet of the outer extent of projected soil disturbance activities and the locations of any such species will be clearly marked and identified on the construction plans. B. Following the completion of initial clearing activities, all areas of coastal sage scrub habitat to be avoided by construction equipment and personnel will be marked with temporary fencing or other appropriate markers that are clearly visible to construction personnel. No construction access, parking, or equipment storage shall be permitted within such marked areas. C. In areas bordering the NCCP Reserve System or Special Linkage/Special Management areas containing significant coastal sage scrub identified in the NCCP/HCP for protection, vehicle transportation routes shall be restricted to a minimum number during construction consistent with project construction requirements. Waste dirt or rubble shall not be deposited on adjacent coastal	

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Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
		sage scrub identified in the NCCP/HCP for protection. Pre-construction meetings involving the Monitoring Biologist, Construction Supervisors, and Equipment Operators shall be conducted and documented to ensure maximum practicable adherence to these measures. D. Coastal sage scrub identified in the NCCP/HCP for protection and located within the likely dust drift radius of construction areas will be periodically sprayed with water to reduce accumulated dust on the leaves as recommended by the monitoring Biologist. **DR BIO-3** In order to avoid impacts on nesting birds and raptors (common or special status), the County or its designee shall ensure that vegetation clearing shall be conducted during the non-breeding season (i.e., generally between September 16 and February 14 for migratory birds; July 1 and January 31 for nesting raptors) to the extent feasible. If Project timing requires that vegetation clearing occur between February 1 and September 15 (incorporating the typical breeding season for migratory birds and raptors), then a pre-construction nesting bird/raptor survey shall be conducted by a qualified Biologist within three days prior to vegetation clearing. If vegetation clearing would occur during the raptor nesting season, the survey shall also include areas within 500 feet of the Project impact area to determine the presence or absence of active raptor nests. If no active nests are found, no further mitigation would be required. If an active nest is located within or adjacent to the construction area and the Biologist determines that work activities may impact nesting, the Biologist shall determine an appropriate buffer to protect the nest. The size of the buffer shall be based on site features, the sensitivity of the species, and the type of construction activity in order to prevent disruption of nesting activity. No construction activities shall be allowed in the buffer zone until the Biologist determines that nesting activity has ended. Construction may proceed within the buffer once the Biologist determines that nesting activity has ceased and fledglings have left the nest. Upon completion of the pre-construction nesting bird survey, a Letter Report shall be prepared and submitted to the Manager of Building and Safety, or designee for review and approval prior to any ground disturbing activities. If an active nest is observed, the Letter Report shall include a description of the protective buffer that has been designated. **DR BIO-4** In conjunction with Level I, II, or III reviews, landscape plans shall be reviewed by a qualified Biologist and approved by the Manager of Building and Safety, or designee to ensure that no plants identified on the California Invasive Plant Council's (Cal-IPC's) invasive plant inventory as high or moderate invasive plants are included in the plant palette. **MM BIO-1** Prior to the issuance of any grading permits for activities within 500 feet of riparian habitat, if grading and/or construction	

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Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
		activities are scheduled to occur during the breeding season for the least Bell's vireo (March 15 to September 15), the Director of Community Development shall verify that the following requirements regarding least Bell's vireo are shown on the grading and/or building permit plans: A. No clearing, grubbing, grading, or other construction shall occur between March 15 and September 15, until the following requirements have been met to the satisfaction of the Manager of Building and Safety, or its designee: i) The project certified-Biologist shall survey all riparian areas that would be subject to construction noise levels exceeding 60 A-weighted decibels (dBA) hourly average for least Bell's vireo. Pre-construction surveys shall be conducted by a qualified Biologist once per week within suitable habitat beginning four weeks prior to construction (or the week of March 15 if construction is in progress) and continuing through September 15 or until 10 consecutive visits have had negative survey results. Surveys shall be conducted between dawn and 11:00 AM during suitable weather conditions as outlined in the U.S. Fish and Wildlife Service (USFWS) survey protocol for the species. If a pre-construction focused survey is not conducted, all riparian habitat shall be considered occupied. ii. Between March 15 and September 15, no construction activities shall occur within any portion of the site where construction activities would result in noise levels exceeding 60 dB(A) hourly average (or at the current existing noise level) at the edge of occupied least Bell's vireo habitat. An analysis showing that noise generated by construction activities shall not exceed 60 dB(A) (or current existing noise level) at the edge of riparian habitat shall be completed by an acoustician deemed qualified by the Manager of Building and Safety, or its designee (e.g., possessing a noise engineer license with experience monitoring noise levels with listed animal species). OR iii. No less than two weeks prior to the commencement of construction activities (or by March 15 if construction is in progress), under the direction of a qualified Acoustician, noise attenuation measures shall be implemented to ensure noise levels from construction activities will not exceed 60 dB(A) (or at the current existing noise level) at the edge of habitat occupied or potentially occupied by the least Bell's vireo. Concurrent with construction and	

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		the noise attenuation measures, noise monitoring shall be conducted at the edge of riparian habitat to ensure that noise levels do not exceed 60 dB(A) hourly average (or current existing noise level). If noise attenuation measures implemented are determined to be inadequate by a qualified Acoustician or project Biologist, then the associated construction activities shall cease until such time that adequate noise attenuation is achieved or until the end of the breeding season (September 16). B. If pre-construction surveys demonstrate that the least Bell's vireo is not present, the project Biologist shall submit a report with substantial evidence to the Manager of Building and Safety, or its designee that demonstrates noise attenuation measures are not necessary between March 15 and September 15. The report shall describe the methodology and results of the 10 consecutive negative pre-construction survey visits. If evidence indicates the potential is high for least Bell's vireo to be present based on prior focused survey(s) or site conditions, the Manager of Building and Safety, or its designee shall require implementation of measures in item A above. **MM BIO-2** In compliance with the *Fire Behavior Analysis Report and Fuel Modification Design Criteria*, the County or its designee shall install radiant heat walls adjacent to the NCCP/HCP Reserve and Wildlife Movement Corridor. Two design options are provided in the *Fire Behavior Analysis Report and Fuel Modification Design Criteria*. One option permits the wall design to include a four-foot tempered glass panel to be installed on the top of the wall. If this design is to be implemented, to minimize bird strikes against glass, the Manager of Building and Safety or its designee shall review the wall design as part of the Level I, II, or III Review, and/or ministerial permit process (e.g. grading permit), to ensure the approved design plans incorporate measures to minimize the risk of bird strikes, such as: (1) the use of opaque or uniformly textured/patterned/etched glass; (2) angling of glass downward so that the ground instead of the surrounding habitat or sky is reflected; (3) installation of one-way film that results in opaque or translucent covering when viewed from either side of the glass; (4) installation of a uniformly dense dot pattern created as ceramic frit on both sides of the glass; and/or (5) installation of a striped or grid patterns of clear UV-reflecting and UV-absorbing film applied to both sides of the glass. *It should be noted that single decals (e.g., falcon silhouettes or large eye patterns) are ineffective and shall not be used unless the entire glass surface is uniformly covered with the objects or patterns (Klem 1990).*	

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Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
Threshold 4.4-2 Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Services?	The Project would not directly impact riparian habitat or any other sensitive natural community. The plant palette in the Development Plan excludes highly or moderately invasive plant species, thereby ensuring surrounding natural habitat is not degraded by invasive plants. Additionally, DR BIO-4 requires that landscape plans be evaluated by a qualified biologist to ensure each landscape plan is consistent with the plant palette in the Development Plan. Therefore, the potential impact on riparian habitat and other sensitive natural communities would be less than significant.	No mitigation is required.	Less Than Significant
Threshold 4.4-3 Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.	No waters, including federally protected wetlands, under the jurisdiction of the USACE, the RWQCB, or the CDFW would be directly impacted by the Project. The implementation of BMPs, which are outlined in DR HWQ-4 through DR HWQ-7 and compliance with applicable law, will ensure that indirect impacts on federally protected wetlands would be less than significant.	Refer to **DR HWQ-4** above and **DR HWQ-7** in Section 4.9, Hydrology and Water Quality, below. No mitigation is required.	Less Than Significant
Threshold 4.4-4 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.	The Project is not expected to directly impact a wildlife corridor. Following development of a regional wildlife movement corridor, indirect impacts are potentially significant. For all the reasons discussed above, the potential impact to wildlife movement would be less than significant with mitigation.	Refer to **DR AES-1 and DR AES-2** in Section 4.1, Aesthetics, and **DR BIO-2 and MM BIO-1** above. No mitigation is required.	Less Than Significant
Threshold 4.4-5 Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	The Project would not conflict with applicable local ordinances protecting biological resources. Therefore, there would be no impact.	No mitigation is required.	No Impact
Threshold 4.4-6 Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.	The Project will not conflict with provisions of the NCCP/HCP or a local habitat conservation plan. Therefore, there would be no impact.	No mitigation is required.	No Impact
Section 4.5 – Cultural Resources			
Threshold 4.5-1 Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5.	The Project has a low potential to cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 based on the survey information and due to previous development on the Project site. Implementation of MM CULT-1 would reduce any potential impacts to less than significant levels should buried resources be discovered as part of grading activities.	**MM CULT-1** **Archaeological Observation and Salvage.** Prior to the issuance of any grading permit in which native soil is disturbed, the County or its designee shall provide written evidence to the Manager of Building & Safety, or designee, that the County or its designee has retained a County-certified archaeologist to observe grading activities and to salvage and catalogue archaeological resources as necessary. The archaeologist shall be present at the pre-grade conference, shall establish procedures for archaeological resource surveillance, and shall establish, in cooperation with the County or its designee, procedures for temporarily halting or redirecting work to permit the sampling, identification, and evaluation of the artifacts as appropriate. If the archaeological resources are found to be significant, the archaeological observer shall determine appropriate actions, in cooperation with the County or its designee, for exploration and/or salvage. Prior to the release of the grading bond, the County or its designee shall obtain approval of the archaeologist's follow-up report from the Manager of Building & Safety, or designee. The report shall include the period of inspection, an analysis of any	Less Than Significant

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Threshold of Significance	Project Impacts	Mitigation Program		Level of Significance After Mitigation
			artifacts found, and the present repository of the artifacts. The archaeologist shall prepare excavated material to the point of identification. The County or its designee shall offer excavated finds for curatorial purposes to the County of Orange, or its designee, on a first refusal basis. These actions, as well as final mitigation and disposition of the resources, shall be subject to the approval of the Manager of Building & Safety, or designee. The County or its designee shall pay curatorial fees if an applicable fee program has been adopted by the Board of Supervisors and such fee program is in effect at the time of presentation of the materials to the County or its designee, all in a manner meeting the approval of the Manager of Building & Safety, or designee.	
Threshold 4.5-2 Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	The Project has a low potential to directly or indirectly destroy a unique paleontological resource or site. However, implementation of MM CULT-2 would reduce potential impacts to less than significant levels should unknown buried resources be discovered as part of grading activities. Additionally, due to lack of unique geologic features on the Project site, no impacts to such features would occur.	**MM CULT-2**	**Paleontological Observation and Salvage.** Prior to the issuance of any grading permit in which native soil is disturbed, the County or its designee shall provide written evidence to the Manager of Building & Safety, or designee, that the County or its designee has retained a County-certified paleontologist to observe grading activities and to salvage and catalogue fossils as necessary. The paleontologist shall be present at the pre-grade conference; shall establish procedures for paleontological resource surveillance; and shall establish, in cooperation with the County or its designee, procedures for temporarily halting or redirecting work to permit sampling, identification, and evaluation of the fossils. If the paleontological resources are found to be significant, the paleontologist shall determine appropriate actions, in cooperation with the County or its designee, to ensure proper exploration and/or salvage. Prior to the release of the grading bond, the County or its designee shall submit the paleontologist's follow up report for approval by the Manager of Building & Safety, or designee. The report shall include the period of inspection, a catalogue and analysis of the fossils found, and the present repository of the fossils. The County or its designee shall prepare excavated material to the point of identification and shall offer excavated finds for curatorial purposes to the County of Orange, or its designee, on a first refusal basis. These actions, as well as final mitigation and disposition of the resources, shall be subject to approval by Manager of Building & Safety, or designee. The County or its designee shall pay curatorial fees if an applicable fee program has been adopted by the Board of Supervisors and such fee program is in effect at the time of presentation of the materials to the County of Orange or its designee, all in a manner meeting the approval of the Manager of Building & Safety, or designee.	Less Than Significant
Threshold 4.5-3 Disturb any human remains, including those interred outside of formal cemeteries.	Project activities are not expected to disturb human remains. However, if human remains are encountered during grading activities, implementation of MM CULT-3 would reduce potential impacts to human remains to a less than significant level.	**MM CULT-3**	**Human Remains.** If human remains are encountered during ground-disturbing activities, Section 7050.5 of the *California Health and Safety Code* states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition of the materials pursuant to Section 5097.98 of the *California Public Resources Code.* The provisions of	Less Than Significant

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Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
		Section 15064.5 of the California Environmental Quality Act Guidelines shall also be followed. The County Coroner must be notified of the find immediately. If the remains are determined to be prehistoric, the Coroner shall notify the Native American Heritage Commission (NAHC). The NAHC will determine and notify a Most Likely Descendent (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The descendent must complete the inspection within 24 hours of notification by the NAHC. The MLD may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials. These requirements shall be included as notes on the contractor specification and verified by the Development Services Department, prior to issuance of grading permits.	
Section 4.6 – Geology and Soils			
Threshold 4.6-1 Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42? ii) Strong seismic ground shaking? iii) Seismic-related ground failure, including liquefaction?	The Project site is not included in an Alquist-Priolo Earthquake Fault Zone and there are no known active or potentially active faults traversing the Project site. Impacts associated with surface fault rupture are less than significant. The Project site is in a seismically active area that would likely experience strong ground shaking during the life of any project developed thereon. However, conformance with existing regulations (applicable CBC) and DR GEO-1 would reduce potentially significant impacts associated with seismic shaking and seismic ground failure in the form of liquefaction, seismically induced settlement, and lateral spreading to a less than significant level.	**DR GEO-1** Prior to the issuance of a grading permit, the County, or its designee, shall submit a geotechnical report to the Manager of Building & Safety, or designee, for approval. The report shall include the information and be in the form as required by the County Grading Manual. All grading proposed on the Project site must be consistent with the OC Grading and Excavation Code. No mitigation is required.	Less Than Significant
Threshold 4.6-2 Result in substantial soil erosion or the loss of topsoil.	Grading activities would increase the potential for soil erosion and loss of top soil. With the incorporation of construction BMPs as described in Section 4.9, Hydrology and Water Quality, implementation of DR HWQ-4 through DR HWQ-7 in Section 4.9, Hydrology and Water Quality and compliance with applicable laws, Project impacts on soil erosion and loss of topsoil would be less than significant.	Refer to **DR HWQ-4 through DR HWQ-7** in Section 4.9, Hydrology and Water Quality, below. No mitigation is required.	Less Than Significant
Threshold 4.6-3 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.	The Project site is not located in an area with documented landslides and the potential for collapse/subsidence and soil corrosion is low. However, conformance with existing regulations (current CBC) and DR GEO-1 would reduce potentially significant impacts associated with unstable soils/site conditions and any impacts associated with landslides, collapse/subsidence, or corrosion would be less than significant. Similarly, liquefaction, seismically induced settlement, and lateral spreading would be reduced to a less than significant level with conformance with existing regulations (current CBC) and DR-GEO-1.	Refer to **DR GEO-1** above. No mitigation is required.	Less Than Significant

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Threshold 4.6-4 Be located on expansive soils, as defined in Table 18-1-B of the California Building Code (1994), creating substantial risks to life or property.	Based on the Preliminary Geotechnical Investigation (Leighton and Associates, Inc. 2014), the Project site soil has low to medium expansion potential. Consistent with DR GEO-1 more detailed evaluation of near-surface soils would be conducted and appropriate design measures imposed. Compliance with these measures would ensure impacts associated with expansive soils would be less than significant.	Refer to **DR GEO-1** above. No mitigation is required.	Less Than Significant
Section 4.7 – Greenhouse Gas Emissions			
Threshold 4.7-1 Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment (comparable to State CEQA Guidelines, Section 15064.4[b][1–2]).	The Project's GHG emissions would exceed the SCAQMD-recommended project-level efficiency threshold. Implementation of DRs GHG-1 through DR GHG-4, DR AQ-4 and DR AQ-5, and MM GHG-1 and MM GHG-2 would reduce the GHG emissions though not to a level of less than significant. Therefore, the Project will have significant and unavoidable GHG impacts.	**DR GHG-1** Projects shall be designed in accordance with the applicable Title 24 Energy Efficiency Standards for Residential and Nonresidential Buildings (*California Code of Regulations* [CCR], Title 24, Part 6). These standards are updated, nominally every three years, to incorporate improved energy efficiency technologies and methods **DR GHG-2** Projects shall be designed in accordance with the applicable California Green Building Standards (CALGreen) Code (24 CCR 11). **DR GHG-3** The Project shall incorporate renewable energy generation with a total generation equivalent to 1.25 kilowatts (kW) per dwelling unit. **DR GHG-4** Low-energy Energy Star®-compliant or equivalent appliances shall be exclusively offered by builders for each appliance that is rated by Energy Star (e.g., refrigerator, clothes washer, dishwasher) or achieves an efficiency that is equivalent to the 2016 Energy Star compliance standard. **MM GHG-1** Prior to issuance of each building permit for parking structures and parking lots with 20 or more parking spaces devoted to common area parking (including common resident parking in a parking structure), the County or its designee shall provide plans and specifications demonstrating that the following features have been incorporated into the parking facility. Proof of compliance shall be provided prior to the issuance of occupancy permits. • The parking facility shall include a minimum of five percent preferentially located parking spaces for alternative-fueled (electric, natural gas, or similar low-emitting technology) vehicles. • The parking facility shall include at least one electric vehicle charging station. Electrical lines shall be designed and sized to add additional charging stations for up to three percent of the total parking spaces when a demand is demonstrated. The design and installation shall be consistent with Section A4.106.8.2, Residential Voluntary Measures, of the CALGreen Code. • Bicycle parking shall be provided as specified in Section A4.106.9, Residential Voluntary Measures, of the CALGreen Code. **MM GHG-2** The operator of each residential building shall provide a commuter information area or multiple areas within or near each building; the information area(s) shall be centrally located and accessible to all residents. The information shall include, but not be limited to,	Significant and unavoidable.

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Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
		current maps, routes and schedules for bus, Metrolink, and Amtrak and a means for sharing information for ride-sharing. Proof of compliance shall be provided to the Manager, Chief Executive Officer (CEO) Real Estate/Land Development within one month following the issuance of each occupancy permit.	
Threshold 4.7-2 Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases (comparable to State CEQA Guidelines, Section 15064.4[b][3]).	The Project may conflict with plans, policies and regulations adopted for the purpose of reducing GHG emissions. Therefore, impacts would be significant and unavoidable. No additional mitigation is feasible.	No additional mitigation is feasible.	Significant and unavoidable.
Section 4.8 – Hazards and Hazardous Materials			
Threshold 4.8-1 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. **Threshold 4.8-3** Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.	Based on information from the latest O&M and LTM report for the IRP Site 2 landfill and supplemental County investigations, the potential for the Project to create a significant hazard to the public or the environment through reasonably foreseeable upset or accident conditions involving the release of hazardous materials are less than significant without mitigation. Additionally, as indicated above, while the Project site is within a ¼ mile of Portola High School, the Project would not result in significant impacts due to emissions from or handling of hazardous or acutely hazardous materials on the Project site. Further, based on soil investigations, impact related to former agricultural use of the site would be less than significant without mitigation.	No mitigation is required.	Less Than Significant
Threshold 4.8-2 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.	<u>Potential Hazardous Soil Impacts</u> Significant hazard to the public or the environment due to potential unknown hazardous soil impacts and the Project site being on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5, are potentially significant without implementation of the applicable development requirements. DR HAZ-1 requires development of a Soils Management Plan to address unknown hazardous materials impacts and/or petroleum-hydrocarbon and VOC impacts to soil that are identified during grading. DR HAZ-2 addresses transportation and disposal of hazardous materials-impacted soils, and DR HAZ-3 addresses assessment, removal, and closure of unknown USTs should they be encountered during grading. With implementation of DR HAZ-1, DR HAZ-2, and DR HAZ-3, impacts during and after construction would be less than significant. <u>IRP Site 2 (Magazine Road Landfill) – VOC and/or Methane Impacts to Soil Gas</u> Though the Project is located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5, the impacts with respect to VOCs and methane in soil gas are less than significant without mitigation because as part of the DoN remediation efforts soil contaminants would be below thresholds established by regulatory agencies and the Project would not create a significant hazard to the public or the environment and no mitigation measure is required. <u>IRP Site 2 – Impacts to Monitoring Wells</u> The potential for the Project to create a significant hazard to the public or the environment with respect to impacts to the groundwater	**DR HAZ-1** Prior to initial grading, a site-specific Soils Management Plan will be developed to be implemented during grading and will include measures for monitoring soil conditions for evidence of impacts and contingency measures in the event that impacted soils (including, but not limited to, petroleum-hydrocarbons and other volatile organic compounds [VOCs]) are encountered during grading as evidenced by visual staining, olfactory perception, or field testing. The objective of the Soils Management Plan is to reduce exposures to impacted soils to less than significant levels, as defined by applicable law, for construction and utility workers during grading and construction phases of the Project and for future residents after construction is complete. The Soils Management Plan will include, at a minimum, identification of contaminants through use of field equipment (e.g., PID); sampling and laboratory analyses, if necessary; segregation; temporary stockpiling specifications; and treatment and/or disposal options in accordance with applicable law. This Soils Management Plan will be submitted to the Manager of Building & Safety for review and approval. **DR HAZ-2** During site grading and construction activities, hazardous contaminated soils or other hazardous materials shall be managed in accordance with the requirements of Title 22, Division 4.5 of the *California Code of Regulations*; the U.S. Department of Transportation regulations in the *Code of Federal Regulations* (specifically, Title 49, Hazardous Materials Transportation Act and Title 40, Part 263, Subtitle C of Resource Conservation and Recovery Act); California Department of Transportation (Caltrans) standards; and Occupational Safety and Health Administration (OSHA) standards. Title 22 sets forth the requirements with which	Less Than Significant

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Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
	monitoring well(s) associated with the groundwater TCE plume at IRP Site 2 and due to the Project site being on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5, are potentially significant without mitigation. MM HAZ-1 addresses protection of the monitoring well system during grading and construction. With implementation of this measure, impacts would be reduced to less than significant.	hazardous waste generators, transporters, and owners or operators of treatment, storage, or disposal facilities must comply. These regulations include the requirements for packaging, storing, labeling, reporting, and generally managing and disposing of hazardous waste, which shall be done in a manner meeting the satisfaction of the Manager, Orange County Health Care Agency (OCHCA)/Hazardous Materials Program prior to shipment. In addition, the regulations identify standards applicable to transporters of hazardous waste such as the requirements for transporting shipments of hazardous waste, manifesting, vehicle registration, and procedures to enact in the case of emergency accidental discharges during transportation. The County shall sign necessary hazardous and nonhazardous waste manifests as "Generator". **DR HAZ-3** If any underground storage tanks (USTs) are encountered during site grading or excavation activities, they shall be removed in accordance with the existing standards and regulations of, and oversight by, the Manager, OCHCA/Hazardous Materials Program, based on compliance authority granted through the *California Code of Regulations* (specifically, Title 23, Division 3, Chapter 16, Underground Tank Regulations). The process for UST removal is detailed in the OCHCA's *Underground Storage Tanks: The Basics* manual. Soil samples from areas where storage tanks have been removed or where soil contamination is suspected shall be analyzed for hydrocarbons, including gasoline and diesel, in accordance with procedures set forth by the OCHCA. If hydrocarbons are identified in the soil, the appropriate response/remedial measures will be implemented as directed by OCHCA with support/review from the Regional Water Quality Control Board (RWQCB) until all specified requirements are satisfied and a Tank Closure Letter is issued. Any aboveground storage tank (AST) in existence at the commencement of site development shall be removed in accordance with all applicable regulations under the oversight of Orange County Fire Authority (OCFA). Compliance requirements relative to the removal/closure of storage tanks are set forth in Sections 25280 through 25299 of the *California Health and Safety Code.* **MM HAZ-1** In the event that the Lease in Furtherance of Conveyance (LIFOC) area has not been transferred to the County by the time Project construction commences, the LIFOC area will be cordoned off and no grading or construction activities will be performed within the LIFOC area. Prior to initial grading, the County will secure from the Department of the Navy (DoN) an updated, complete listing; survey coordinates; and map showing locations of existing groundwater wells related to remedial activities within the LIFOC area. If a well or wells are part of active remediation monitoring at the time of transfer (i.e., they must be protected during grading and construction and access to them must be maintained) the final grading plan will be compared to the existing surface elevations at the location of each well and a Groundwater Well Management Plan will be prepared to ensure required access to and protection of the groundwater monitoring wells. That well plan shall, at a minimum,	

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Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
		identify how the grade at each well location is proposed to change; identify how well heads will be protected during construction (e.g., placement of k-rails or other barriers); provide the methodology for extending or shortening well casings or replacing surface completions or wells, as needed; and specify a final survey of finished well locations and elevations. The well plan will be approved by the DoN and the Regional Water Quality Control Board (RWQCB).	
Threshold 4.8-4 Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. **Threshold 4.8.5** Expose people or structures to a significant risk or loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.	The Project site is located adjacent to a VHFHSZ. There are no designated emergency evacuation routes on or immediately adjacent to the Project site. Therefore, the Project would not impact any designated evacuation routes. With implementation of the approved Fuel Modification Plan, development under the proposed Project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires. This impact is considered less than significant.	**DR HAZ-4** Prior to issuance of building permits, the Project plans shall reflect a fire protection plan that would comply with or exceed the OCFA standards for Very High Fire Hazard Severity Zone (VHFHSZ)/Special Fire Protection Areas. Fire protection measures as part of **the** Project shall include, but not be limited to, fire-resistant structures adjoining natural open space areas and fuel modification/management to help suppress wildland fires. Unless an alternative approach is approved by OCFA, the fuel modification shall occur within two zones with requirements for minimum structure setbacks, permanent irrigation systems, fire-resistant plants from an approved plant list by the OCFA/County, and landscape and planting maintenance (i.e., thinning and removal of dead plants) as described below**:** • Zone A shall consist of a 20-foot setback consisting of noncombustible construction only. • Zone B is the first 28 to 80 feet from Zone A. This zone will be cleared of all undesirable plant species, irrigated, and planted with plants as set forth in Appendix A of the Fire Behavior Report. For those areas within the Project site not capable of providing a typical 170-foot fuel modification zone, an equal but alternative method of providing fire protection shall include increasing the irrigated zone(s) and providing a six-foot-high radiant heat wall at the edge of the fuel modification zone. The radiant heat wall shall be constructed at the edge of Zone B and between the structures and the native vegetation. The radiant heat walls are perpendicular to the wind but parallel with the slope and are extremely effective when used at the top of the slope in light to moderate fuels. (Note: DR BIO-4 pertains to the design of the radiant heat walls. Should the wall design be tempered glass over block wall, the tempered glass shall be textured to minimize the potential for bird strikes.) No mitigation is required.	Less Than Significant
Section 4.9 – Hydrology and Water Quality			
Threshold 4.9-1 Violate any water quality standards or waste discharge requirements. **Threshold 4.9-5** Otherwise substantially degrade water quality.	With the implementation of the development requirements, which are provided for in the Development Plan and included in the Mitigation Program (see Section 4.9.7), the Project would not violate any water quality standards and waste discharge requirements nor would it otherwise substantially degrade water quality. The water quality-related impacts would be less than significant. Additionally, implementation of DR HWQ-4 through DR HWQ-7, which includes compliance with the	**DR HWQ-4** **Water Quality Management Plan.** Prior to the issuance of any grading or building permits, the County or its designee shall submit for review and approval by the Manager of Building & Safety, or designee, the Final Water Quality Management Plans (WQMP) specifically identifying Best Management Practices (BMPs) that will be used on site to control predictable pollutant runoff. The County or its designee shall utilize the Orange County	Less Than Significant

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Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
	Construction General Permit, preparation of an SWPPP, and General WDRs would ensure impacts to receiving waters from non-storm water flows during construction are less than significant.	Drainage Area Management Plan (DAMP), Model WQMP, and Technical Guidance Manual for reference, and the County's WQMP template for submittal. This WQMP shall include the following: • Detailed site and project description. • Potential storm water pollutants. • Post-development drainage characteristics. • Low Impact Development (LID) BMP selection and analysis. • Structural and Non-Structural source-control BMPs. • Site design and drainage plan (BMP Exhibit). • GIS coordinates for all LID and Treatment Control BMPs. • Operation and Maintenance (O&M) Plan that (1) describes the long-term operation and maintenance requirements for BMPs identified in the BMP Exhibit; (2) identifies the entity that will be responsible for long-term operation and maintenance of the referenced BMPs; and (3) describes the mechanism for funding the long-term operation and maintenance of the referenced BMPs. **DR HWQ-5** **Compliance with the National Pollutant Discharge Elimination System (NPDES) Implementation Program.** Prior to the issuance of a certificate of use and occupancy, the County or its designee shall demonstrate compliance with the County's NPDES Implementation Program in a manner meeting the satisfaction of the Manager, OC Inspection, including the following: • Demonstrate that all structural BMPs described in the BMP Exhibit from the Project's approved WQMP have been implemented, constructed, and installed in conformance with approved plans and specifications; • Demonstrate that the County or its designee has complied with all non-structural BMPs described in the Project's WQMP; • Submit for review and approval an Operations and Maintenance (O&M) Plan for all structural BMPs (the O&M Plan shall become an attachment to the WQMP; • Demonstrate that copies of the Project's approved WQMP (with attached O&M Plan) are available for each of the initial occupants; • Agree to pay for a Special Investigation from the County of Orange for a date 12 months after the issuance of a Certificate of Use and Occupancy for the Project to verify compliance with the approved WQMP and O&M Plan; and • Demonstrate that the County or its designee has recorded one of the following:	

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Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
		1. Covenants, Conditions, and Restrictions (CC&Rs), which includes the approved WQMP and O&M Plan; 2. A water quality implementation agreement that has the approved WQMP and O&M Plan attached; or 3. The final approved WQMP and O&M Plan. **DR HWQ-6** **Storm Water Pollution Prevention Plan.** Prior to the issuance of any grading or building permits, the County or its designee shall demonstrate compliance with California's General Permit for Stormwater Discharges Associated with Construction Activity by providing a copy of the Notice of Intent (NOI) submitted to the State Water Resources Control Board and a copy of the subsequent notification of the issuance of a Waste Discharge Identification (WDID) Number or other proof of filing in a manner meeting the satisfaction of the Manager of Building & Safety, or designee. Projects subject to this requirement shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP). A copy of the current SWPPP shall be kept at the Project site and be available for County review on request. **DR HWQ-7** **Erosion and Sediment Control Plan.** Prior to the issuance of any grading or building permit, the County or its designee shall submit an Erosion and Sediment Control Plan (ESCP) in a manner meeting approval of the Manager of Building & Safety, or designee, to demonstrate compliance with the County's NPDES Implementation Program and State water quality regulations for grading and construction activities. The ESCP shall identify how all construction materials, wastes, grading or demolition debris, and stockpiles of soil, aggregates, soil amendments, and other construction materials shall be properly covered, stored, and secured to prevent transport into local drainages or coastal waters by wind, rain, tracking, tidal erosion, or dispersion. The ESCP shall also describe how the County or its designee will ensure that all BMPs will be maintained during construction of any future public rights-of-way. The ESCP shall be updated as needed to address the changing circumstances of the Project site. A copy of the current ESCP shall be kept at the Project site and be available for County review on request. No mitigation is required.	
Threshold 4.9-2 Substantially alter the existing drainage pattern of the site or area including the alteration of the course of a stream or river, in manner which would result in substantial erosion or siltation on or off-site. **Threshold 4.9-3** Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite.	The Project would not alter the existing drainage pattern of the site or area in a manner that would result in substantial erosion or siltation on or off-site. The proposed improvements, including provision of detention basins, have been designed to best maintain existing drainage runoff flow patterns, when feasible. Additionally, the Project would not change the existing drainage pattern of the site in a manner that would increase the rate or amount of runoff resulting in flooding on- or off-site. Also, the Project would not exceed capacity of existing or planned stormwater drainage system or provide substantial additional sources of polluted runoff. Therefore, no significant impacts would occur with incorporation of DR HWQ-1 through DR HWQ-3. During the final design	**DR HWQ-1** **Drainage Study.** Prior to the issuance of any grading permits, the following drainage studies shall be submitted to and approved by the Manager of Building & Safety, or designee: A. A drainage study of the Project including off-site areas that drain onto and/or through the Project, and justification of any proposed diversions; B. When applicable, a drainage study evidencing that proposed drainage patterns will not overload existing storm drains; and	Less Than Significant

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Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
Threshold 4.9-4 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.	of the Project, which will build upon the existing reports, additional drainage analysis (DR HWQ-1) would be conducted to determine maximum allowed discharge for the entire Project site and for individual planning areas based on the proposed development plan and the backbone storm drain system for each area.	C. Detailed drainage studies indicating how the Project grading, in conjunction with the drainage conveyance systems (including applicable swales, channels, street flows, catch basins, storm drains, and flood water retarding) will allow building pads to be safe from inundation from rainfall runoff, which may be expected from all storms up to and including the theoretical 100-year flood. **DR HWQ-2** **Drainage Facilities.** Prior to issuance of grading or building permits, drainage studies that demonstrate the following shall be submitted to and approved by Manager of Building & Safety, or designee: 1. All surface runoff and subsurface drainage directed to the nearest acceptable drainage facility, as determined by the Manager of Building & Safety, or designee. 2. Drainage facilities discharging onto adjacent property shall be designed to imitate the manner in which runoff is currently produced from the site and in a manner meeting the satisfaction of the Manager of Building & Safety, or designee. Alternatively, the County or its designee may obtain a drainage acceptance and maintenance agreement, suitable for recordation, from the owner of said adjacent property. All drainage facilities must be consistent with the County of Orange Grading Ordinance and Local Drainage Manual. **DR HWQ-3** **Drainage Improvements** A. Prior to the issuance of any grading permits, the County or its designee shall do the following in a manner meeting the approval of the Manager of Building & Safety, or designee: 1. Design provisions for surface drainage; 2. Design all necessary storm drain facilities extending to satisfactory point of disposal for the p[roper control and disposal of storm runoff; and B. Prior to the approval of final inspection, said improvements shall be constructed, or provide evidence of finance security (such as bonding), in a manner meeting the approval of the Manager, OC Inspection. No mitigation is required.	

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Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
Section 4.10 – Land Use and Planning			
Threshold 4.10-1 Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.	<u>Consistency with Applicable Planning Documents</u> For the reasons disclosed above, the Project is not subject to the City of Irvine General Plan and Zoning Ordinance or any implementing requirements of the same and thus those are not applicable plans as defined by the CEQA significance threshold. For purposes of informed decision making, the above compares the Project to City General Plan goals and policies and analyzes whether the Project conflicts. The Project is consistent with the goals and strategies of RTP/SCS. As the Project is not included in the OCP-2014 projections, or earlier versions of the same, the Project is not included within the growth projections of regional planning programs like the RTP/SCS. With implementation of MM LU-1, as part of the next updates, the regional planning programs would be modified to reflect the growth associated with the Project and any potential land use planning inconsistency impact would be reduced to less than significant. However, in the interim, until these planning programs are amended, this impact has been identified as a significant, unavoidable impact for regional planning programs as revisions to those programs is not within the jurisdiction or control of the County. <u>Compatibility with Existing and Planned Land Uses</u> The Development Plan would introduce multi-family residential uses that would be compatible with the existing and planned land uses around the site. Additionally, the Project would have a fuel modification zone in addition to a number of neighborhood parks, focal garden, pockets parks, and ample landscaping along the Project site's perimeter that would create buffer(s) with adjacent existing and planned uses. Hence, the impacts would be less than significant as it pertains to consistency with land use plans.	**MM LU-1** The County shall provide the Project data to the Center for Demographic Research and request inclusion of the Project into the Orange County Projections (OCP) dataset, which will be used for the regional planning programs. This shall occur either through a mid-cycle update or in conjunction with the next scheduled update (anticipated in 2018).	<u>Consistency with Applicable Planning Documents</u> Significant and Unavoidable <u>Compatibility with Existing and Planned Land Uses</u> Less Than Significant
Section 4.11 – Noise			
Threshold 4.11-1 Result in exposure of persons to or generation of noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies.	Noise-generating construction activities would be limited to the hours specified in DR NOI-1, and the impact would be less than significant. On-site stationary equipment and noise-generating activities have the potential to exceed the noise level limits. Impacts would be less than significant with the implementation of MM NOI-1. Future traffic noise and event noise from Portola High School could create a potential noise incompatibility with proposed land uses. MM NOI-2 and MM NOI-3 would require Project design to reduce exterior and interior noise levels to the levels specified therein, and to provide disclosure of potential noise to residents of units with balconies. With implementation of MM NOI-2 and MM NOI-3, the impact would be less than significant.	**DR NOI-1** Construction activities shall be limited to the hours of 7:00 AM to 7:00 PM, Monday through Friday and 9:00 AM and 6:00 PM on Saturday and will not take place on Sundays or federal holidays. **MM NOI-1** Prior to the issuance of each building permit, the County or designee shall obtain the approval of the Manager of Building & Safety, or designee, for an Acoustical Analysis Report and appropriate plans that demonstrate that the noise levels generated by heating, ventilation, and air conditioning (HVAC), and similar mechanical equipment that can operate continuously at nighttime, would not exceed the nighttime noise limit of 50 dBA for a time period of 30 minutes at the nearest existing or potential future residential receptor as specified in the City of Irvine Noise Ordinance. This same 50 dBA threshold shall apply to nighttime noise levels at the Wildlife Movement Corridor and the Reserve Area. **MM NOI-2** Prior to the issuance of each building permit for a residential building, the County or designee shall obtain the approval of the Manager of Building & Safety, or designee, of an Acoustical Analysis	Less Than Significant

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Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
		Report and appropriate plans that demonstrate that the proposed site and architectural design features would provide an interior noise level of 45 A-weighted decibels (dBA) Community Noise Equivalent Level (CNEL) or less (based on buildout traffic conditions) in all habitable rooms of the proposed buildings facing Irvine Boulevard and Alton Parkway. The County or designee shall also submit building plans and specifications showing that the following occur: • All residential units shall be provided with a means of mechanical ventilation, as required by the California Building Code, for occupancy with windows closed. • All exterior use areas shall be located behind the buildings, shielded by a sound wall or other barrier, or at an adequate distance from the noise source to provide exterior noise levels not exceeding 65 dBA CNEL. Exterior use areas are defined in footnote 2 to Table 4.11-4, Irvine Interior and Exterior Noise Standards. **MM NOI-3** Prior to the issuance of each occupancy permit for a residential building with balconies with forecasted future noise levels exceeding 65 dBA CNEL, the County or designee shall obtain the approval of the Manager of Building & Safety, or designee, of the process that the Project Applicant will use to provide occupancy disclosure notices to all future tenants regarding potential noise impacts that future noise levels at the balconies may exceed 65 dBA CNEL.	
Threshold 4.11-2 Result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.	Vibration-generating construction activities could occur within the requisite distance of adjacent commercial buildings or future on-site buildings. The potential annoyance or structural damage impact, with the exception of pile-driving equipment would be less than significant. Pile-driving operations have the potential to exceed vibration impact thresholds. Impacts would be less than significant by implementation of MM NOI-4, which requires the pile driving activities to be designed to limit vibration to less than 0.24 peak particle velocity (ppv) inch per second (in/sec) or less at occupied buildings.	**MM NOI-4** Prior to the issuance of each building permit that would include pile driving, the County or designee shall obtain the approval of the Manager of Building & Safety, or designee of a vibration analysis demonstrating that the pile installation has been designed to limit vibrations to 0.24 peak particle velocity (ppv) inch per second (in/sec) or less at occupied buildings.	Less Than Significant
Threshold 4.11-3 Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.	Project-generated traffic noise increases at sensitive receptors would be less than significant. With the implementation of MM NOI-1, permanent ambient noise increases in the vicinity of the Project site generated by on-Project site sources would be less than significant.	Refer to **MM NOI-1** above.	Less Than Significant
Threshold 4.11-4 Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.	There would be a temporary increase in ambient noise levels in the Project vicinity due to Project construction, including rock crushing and pile driving. With distance, traffic noise, and implementation of MMs NOI-5 and NOI-6 the noise increase from construction activities, including rock crushing and pile driving would be less than significant at off-site sensitive receptors. Additionally, new residents of the Project would hear some of the ongoing construction noise; however, with implementation of MMs NOI-5 and NOI-6, the noise increase would be less than significant. Therefore, with implementation of mitigation measures, temporary increases in ambient noise levels due to Project	Refer to **DR NOI-1** above. **DR NOI-2** Prior to the issuance of any grading permits, the County or designee shall produce evidence acceptable to the Manager of Building & Safety, or designee, that: • All construction vehicles or equipment, fixed or mobile, operated within 1,000 feet of an occupied dwelling unit shall be equipped with properly operating and maintained mufflers.	Less Than Significant

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Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
	construction would be less than significant.	• Stockpiling and/or vehicle staging areas shall be located as far as practicable from occupied dwellings. Notations in the above format, appropriately numbered and included with other notations on the front sheet of the Project's permitted grading plans, will be considered as adequate evidence of compliance with this condition. **MM NOI-5** Prior to the issuance of a demolition permit if rock crushing is to occur on site, the County or designee Project plans shall demonstrate that the rock crusher would operate no closer than 2,350 feet from Portola High School classroom buildings or at a closer distance where it can be demonstrated that the maximum noise level with the rock crushing activities would not exceed 55 dBA Lmax and the average noise level with the rock crushing activities at the classroom buildings would be 52 dBA Leq. **MM NOI-6** Prior to the issuance of each building permit that would include pile driving, the County or designee shall obtain the approval of the Manager of Building & Safety, or designee of plans and specifications that stipulate that the Contractor shall: a. Survey pile driving equipment appropriate for the Project, which is available in the region and commercially reasonable, and select the model with the lowest noise level. b. Use cushion blocks or noise curtains or both, to minimize the pile driving noise impact to the residences, the Portola High School, and occupied buildings adjacent to the site. c. Limit, by measures (a) and (b), the maximum pile driving impact noise to the residences, the Portola High School, and occupied buildings adjacent to the site to 75 dBA L_{max}. d. Submit a memorandum to the Manager of Building & Safety, or designee documenting the equipment survey and selection, pile driving noise reduction measures, and anticipated noise levels at nearby receptors.	
Section 4.12 – Population and Housing			
Threshold 4.12-1 Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).	The Project proposes new dwelling units, which would generate approximately 1,598 new residents in the City. This growth has not been incorporated into the current long-range planning programs. Therefore, the Project would have a direct growth-inducing impact on the Project site. However, due to the nature of the Project, a substantial indirect growth-inducing impact related to the Project is not anticipated because the Project would not substantially extend infrastructure and other improvements that would encourage development levels beyond what is already planned elsewhere in the City and County. The direct growth-inducing effects would be considered a significant and unavoidable impact, as no population growth for the proposed Project was expected or included in the OCP-2014. .	No mitigation is feasible.	Significant and Unavoidable

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Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
Section 4.13 – Public Services			
Threshold 4.13-1 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: (i) Fire protection.	The Project would create the typical range of service calls for residential developments, including structural fires and emergency medical and rescue services, and hazardous materials inspections and response. With the incorporation of DR FIRE-1 through DR FIRE-5 and DR HAZ-4, Project impacts on fire protection services would be less than significant. No new or physically altered fire facilities that would result in substantial adverse physical impacts would be required as a result of the Project.	Refer to DR HAZ-4 in Section 4.8, Hazards and Hazardous Materials, above. **DR FIRE-1** **Fire Alarm and Monitoring Systems.** Prior to the issuance of a building permit which requires the installation of any fire alarm system, the County or its designee shall provide the Manager of Building & Safety, or designee, with a clearance from the Orange County Fire Authority (OCFA) indicating compliance with Guideline D-03 (New and Existing Fire Alarm & Signaling Systems). The fire alarm system shall be operational prior to the final inspection approval. **DR FIRE-2** A. **Fire Master Plan**. Prior to the issuance of a grading permit, the County or its designee must provide the Manager of Building & Safety, or designee, with proof from the OCFA indicating that a Fire Master Plan has been prepared that complies with Chapter 5 of the Fire Code and Guideline B-09 (Fire Master Plans for Commercial & Residential Development). B. **Site Access**. Prior to the issuance of any grading permit (with the exception of initial mass grading of a large-scale project), the County or its designee shall provide the Manager of Building & Safety, or designee, with proof from the OCFA indicating that a Fire Master Plan has been prepared that complies with Guideline B-09 (Fire Master Plans for Commercial & Residential Development), including identification of access to and in the project area. *Note: refer to the OCFA website to obtain a copy of Guideline B-09 for information regarding the submittal requirements. C. **Lumber Drop**. Prior to the issuance of a building permit, the County or its designee must provide the Manager of Building & Safety, or designee, with proof from OCFA allowing the introduction of combustible materials into the project area. **DR FIRE-3** **Automatic Fire Sprinkler Systems.** A. Prior to the issuance of a building permit, the County or its designee shall provide the Manager of Building & Safety, or designee, with a copy of the OCFA-approved Fire Master Plan or site plan indicating that an approved automatic fire sprinkler system will be provided. B. Prior to the final inspection approval, the automatic fire sprinkler system shall be operational in a manner meeting the approval of the Fire Chief. **DR FIRE-4** **Traffic Signal Preemption Devices.** Prior to the acceptance of public street improvements requiring installation of a traffic signal, if determined necessary by the Fire Code Official, the County or its designee shall install traffic signal preemption equipment for the surrounding signalized intersections. The clearance of this condition shall be by the Manager of Building & Safety, or designee, based on evidence that an agreement is in place or that the traffic	Less Than Significant

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Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
		signal preemption equipment has been installed. **DR FIRE-5** **Secured Fire Protection Agreement.** Prior to approval of any building permits for the Project, the County or its designee shall enter into a Secured Fire Protection Agreement with the OCFA. No mitigation is required.	
Threshold 4.13-2 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: (ii) Police protection.	The Project would increase the demand for police protection services, increasing demand by approximately 1.4 sworn officers, 0.5 non-sworn full-time professional staff, and 0.4 non-sworn part-time staff member. However, the increase of sworn and non-sworn staff members would not require new or physically altered governmental facilities. Compliance with DR FIRE-4, would further ensure that adequate police protection response times are provided. This impact is considered less than significant.	Refer to **DR FIRE-4** above. No mitigation is required.	Less Than Significant
Threshold 4.13-3 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: (iii) Schools.	The Proposed Project would generate approximately 208 students in the IUSD. The Project would be required to comply with the California Government Code (payment of State-mandated school fees). Therefore, with payment of State-mandated school fees, impacts to schools would be less than significant. While the provision of portable classroom facilities may be required to accommodate Project generated students, the provision of these facilities would not exceed student capacity guidelines for new schools pursuant to IUSD Board Policy 7112 and would not result in substantial adverse physical impacts. .	No mitigation is required.	Less Than Significant
Threshold 4.13-5 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: (v) Other Public Facilities.	With an increase of approximately 1,535 residents, the Project would result in additional demand on the OCPL. However, the County has not established a service standard and no such standard has been set forth by the American Library Association. Library services have changed in the last five years and according to the OCPL, the focus is on incorporating electronic materials (e-materials) and not on volumes in the traditional sense. The OCPL has indicated there are no plans to construct new libraries to serve the Project area. Therefore, the Project would not, in and of itself, trigger the construction of new or expanded library facilities, and the impact is less than significant.	No mitigation is required.	Less Than Significant

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Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
Section 4.14 – Recreation			
Threshold 4.14-1 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.	The proposed Project would increase demand for recreational facilities and amenities by introducing increased population in the area. However, the Project has committed to providing parkland in accordance with the provisions of the Development Plan (DR REC-1). This would be accomplished through the provision of active and passive parks and recreational facilities proposed as part of the Project. Though the residents of the Project would reasonably avail themselves of recreational facilities within the City and/or the County, including the OCGP, regional parks, and beaches, the anticipated increase in usage would not be substantial in light of the regional design of these recreational amenities nor would it accelerate substantial physical deterioration of these facilities. Therefore, the potential long-term impact to recreation would be less than significant. However, there is the potential for a temporary shortage of parkland should the occupancy of Planning Area 1 occur prior to construction of the proposed park within the LIFOC area. Since the County does not control the issuance of FOST, this would be considered a potential short-term significant and unavoidable impact.	**DR REC-1** The County or designee shall provide parkland through an open space system within the Project site in accordance with the *West Alton Parcel Development Plan*. No mitigation is required.	Less Than Significant
Threshold 4.14-2 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 include recreational facilities and amenities through a system of parks, recreational facilities and open space in the development. These facilities would meet the needs of the future residents and users of the development and any adverse physical effects associated with implementation of these improvements are addressed elsewhere in this EIR. Given the availability of recreational facilities within the Project, the proposed Project would not require the construction or expansion of other recreational facilities that might have any adverse physical effects on the environment. No additional recreational facilities, beyond those associated with the Project, are proposed that would adversely impact the environment. Therefore, the potential impact to recreation would be less than significant.	No mitigation required.	Less Than Significant
Section 4.15 – Transportation/Traffic			
City of Irvine **Threshold 4.15-1** In the City of Irvine outside the Irvine Planning Area, Irvine Business Complex (IBC), the Bake Parkway/I-5 ramp, the Alton Parkway/Irvine Boulevard intersection, the Bake Parkway/Irvine Boulevard intersection, the Lake Forest/I-5 SB Ramp, and the Lake Forest/Irvine Center Drive, the addition of Project-generated trips increases the ICU at a study intersection by 0.02 or more of capacity, causing the intersection to change from an acceptable LOS D to LOS E or LOS F. **Threshold 4.15-2** In the City of Irvine not addressed by Threshold 4.15-1, the addition of Project-generated trips increases the ICU at a study intersection by 0.02 or more of capacity, causing the intersection to change from an acceptable LOS E to LOS F. **Threshold 4.15-3** In the City of Irvine outside of the Irvine Planning Area, Irvine Business	Based on the traffic data analysis and the threshold evaluations above, the proposed Project would not result in significant impacts in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios. However, the Project would contribute to a significant impact at the Jamboree Road northbound ramps and Warner Avenue intersection in the Year 2035 scenario.	No mitigation is required. **DR TRAN-3** Prior to the issuance of any building permits, the County or its designee shall deliver an irrevocable offer to dedicate a traffic signal maintenance easement to the applicable jurisdiction at the applicable Project site access points along Irvine Boulevard in a manner meeting the approval of the Manager of Building & Safety, or designee. **MM TRAN-1** The County of Orange or its designee, shall coordinate with the City of Irvine to implement optimal signal timing adjustments during each phase of Project implementation at the Jeffrey Road and Walnut Avenue Intersection. **MM TRAN-3** The County of Orange or its designee shall make a request to the City of Irvine to become a member of the NITM Program or enter into a separate formal agreement with the City of Irvine for the payment of their fair-share of the improvements identified in the NITM Program. If a separate formal agreement is to be	Existing Plus Project Scenario Less Than Significant 2017 Plus Project Scenario Less Than Significant 2035 Plus Project Scenario Less Than Significant Post-2035 Plus Project Scenario Less Than Significant 2035 Plus Project with Pending Project Scenario (Cumulative) Contributes to a Significant Unavoidable Impact Post-2035 Plus Project with Pending Project Scenario (Cumulative) Less Than Significant

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SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE

Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
Complex (IBC), the Bake Parkway/I-5 ramp, the Alton Parkway/Irvine Boulevard intersection, the Bake Parkway/Irvine Boulevard intersection, the Lake Forest/I-5 SB Ramp, and the Lake Forest/Irvine Center Drive, the addition of project-generated trips increases the ICU by 0.02 or more at a study intersection operating at LOS E or F under baseline conditions. **Threshold 4.15-4** In the City of Irvine outside of those identified by Threshold T-3, the addition of project-generated trips increases the ICU by 0.02 or more at a study intersection operating at LOS F under baseline conditions. **Threshold 4.15-5** In the City of Irvine outside of PA33 (Irvine Spectrum Area) and PA36 (IBC), the addition of project generated trips increases the daily and peak hour V/C ratio on a roadway segment by more than 0.02 on a roadway segment, causing the roadway segment to change from an acceptable LOS D or better to LOS E or F. **Threshold 4.15-6** In the City of Irvine in PA33 (Irvine Spectrum Area) and PA36 (IBC), the addition of project generated trips increases the daily and peak hour V/C ratio on a roadway segment by more than 0.02 on a roadway segment, causing the roadway segment to change from an acceptable LOS E or better to LOS F. **Threshold 4.15-7** In the City of Irvine outside of PA33 (Irvine Spectrum Area) and PA36 (IBC), the addition of project generated trips increases the daily and peak hour V/C ratio on a roadway segment by more than 0.02 on a roadway segment operating at LOS E or F. **Threshold 4.15-8** In the City of Irvine in PA33 (Irvine Spectrum Area) and PA36 (IBC), the addition of project generated trips increases the daily and peak hour V/C ratio on a roadway segment by more than 0.02 on a roadway segment operating at LOS F. **Threshold 4.15-9** In the City of Irvine, the addition of project generated trips increases the V/C ratio on a freeway ramp to increase by more than 0.02, causing the freeway ramp segment to change from an acceptable LOS E or better to LOS F. **Threshold 4.15-10** In the City of Irvine, the addition of project generated trips increases the V/C ratio on a freeway ramp to increase by more than 0.02, on a freeway ramp segment operating at LOS F.		implemented, the agreement shall be entered into prior to the issuance of building permits to ensure the fair-share allocation is distributed to all development within Project. Provided the County becomes a member of NITM or a separate agreement is reached, payment of the fees shall be done prior to the issuance of applicable building permits or pursuant to the payment schedule developed in conjunction with the formal agreement with the City of Irvine. If there are delays in reaching agreement, the fair-share allocation will be only applicable to the portion of future development where building permits have not been issued. The County would contribute to these improvements on a fair share basis. • Jamboree Road NB ramps and Warner Avenue: Impacts to this ramp can be mitigated by installing an east-west split signal phase, restriping the inner northbound through lane to shared left-through lane, and adding a second receiving lane on the Jamboree on-ramp. • Jeffrey Road and Walnut Avenue: Impacts to this ramp can be mitigated by restriping the westbound through lane to a shared through-right lane. • Jeffrey Road and I-405 NB: Impacts to this ramp can be mitigated by restriping the outer southbound through lane to a shared through-right lane. • Fortune Drive and I-5 SB and Enterprise Drive: Impacts to this ramp can be mitigated by adding a second eastbound left turn lane. • Bake parkway and I-5 SB: Impacts to this intersection can be mitigated by adding a northbound right turn lane. • SR-133 SB and Irvine Boulevard: Impacts to this intersection can be mitigated by restriping the southbound left turn lane to a shared left-right lane.	
City of Tustin **Threshold 4.15-11** In the City of Tustin, the addition of project-generated trips increases the ICU at a study intersection by 0.02 or more of capacity, causing the intersection to change from an acceptable LOS D to LOS E or LOS F. **Threshold 4.15-12** In the City of Tustin, the addition of project-generated trips increases the ICU by 0.02 or more at a study intersection operating at LOS E or F under	Based on the traffic data analysis and the threshold evaluations above, the proposed Project would not result in significant impacts in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios.	No mitigation is required.	Less Than Significant

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Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
baseline conditions. **Threshold 4.15-13** In the City of Tustin, the addition of project generated trips increases the daily and peak hour V/C ratio on a roadway segment by more than 0.02 on a roadway segment, causing the roadway segment to change from an acceptable LOS D or better to LOS E or F. **Threshold 4.15-14** In the City of Tustin, the addition of project generated trips increases the daily and peak hour V/C ratio on a roadway segment by more than 0.02 on a roadway segment operating at LOS E or F. **Threshold 4.15-15** In the City of Tustin, the addition of project generated trips increases the V/C ratio on a freeway ramp to increase by more than 0.02, causing the freeway ramp segment to change from an acceptable LOS E or better to LOS F. **Threshold 4.15-16** In the City of Tustin, the addition of project generated trips increases the V/C ratio on a freeway ramp to increase by more than 0.02, on a freeway ramp segment operating at LOS F.			
City of Laguna Beach **Threshold 4.15-17** In the City of Laguna Beach, the addition of project-generated trips increases the ICU at a study intersection by 0.02 or more of capacity, causing the intersection to change from an acceptable LOS D to LOS E or LOS F. **Threshold 4.15-18** In the City of Laguna Beach, the addition of project-generated trips increases the ICU by 0.02 or more at a study intersection operating at LOS E or F under baseline conditions. **Threshold 4.15-19** In the City of Laguna Beach, the addition of project generated trips increases the daily and peak hour V/C ratio on a roadway segment by more than 0.02 on a roadway segment, causing the roadway segment to change from an acceptable LOS D or better to LOS E or F. **Threshold 4.15-20** In the City of Laguna Beach, the addition of project generated trips increases the daily and peak hour V/C ratio on a roadway segment by more than 0.02 on a roadway segment operating at LOS E or F. **Threshold 4.15-21** In the City of Laguna Beach, the addition of project generated trips increases the V/C ratio on a freeway ramp to increase by more than 0.02, causing the freeway ramp segment to change from an acceptable LOS E or better to LOS F. **Threshold 4.15-22** In the City of Laguna Beach, the addition of project generated trips increases the V/C ratio on a freeway ramp to increase by more than 0.02, on a freeway ramp segment operating at LOS F.	Based on the traffic data analysis and the threshold evaluations above, the proposed Project would not result in significant impacts in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios.	No mitigation is required.	Less Than Significant

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SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE

Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
City of Lake Forest **Threshold 4.15-23** In the City of Lake Forest, the addition of Project-generated trips increases the ICU at a study intersection by 0.02 or more of capacity, causing the intersection to change from an acceptable LOS D to LOS E or LOS F. **Threshold 4.15-24** In the City of Lake Forest, the addition of Project-generated trips increases the ICU by 0.02 or more at a study intersection operating at LOS E or F under baseline conditions. **Threshold 4.15-25** In the City of Lake Forest, the addition of Project-generated trips increases the daily and peak hour V/C ratio by more than 0.02 on a roadway segment, causing the roadway segment to change from an acceptable LOS D or better to LOS E or F. **Threshold 4.15-26** In the City of Lake Forest, the addition of Project-generated trips increases the daily and peak hour V/C ratio by more than 0.02 on a roadway segment operating at LOS E or F. **Threshold 4.15-27** In the City of Lake Forest, the addition of Project-generated trips increases the V/C ratio on a freeway ramp by more than 0.02, causing the freeway ramp segment to change from an acceptable LOS E or better to LOS F. **Threshold 4.15-28** In the City of Lake Forest, the addition of Project-generated trips increases the V/C ratio by more than 0.02 on a freeway ramp segment operating at LOS F.	Based on the traffic data analysis and the threshold evaluations above, the proposed Project would not result in significant impacts in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios.	No mitigation is required.	Less Than Significant
City of Laguna Hills **Threshold 4.15-29** In the City of Laguna Hills, the addition of Project-generated trips increases the ICU at a study intersection by 0.02 or more of capacity, causing the intersection to change from an acceptable LOS D to LOS E or LOS F. **Threshold 4.15-30** In the City of Laguna Hills, the addition of Project-generated trips increases the ICU by 0.02 or more at a study intersection operating at LOS E or F under baseline conditions. **Threshold 4.15-31** In the City of Laguna Hills, the addition of Project-generated trips increases the daily and peak hour V/C ratio on a roadway segment by more than 0.02, causing the roadway segment to change from an acceptable LOS D or better to LOS E or F. **Threshold 4.15-32** In the City of Laguna Hills, the addition of Project-generated trips increases the V/C ratio on a roadway segment by more than 0.02 operating at LOS E or F.	Based on the traffic data analysis and the threshold evaluations above, the proposed Project would not result in significant impacts in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios.	No mitigation is required.	Less Than Significant

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Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
Threshold 4.15-33 In the City of Laguna Hills, the addition of Project-generated trips increases the V/C ratio on a freeway ramp by more than 0.02, causing the freeway ramp segment to change from an acceptable LOS E or better to LOS F. **Threshold 4.15-34** In the City of Laguna Hills, the addition of Project-generated trips increases the V/C ratio by more than 0.02 on a freeway ramp segment operating at LOS F.			
City of Laguna Woods **Threshold 4.15-35** In the City of Laguna Woods, the addition of Project-generated trips increases the ICU at a study intersection by 0.02 or more of capacity, causing the intersection to change from an acceptable LOS D to LOS E or LOS F. **Threshold 4.15-36** In the City of Laguna Woods, the addition of Project-generated trips increases the ICU by 0.02 or more at a study intersection operating at LOS E or F under baseline conditions. **Threshold 4.15-37** In the City of Laguna Woods, the addition of Project-generated trips increases the daily and peak hour V/C ratio by more than 0.02 on a roadway segment, causing the roadway segment to change from an acceptable LOS D or better to LOS E or F. **Threshold 4.15-38** In the City of Laguna Woods, the addition of Project-generated trips increases the daily and peak hour V/C ratio by more than 0.02 on a roadway segment operating at LOS E or F. **Threshold 4.15-39** In the City of Laguna Woods, the addition of Project-generated trips increases the V/C ratio on a freeway ramp by more than 0.02, causing the freeway ramp segment to change from an acceptable LOS E or better to LOS F. **Threshold 4.15-40** In the City of Laguna Woods, the addition of Project-generated trips increases the V/C ratio by more than 0.02 on a freeway ramp segment operating at LOS F.	Based on the traffic data analysis and the threshold evaluations above, the proposed Project would not result in significant impacts in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project and Post-2035 Plus Project scenarios.	No mitigation is required.	Less Than Significant
City of Aliso Viejo **Threshold 4.15-41** In the City of Aliso Viejo, the addition of Project-generated trips increases the ICU at a study intersection by 0.02 or more of capacity, causing the intersection to change from an acceptable LOS D to LOS E or LOS F. **Threshold 4.15-42** In the City of Aliso Viejo, the addition of Project-generated trips increases the ICU by 0.02 or more at a study intersection operating at LOS E or F under baseline conditions. **Threshold 4.15-43** In the City of Aliso Viejo, the addition of Project-generated trips increases the	Based on the traffic data analysis and the threshold evaluations above, the proposed Project would not result in significant impacts in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios.	No mitigation is required.	Less Than Significant

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SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE

Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
daily and peak hour V/C ratio by more than 0.02 on a roadway segment, causing the roadway segment to change from an acceptable LOS D or better to LOS E or F. **Threshold 4.15-44** In the City of Aliso Viejo, the addition of Project generated trips increases the daily and peak hour V/C ratio by more than 0.02 on a roadway segment operating at LOS E or F. **Threshold 4.15-45** In the City of Aliso Viejo, the addition of Project-generated trips increases the V/C ratio on a freeway ramp by more than 0.02, causing the freeway ramp segment to change from an acceptable LOS E or better to LOS F. **Threshold 4.15-46** In the City of Aliso Viejo, the addition of Project-generated trips increases the V/C ratio by more than 0.02, on a freeway ramp segment operating at LOS F.			
City of Mission Viejo **Threshold 4.15-47** In the City of Mission Viejo, the addition of Project-generated trips increases the ICU at a study intersection by 0.02 or more of capacity, causing the intersection to change from an acceptable LOS D to LOS E or LOS F. **Threshold 4.15-48** In the City of Mission Viejo, the addition of Project-generated trips increases the ICU by 0.02 or more at a study intersection operating at LOS E or F under baseline conditions. **Threshold 4.15-49** In the City of Mission Viejo, the addition of Project-generated trips increases the daily and peak hour V/C ratio by more than 0.02 on a roadway segment, causing the roadway segment to change from an acceptable LOS D or better to LOS E or F. **Threshold 4.15-50** In the City of Mission Viejo, the addition of Project-generated trips increases the daily and peak hour V/C ratio by more than 0.02 on a roadway segment operating at LOS E or F. **Threshold 4.15-51** In the City of Mission Viejo, the addition of Project-generated trips increases the V/C ratio on a freeway ramp by more than 0.02, causing the freeway ramp segment to change from an acceptable LOS E or better to LOS F. **Threshold 4.15-52** In the City of Mission Viejo, the addition of Project-generated trips increases the V/C ratio by more than 0.02 on a freeway ramp segment operating at LOS F.	Based on the traffic data analysis and the threshold evaluations above, the proposed Project would not result in significant impacts in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project and Post-2035 Plus Project scenarios.	No mitigation is required.	Less Than Significant
City of Orange **Threshold 4.15-53** In the City of Orange, the addition of Project-generated trips increases the ICU at a study intersection by 0.02 or more of capacity, causing the intersection to change from an acceptable LOS D to LOS E or LOS F.	Based on the traffic data analysis and the threshold evaluations above, the proposed Project would not result in significant impacts in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios.	No mitigation is required.	Less Than Significant

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SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE

Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
Threshold 4.15-54 In the City of Orange, the addition of Project-generated trips increases the ICU by 0.02 or more at a study intersection operating at LOS E or F under baseline conditions. **Threshold 4.15-55** In the City of Orange, the addition of Project-generated trips increases the daily and peak hour V/C ratio by more than 0.02 on a roadway segment, causing the roadway segment to change from an acceptable LOS D or better to LOS E or F. **Threshold 4.15-56** In the City of Orange, the addition of Project-generated trips increases the daily and peak hour V/C ratio by more than 0.02 on a roadway segment operating at LOS E or F. **Threshold 4.15-57** In the City of Orange, the addition of Project-generated trips increases the V/C ratio on a freeway ramp by more than 0.02, causing the freeway ramp segment to change from an acceptable LOS E or better to LOS F. **Threshold 4.15-58** In the City of Orange, the addition of Project-generated trips increases the V/C ratio by more than 0.02 on a freeway ramp segment operating at LOS F.			
County of Orange **Threshold 4.15-59** In the County of Orange, the addition of Project-generated trips increases the ICU at a study intersection by 0.01 or more of capacity, causing the intersection to change from an acceptable LOS D to LOS E or LOS F. **Threshold 4.15-60** In the County of Orange, the addition of Project-generated trips increases the ICU by 0.01 or more at a study intersection operating at LOS E or F under baseline conditions. **Threshold 4.15-61** In the County of Orange, the addition of Project-generated trips increases the daily and peak hour V/C ratio by more than 0.01 on a roadway segment, causing the roadway segment to change from an acceptable LOS D or better to LOS E or F. **Threshold 4.15-62** In the County of Orange, the addition of Project-generated trips increases the daily and peak hour V/C ratio by more than 0.01 on a roadway segment operating at LOS E or F. **Threshold 4.15-63** In the County of Orange, the addition of Project-generated trips increases the V/C ratio on a freeway ramp by more than 0.01, causing the freeway ramp segment to change from an acceptable LOS E or better to LOS F. **Threshold 4.15-64** In the County of Orange, the addition of Project-generated trips increases the V/C ratio by more than 0.01 on a freeway ramp segment operating at LOS F.	Based on the traffic data analysis and the threshold evaluations above, the proposed Project would not result in significant impacts in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios.	No mitigation is required.	Less Than Significant

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SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE

Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
Caltrans (Intersections) **Threshold 4.15-65** The addition of Project-generated trips causes the LOS at a study intersection to degrade from LOS A, B, or C to D, E, or F (as measured by the application of the HCM methodologies). **Threshold 4.15-66** The addition of Project-generated trips causes any increase in delay at a study intersection (as measured by the application of HCM methodologies) where the intersection operates at LOS D, E, or F prior to the addition of Project traffic. ***Caltrans (Mainline Freeway Facilities)*** **Threshold 4.15-67** The addition of Project-generated trips increases the V/C on a freeway mainline by more than 0.03, and causes the LOS to degrade from LOS A, B, C, D, or E to LOS F. **Threshold 4.15-68** The addition of project-generated trips increases the V/C on a freeway mainline by more than 0.03 on a facility operating at LOS F prior to the addition of Project traffic.	Based on the traffic data analysis and the threshold evaluations above, the proposed Project would result in significant impacts pursuant to Caltrans thresholds of significance (Thresholds 4.15-66 through 4.15-68) in the Existing Plus Project scenario. For this scenario one intersection pursuant to Threshold 4.15-66 and six mainline freeway segments pursuant to Thresholds 4.15-67 and 4.15-68 would have significant impacts. For the Year 2017 Plus Project scenario, there would be significant impacts at three intersections pursuant to Thresholds 4.15-65 and 4.15-66, and there would be no impact to mainline freeway segments pursuant to Thresholds 4.15-67 and 4.15-68. For Post-2035 Plus Project scenario, there would be impacts to eight intersections pursuant to Threshold 4.15-66, and there would be no impact to mainline freeway segments pursuant to Thresholds 4.15-67 and 4.15-68. For the Year 2035 Plus Project scenarios, there would be impacts to eight intersections pursuant to Threshold 4.15-66, and there would be one impact to mainline freeway segments pursuant to Threshold 4.15-68. While potential mitigation for the impacts to the intersections have been recommended and imposed that would reduce Project impacts to a less than significant level, the feasibility of the mitigation is uncertain and outside the control of the County of Orange; therefore, the impacts would remain significant and unavoidable. However, mitigation for impacts to freeway mainline segments would not be technically and financially feasible in addition to being outside the control of the County of Orange. Therefore, the impacts would remain significant and unavoidable (see Section 4.15.8, Mitigation Program for a discussion of the mitigation approach).	**DR TRAN-1** Prior to issuance of building permits, the County or its designee shall pay applicable fees for the Major Thoroughfare and Bridge Fee Program (i.e., Foothill/Eastern Transportation Corridor Zone A) in a manner meeting the approval of the Manager of Building & Safety, or designee. Refer to **DR TRAN-3** above. **MM TRAN-2** The County of Orange or its designee, shall coordinate with Caltrans to implement optimal signal timing adjustments during each phase of Project implementation at the following locations: • Jeffery Road and I-5 NB • Sand Canyon Avenue and I-5 NB • Jeffrey Road and I-405 NB • Sand Canyon Avenue and I-5 SB • Fortune Drive and I-5 SB and Enterprise Drive (as part of additional mitigation measures) • Bake Parkway and I-5 SB (as part of additional mitigation measures) • Trabuco Road and SR-133 SB • Trabuco Road and SR-133 NB • SR-133 SB and Irvine Boulevard (as part of additional mitigation measures) Refer to **MM TRAN-3** above.	Significant and Unavoidable
Orange County Transportation Authority Congestion Management Program **Threshold 4.15-69** The addition of Project-generated trips causes the LOS at a study intersection in the Orange County Transportation Authority Congestion Management Program to change from an acceptable LOS E to LOS F. **Threshold 4.15-70** The addition of Project-generated trips increases the ICU by 0.03 or more at a study intersection operating at LOS F under baseline conditions. **Threshold 4.15-71** The Project will not conflict with an applicable congestion management program, including, but not limited to LOS standard and travel demand measures, or other standards established by the County congestion management agency for designated roads or highways.	Project-generated trips would not cause the LOS at a study intersection under the jurisdiction of OCTA CMP to change from an acceptable LOS E to LOS F. Additionally proposed Project-generated trips would not increase the ICU by 0.03 or more at a CMP study intersection operating at LOS F under baseline conditions. The proposed Project would not conflict with applicable CMP standards. No impacts would occur.	No mitigation is required.	No Impact

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Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
General CEQA thresholds **Threshold 4.15-72** The Project will not substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).	With implementation of DRs TRAN-4 through TRAN-6, which requires compliance with applicable City or County requirements, Project-generated traffic would not substantially increase hazards due to a design feature including, without limitations, connections with external roadways. Compliance with the Circulation Design Guidelines in the Development Plan (e.g., safety enhancing features and speed reduction mechanisms) would also avoid any potentially significant impacts. Further, based on the nature of the uses and the design of the Project, the Project would not substantially increase hazards due to incompatible uses. Therefore, the Project would have a less than significant impact.	**DR TRAN-4** Prior to the issuance of any grading permits, the County or its designee shall provide adequate sight distance per Standard Plan 1117 at all street intersections, in a manner meeting the approval of the Manager of Building & Safety, or designee. The Project Applicant shall make all necessary revisions to the plan to meet the sight distance requirement such as removing slopes or other encroachments from the limited use area in a manner meeting the approval of the Manager of Building & Safety, or designee. **DR TRAN-5** In conjunction with Level I, II, or III reviews, individual development projects under the Development Plan that connect with external roadways shall be evaluated for consistency with applicable design requirements outlined in the City of Irvine *Transportation Design Procedures* or County of Orange equivalency. Consistency with the design requirements shall be in a manner meeting the approval of the Manager of Building & Safety, or designee. **DR TRAN-6** The County should prepare a construction traffic management plan, in coordination with the adjacent cities, prior to commencement of construction. The plan should address routing, hours, provisions for over-sized equipment, and site access. The County or its designee shall submit the final plan to the City of Irvine and monitor implementation throughout the construction process. No mitigation is required.	Less Than Significant
Threshold 4.15-73 The Project will not result in inadequate emergency access.	The proposed Project would not result in inadequate emergency access. The Project has been planned to be consistent with applicable emergency access requirements. Impacts would be less than significant.	No mitigation is required.	Less Than Significant
Threshold 4.15-74 The Project will not conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.	The Project would not conflict with adopted polices, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. The Project will create a multi-model circulation system that would accommodate various modes of transportation and facilitate connections to off-site public transit options. Implementation of DR TRAN-2 addresses the required improvements. Impacts would be less than significant.	**DR TRAN-2** Prior to issuance of a grading permit the County or its designee shall design and construct, or provide evidence of an acceptable form of financial security, that improvements (i.e., streets, bus stops, on-road bicycle trails, street names, signs, striping and stenciling) shall be done in accordance with plans and specifications meeting the approval of the Manager of Building & Safety, or designee. Further, all underground traffic signal conduits (e.g., signals, phones, power, loop detectors, etc.) and other appurtenances (e.g., pull boxes, etc.) needed for future traffic signal construction, and for future interconnection with adjacent intersections, shall be constructed all in accordance with plans and specifications meeting the approval of the Manager of Building & Safety, or designee.	Less Than Significant
Section 4.16 – Utilities and Service Systems			
Threshold 4.16-1 Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.	The Project proposes typical urban uses, and would be required to comply with all applicable wastewater discharge requirements, as enforced by the Santa Ana RWQCB. Therefore, the Project's impacts would be less than significant.	No mitigation is required.	Less Than Significant

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SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE

Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
Threshold 4.16-2 Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental impacts.	The Project would require water (potable and nonpotable) and wastewater service from the IRWD. A Conditional Water and Sewer Will Serve Letter has been issued by IRWD (IRWD 2015c) indicating IRWD has sufficient capacity and will provide required water and wastewater services based on the identified Project. IRWD approved a Water Supply Verification on May 23, 2016 (IRWD 2016b), which confirmed the availability of water supply for the Project. Existing deficiencies in IRWD Sewer Reach B and the Alton Trunk Sewer wastewater drainage areas, identified by IRWD, are considered capital improvements to be provided by IRWD to service its customers in the Great Park Neighborhoods and the expansion of the Musick Jail. IRWD has committed to provide the necessary improvements required to provide service to the Project. The improvements to Reach B and the Alton Trunk Sewer will be implemented by IRWD independent of whether the Project proceeds, are part of the District's Capital Improvement Program and the potential for environmental impacts would be addressed by IRWD pursuant to CEQA prior to these improvements being constructed. The off-site Non-capital improvements to IRWD sewer lines to serve the Project are addressed in this EIR, and no further environmental impacts are anticipated. The Project would not require the construction or expansion of new water or wastewater treatment facilities or expansion of existing treatment facilities. Based on the IRWD demands for nonpotable water in the year 2035, which are estimated to vary from approximately 25.9 mgd for a normal year supply and demand condition up to 29.7 mgd for an estimated maximum dry supply and demand condition, primary treatment capacity of 33.5 mgd at the MWRP and the LAWRP combined would be able to accommodate all wastewater discharges to satisfy IRWD's estimated demands for delivery of nonpotable water to its customers. The Project would not require the construction or expansion of new water or wastewater treatment facilities or expansion of existing treatment facilities. The Project would be required to construct sewer lines and local sewer collection facilities; however, the impacts associated with the construction of the local facilities have been addressed as part of the Project and no further environmental impacts are anticipated. Based on the Water Supply Verification issued for the Project (IRWD 2016b), wastewater flows from the proposed Project would be accommodated and impacts would be less than significant.	No mitigation is required.	Less Than Significant
Threshold 4.16-3 Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which would cause significant environmental effects.	As discussed in Section 4.9, Hydrology and Water Quality, construction of new storm drain facilities associated with the proposed Project would result in a less than significant impact. Development requirements identified in Section 4.9 would be applicable to the proposed Project.	No mitigation is required.	Less Than Significant
Threshold 4.16-4 Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed.	The Project would require water supplies from IRWD. The WSA shows that the IRWD has available water supplies (current and under development supplies) to meet the water demands of the project for the next 20 years (through 2035), including demands during normal, single-dry, and multiple-dry years. The IRWD has concurred with the findings of the WSA that available water supplies (potable and nonpotable) would be adequate to serve the Project. IRWD also approved a Water	No mitigation is required.	Less Than Significant

TABLE 1-1
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE

Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
	Supply Verification on May 23, 2016, which confirmed the availability of water supply for the Project. Therefore, impacts would be less than significant.		
Threshold 4.16-5 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.	IRWD would provide wastewater treatment service to the Project. Based on IRWD demands for nonpotable water in the year 2035, which is estimated to vary from approximately 25.9 mgd for a normal year supply and demand condition up to 29.7 mgd for an estimated maximum dry supply and demand condition (as identified in the Project's WSA), the recently completed MWRP capacity expansion along with the current primary treatment capacity at the LAWRP (a combined total of 33.5 mgd) would be able to accommodate all wastewater discharges to satisfy IRWD's estimated demands for delivery of nonpotable water to its customers. IRWD has provided a Conditional Water and Sewer Will Service Letter (December 17, 2015), which indicates that IRWD would provide sewer service to the Project conditioned upon the County providing the construction of additional sewer trunk lines and local sewer collection facilities and necessary in-tract sewer mains. In addition, the Project would use future improvements identified by IRWD as part of its Capital Improvement Program. IRWD would have available wastewater treatment capacity to treat wastewater flows from the project. In addition, with IRWD's commitment and implementation of DR UTIL-1, wastewater flows from the proposed Project would be accommodated by IRWD and potential impacts related to wastewater treatment capacity would be less than significant.	**DR UTIL-1** Prior to issuance of a grading permit, the County or its designee shall provide evidence acceptable to the Manager of Building & Safety, or designee that the South Coast Air Quality Management District (SCAQMD)-approved Dust Control Plan utilizes recycled water and not potable water for dust abatement. No mitigation is required.	Less Than Significant
Threshold 4.16-6 Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	There is sufficient solid waste disposal capacity in the existing landfills to meet the Project's solid waste disposal needs. Therefore, Project impacts to landfill capacity would be less than significant.	No mitigation is required.	Less Than Significant
Threshold 4.16-7 Comply with federal, state, and local statutes and regulations related to solid waste?	The proposed Project would comply with applicable solid waste statutes and regulations, including waste diversion programs. DR UTIL-2 would be implemented with the proposed Project. Impacts to solid waste statutes and regulations would be less than significant.	**DR UTIL-2** The County or its designee shall comply with the minimum solid waste diversion requirements of Assembly Bill (AB) 939, Senate Bill (SB) 1610, and SB 341 for solid waste generated during demolition, construction, and operation. Construction and demolition solid waste diversion compliance shall be done through the implementation of the OC Waste & Recycling's Construction & Demolition Program or comparable measures to the satisfaction of the Manager of Building & Safety, or designee. Pursuant to the Orange County Code of Ordinances, Title 4, Division 3, Article 2 (Solid Waste Management), Section 4-3-67 Franchise Required for Solid Waste Collection Services, waste diversion and recycling would be the responsibility of the designated franchise waste hauler under contract to the County. No mitigation is required.	Less Than Significant

1.10 REFERENCES

Irvine, City of. 2015a (current through). *City of Irvine General Plan.* Irvine, CA: the City. http://www.cityofirvine.org/community-development/current-general-plan.

———. 2015b (August 15). Memo: General Plan Supplement No. 9. Irvine, CA the City. https://alfresco.cityofirvine.org/alfresco/guestDownload/direct?path=/Company%20Home/Shared/CD/Planning%20and%20Development/General%20Plan/Supplement%209%20package.pdf.

Irvine, City of, Irvine Redevelopment Agency, and County of Orange (Irvine et al.). 2003 (March 4). Property Tax Transfer and Pre-Annexation Agreement among the City of Irvine, the Irvine Redevelopment Agency, and the County of Orange, Regarding the Annexation and Reuse of Former MCAS El Toro.

KTGY. 2016 (November). *West Alton Parcel Development Plan.* Irvine, CA: KTGY.

Orange, County of. 2014a (January 28, meeting date). Agenda Staff Report: Development Agreement with Lowe Enterprises for Development of El Toro Parcels. Santa Ana, CA: the County.

———. 2014b (December). *Notice of Preparation of an Environmental Impact Report and Notice of Scoping Meeting, West Alton Development Plan, County of Orange.* Santa Ana, CA: the County.

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2.0 INTRODUCTION, PROJECT HISTORY, AND SETTING

2.1 PURPOSE OF THIS ENVIRONMENTAL IMPACT REPORT

The California Environmental Quality Act (CEQA) (*California Public Resources Code* [PRC], Section 21002.1) states that the purpose of an environmental impact report (EIR) is to identify the significant effects of a project on the environment; to identify alternatives to the Project; and to indicate the manner in which those significant impacts can be mitigated or avoided. A detailed description of the proposed Development Plan (the Project) and the proposed Conceptual Site Plan, a representative example of what the Development Plan authorizes, is provided in Section 3.0, Project Description, of this EIR.

The Project requires approval of certain discretionary actions by the County of Orange (County). For purposes of complying with CEQA, the County is the Lead Agency for the Project.

In accordance with Section 15121(a) of the State CEQA Guidelines, this EIR is an informational document that will inform public agency decision makers and the general public of (1) the significant environmental effects of the Project; (2) possible ways to minimize the significant effects; and (3) reasonable alternatives to the Project. Decisionmakers are required to consider the information in the EIR, in determining whether to approve, deny or modify the Project.

2.2 TYPE OF ENVIRONMENTAL IMPACT REPORT AND STANDARDS OF ADEQUACY UNDER THE CALIFORNIA ENVIRONMENTAL QUALITY ACT

This EIR has been prepared in accordance with CEQA (PRC, Section 21000 et seq.) and the State CEQA Guidelines (Title 14, *California Code of Regulations* [CCR] Section 15000 et seq.). Section 15151 of the State CEQA Guidelines defines the standards of adequacy for an EIR as follows:

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

Section 15161 of the State CEQA Guidelines states, "the most common type of EIR examines the environmental impacts of a specific development project. This type of EIR should focus primarily on the changes in the environment that would result from the development project.

This EIR shall examine all phases of the project including planning, construction, and operation".

Under CEQA, "The purpose of the Environmental Impact Report is to identify the significant effects of a project on the environment, to identify alternatives to the proposed project, and to indicate the manner in which significant environmental effects can be mitigated or avoided" (PRC, Section 21002.1(a)). An EIR is the most comprehensive form of environmental documentation identified in CEQA and the State CEQA Guidelines, and provides the information needed to assess the environmental consequences of a proposed project, to the extent feasible. EIRs are intended to provide an objective, factually supported, full disclosure analysis of the environmental consequences associated with a proposed project that has the potential to result in significant, adverse environmental impacts.

An EIR is also one of the various decision-making tools used by a Lead Agency to consider the merits and disadvantages of a project that is subject to its discretionary authority. Prior to approving a proposed project, the Lead Agency must consider the information contained in the EIR; determine whether the EIR was properly prepared in accordance with CEQA and the State CEQA Guidelines; determine that the EIR reflects the independent judgment of the Lead Agency; adopt findings concerning the project's significant environmental impacts and alternatives; and adopt a Statement of Overriding Considerations if the project would result in significant impacts that cannot be avoided.

County staff has reviewed all submitted drafts, technical studies, and consistency with County regulations and policies and has commissioned the preparation of this EIR to reflect its own independent judgment, including reliance on applicable County technical personnel and review of all technical subconsultant reports.

2.3 ENVIRONMENTAL REVIEW PROCESS

2.3.1 REVIEW OF AN EIR

The County, as the Lead Agency (and project proponent) that has the principal authority for approving the proposed Project, along with other public agencies with direct interest in the Project (e.g., responsible and trustee agencies including the City of Irvine [City], the California Department of Fish and Wildlife, the Regional Water Quality Control Board, the U.S. Army Corps of Engineers, and Orange County Fire Authority), may use this EIR in their decision-making or permitting processes and will consider the information in this EIR in combination with other information that may be presented during the CEQA process. In addition, this EIR provides the analysis in support of the Mitigation Program that will be implemented as part of the Project if approved.

In accordance with CEQA, public agencies are required to make appropriate findings for each potentially significant environmental impact identified in the EIR if they decide to approve a project. If the EIR identifies significant environmental impacts that cannot be mitigated to a less than significant level through the adoption of mitigation measures or project alternatives, the Lead Agency (and responsible agencies using this CEQA document for their respective permits or approvals) must decide whether the benefits of the proposed project outweigh any identified significant environmental effects that cannot be mitigated to below a threshold of

significance. If the agency decides that the project benefits outweigh the unavoidable impacts then the agency (i.e., Lead Agency or responsible agency) is required to adopt a Statement of Overriding Considerations, which states the reasons that support its actions.

The Lead Agency's actions involved in implementation of the proposed Project are described in Section 3.0, Project Description. Other agencies that may have discretionary approval over the Project, or components thereof, including responsible and trustee agencies, are also described in the Project Description.

2.3.2 ISSUES TO BE ADDRESSED IN THE EIR

In accordance with Section 15063(a) of the State CEQA Guidelines, the County prepared an Initial Study (IS) for the Project and determined that the Project may have a significant effect on the environment; as such, an EIR is required for the Project.

In compliance with Section 15082 of the State CEQA Guidelines, the County oversaw preparation of the Notice of Preparation (NOP) of the Draft EIR for the Project, which was distributed on December 19, 2014, to the State Clearinghouse and other public agencies for the required 30-day review and comment period. Additionally, a Scoping Meeting was held on the Project site on January 9, 2015, to facilitate agency public review and comment on the Project. County staff members were available to answer any questions about the proposed Project. Notices were sent to the adjacent property owners and adjacent cities. The comments received on the NOP by the County and the handout made available at the Scoping Meeting are included in Appendix B of this EIR.

In response to the comments received, the County provided additional opportunity for input on the scope of the EIR, and the comment period was extended from June 6, 2015 through July 3, 2015. The extension was noticed in the newspaper and approximately 400 notices were sent to the adjacent cities and properties. An additional Scoping Meeting was held on October 23, 2015, with a comment period that extended from October 9, 2015 through November 7, 2015. A similar noticing process occurred for this meeting. A total of eight comment letters were received during the 30-day NOP review period. Four additional comment letters were received after the end of the NOP review period. During the additional scoping periods, two more comments were received. Table 2-1 provides a summary matrix of the issues raised in the NOP comment letters.

TABLE 2-1
SUMMARY MATRIX OF NOTICE OF PREPARATION COMMENTS

Agency/Individual (Date)	Comment Category														
	Project Definition/Process	Project Alternatives	Anticipated Project Approvals	Air Quality/Health Risk	Biological Resources	Cultural Resources	Greenhouse Gas Emissions	Hazardous Materials	Hydrology/Water Quality	Land Use/Planning	Open Space	Public Services	Recreation	Transportation/Traffic	Utilities
State Agencies															
Governor's Office of Planning and Research, State Clearinghouse and Planning Unit (December 19, 2014)*															
Department of Fish and Wildlife (January 16, 2015)		X			X				X	X					
Regional Agencies															
South Coast Air Quality Management District (January 2, 2015)				X			X								
Transportation Corridor Agencies (January 15, 2015)										X					
Southern California Association of Governments (January 19, 2015)										X				X	
Local Agencies															
Irvine Ranch Water District (January 15, 2015)									X	X					X
City of Irvine (January 16, 2015)	X	X	X		X		X	X	X	X			X	X	X
City of Lake Forest (January 22, 2015)														X	
City of Laguna Beach (May 8, 2015)	X				X					X	X		X	X	
City of Laguna Beach (July 10, 2015)	X				X					X	X	X	X	X	

TABLE 2-1
SUMMARY MATRIX OF NOTICE OF PREPARATION COMMENTS

Agency/Individual (Date)	Comment Category														
	Project Definition/Process	Project Alternatives	Project Anticipated Approvals	Air Quality/Health Risk	Biological Resources	Cultural Resources	Greenhouse Gas Emissions	Hazardous Materials	Hydrology/Water Quality	Land Use/Planning	Open Space	Public Services	Recreation	Transportation/Traffic	Utilities
Organizations															
Native American Heritage Commission (January 8, 2015)						X									
Southern California Gas Company (February 27, 2015)															X
Laguna Greenbelt, Inc. (March 2, 2015)					X					X					
Laguna Greenbelt, Inc. (November 6, 2015)		X			X					X					

* The letter from the Governor's Office of Planning and Research, State Clearinghouse and Planning Unit verified receipt of the Notice of Preparation and provided a listing of the agencies to which the document was forwarded.

The scope of the EIR is based on the findings of the IS and input received from the agencies and the public as part of the scoping process. The EIR addresses all potentially significant effects identified in the Environmental Checklist, as well as several topical areas that the County decided to include in the EIR, though the IS determined there would be no significant Project impacts.

Based on the NOP and related Environmental Checklist, as well as the comments received by the County on those documents, this EIR analyzes the following environmental topics:

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

The following issues were assessed as "No Impact" or "Less Than Significant Impact" in the IS/NOP; therefore, in accordance with Section 15128 of the State CEQA Guidelines, these issues were identified in the NOP as topical areas that would not receive further evaluation in the EIR:

- **Aesthetics (Scenic Vistas; Scenic Resources):** There are no designated or eligible scenic highways in the vicinity of the Project site, and no scenic resources occur on or immediately adjacent to the Project site. The Project site is not part of a scenic vista and would not alter views from scenic highways or of scenic vistas.
- **Agriculture and Forestry Resources (conflict with Existing Zoning; Loss or Conversion of Forest Land):** The Project would not result in pressures to convert forest lands to other uses because no forest uses exist on the Project site. No part of the Project site or adjacent areas is zoned forest land, timberland, or timberland zoned for Timberland Production, nor would the Project result in the loss of forest land or conversion to non-forest use.
- **Air Quality (Odors):** The Project does not propose any land uses that are identified by the South Coast Air Quality Management District (SCAQMD) as odor sources of concern (e.g., wastewater treatment plants, agricultural operations, landfills, composting, food processing plants, chemical plants, or refineries). The Project would increase vehicular trips to and from the Project site; however, the increase would not result in detectable odors.
- **Cultural/Scientific Resources (Historical Resources):** There are no buildings located on the Project site. The development immediately adjacent to the Project site consists of water storage facilities and an industrial/office building, which were constructed after 1965 and would not be considered historic. No impacts to historical resources are expected from the Project.
- **Geology and Soils (Landslides; Unstable Geologic Unit; Septic Tank):** The Project site, and immediately surrounding areas, are relatively flat and not prone to landslides.

  The Project would be served by the public sewer system and would not require alternative wastewater disposal systems. Therefore, no soils impacts related to septic tanks or alternative wastewater disposal systems would occur.
- **Hazards and Hazardous Materials (Transport, Use, or Disposal; Airport Land Use Plan; Private Airstrips; Emergency Evacuation Plan):** Proposed land uses on the Project site would utilize hazardous materials for construction, operation, and maintenance. However, existing regulations regarding the handling and transport of these materials provide sufficient safeguards to protect against a significant hazard to the community associated with an accidental release of hazardous materials.

  There are no airports or private airstrips near the Project site that may pose safety hazards to the residents, visitors, and employees of future development at the Project site. The nearest airport, John Wayne Airport, is located over nine miles southwest of the Project site.

  There are no designated emergency evacuation routes on or immediately adjacent to the Project site. Therefore, the Project would not impact any evacuation routes. As discussed in Section 4.8, Hazards and Hazardous Materials (see Threshold 4.8-4), the Project site is located adjacent to a high fire hazard area, and in accordance with Orange County Fire Authority (OCFA) requirements, fuel modification zone safety measures

will be incorporated into the Project. In addition, Planning Area 1 and Planning Area 2 have multiple access points to Irvine Boulevard to accommodate emergency equipment and Project residents' evacuation. There are no unique characteristics about the uses proposed by the Project that would impair emergency response or evacuation from the Project site or surrounding areas.

- **Hydrology (Groundwater; 100-Year Flood Hazard; Flood Hazard and Redirect Flood Flows; Failure of Levee or Dam; Inundation):** The Irvine Ranch Water District (IRWD) provides potable water service to the Project site. The Project is not expected to substantially deplete groundwater supplies, and no new water wells are proposed as part of this Project. The Project would increase the amount of impervious surface, which would reduce the surface area that is available for groundwater recharge. However, the Project's proposed stormwater management program will direct the majority of runoff to multiple detention basins that will provide opportunities to capture stormwater runoff and allow for infiltration to occur. The Project would have no impacts on any flows redirected from Borrego Canyon Wash to the Wildlife Movement Corridor.[1] Therefore, the Project is not expected to substantially interfere with groundwater recharge.

  According to the Federal Emergency Management Agency (FEMA), the Project site, including the Wildlife Movement Corridor, is located outside the Borrego Canyon Wash floodway, the 100-year flood hazard area, and other types of flood areas.

  The Project is located inland, and other than Borrego Canyon Wash, no water bodies are located close to the Project site. However the Project site is located outside the Flood Zone for Borrego Canyon Wash. Therefore, the Project would not be subject to seiche, tsunami, or mudflow. According to the County of Orange General Plan's Safety Element, the Project site is not located in an inundation area. The Project would not be exposed to inundation by dam failure, seiche, tsunami, or mudflow.

- **Land Use and Planning (Divide an Established Community; Habitat Conservation Plan, Natural Community Conservation Plan):** The Project is located in a partially urbanized area. The majority of the Project site has been previously disturbed and is currently used for a container nursery and green waste storage operation, and the other portions have been used as a Wildlife Movement Corridor. Thus, the Project would not physically divide an established community.

- **Mineral Resources:** The California Department of Mines and Geology (CDMG) designates the Project site and surrounding area as Mineral Resource Zone (MRZ) 1—areas where adequate information indicates that no significant mineral deposits are present or where it is judged that little likelihood exists for their presence. Also, the Department of Conservation Division of Oil, Gas and Geothermal Resources (DOGGR) has not identified oil, gas, or geothermal fields on or near the Project site.

- **Noise (Airport; Private Airstrips):** There are no airports or private airstrips near the Project site that may expose future residents, visitors, or employees to excessive noise levels. The noise contours for the John Wayne Airport do not extend into the Project site.

[1] The Wildlife Movement Corridor depicted in the West Alton Parcel Development Plan is also identified as the Wildlife Corridor Link (WCL) in the Habitat Mitigation and Monitoring Plan (HMMP) for the Alton Parkway Extension.

- **Population and Housing (Existing Housing; Displace People):** There is no housing on the Project site. Therefore, the Project would not result in the displacement of people or housing.
- **Transportation/Traffic (Air Traffic; Hazard Due to a Deign Feature; Emergency Access):** The Project is a residential development, and thus would not result in a change in air traffic patterns or increase in air traffic levels as a result of that change.

  Project design, including roadways, would adhere to the standards established in the Development Plan. No uses are proposed that would result in incompatibility with surrounding areas from a transportation/traffic safety perspective, thereby resulting in safety hazards.

2.3.3 EIR REVIEW AND APPROVAL PROCESS

This Draft EIR was prepared under the direction and supervision of the County of Orange/County Executive Office (CEO) Real Estate/Land Development, and will be circulated for a 45-day public review and comment period, as mandated by the State CEQA Guidelines (14 CCR 15105). Any time during the public review period, written comments concerning the adequacy of the document can be submitted by interested public agencies and members of the public to:

County of Orange/CEO Real Estate/Land Development
Attention: Eric Hull
333 W. Santa Ana Blvd, 3rd Floor
Santa Ana, CA 92701
or via email to oceltoroproject@ocgov.com

After the public review comment period, written responses to all written comments received during the public review period pertaining to environmental issues will be prepared as part of the Final EIR. As required by CEQA, responses to comments submitted by responsible public agencies will be distributed to those agencies for review at least ten days prior to consideration of the Final EIR by the Orange County Board of Supervisors. A public hearing before the Orange County Board of Supervisors will be held to consider the Project and the adequacy of the Final EIR, at which time public testimony will be received.

The Orange County Board of Supervisors is the decision-making body for the Project. The Board of Supervisors will consider whether to certify the Final EIR and to adopt findings relative to the Project's environmental effects. It will then consider whether to approve or deny the Project. Upon Project approval by the County, consistent with the Property Tax Transfer and Pre-Annexation Agreement (Pre-Annexation Agreement), the Orange County Board of Supervisors may recommend changes to the City General Plan and Zoning Ordinance consistent with that approval. In accordance with the Pre-Annexation Agreement, the City Council will then consider the requested amendments to the City General Plan and Zoning Ordinance.

2.4 PROJECT HISTORY

2.4.1 BASE HISTORY

MCAS El Toro was commissioned on March 17, 1943, with a primary mission to train replacement pilots and crews for existing squadrons deployed during World War II. The Base was designated as a Master Jet Station. Its four runways were able to accommodate the largest aircraft in the U.S. military inventory. After World War II, El Toro was the headquarters of the Marine Corps Aviation on the West Coast and was home to over 8,000 Marines. MCAS El Toro served as the primary base for Marine Corps' west coast fighter squadrons. During the Korean and Vietnam Wars, MCAS El Toro was the primary deployment base for Marines headed to Southeast Asia. While it was active, all U.S. Presidents in the post-World War II era used this airfield to land in Air Force One while traveling to the area.

Base Closure

The Department of Navy (DoN) decided to close MCAS El Toro under the Base Realignment and Closure Act in July 1993. Since then, several plans for reuse of the former MCAS El Toro site were considered. In March 2002, the plan for the Orange County Great Park (OCGP) was approved when voters passed Measure W, an initiative which eliminated planned aviation uses for the MCAS El Toro site, and re-designated the unincorporated land in the County General Plan for park, open space, and other uses.

With the closure of MCAS El Toro, the DoN conducted an online auction of the property in February 2005. Four separate parcels were up for auction, totaling over 3,700 acres. Heritage Fields El Toro, LLC[2] (hereinafter referred to as "Heritage Fields") purchased the entire property. Subsequent to the sale of the land and transfer of the lands via fee and Lease in Furtherance of Conveyance (LIFOC) leases[3], Heritage Fields and the City entered into a development agreement. That agreement provided for transfer of some lands to the City as outlined in an earlier three-party agreement (DoN, City, and Heritage Fields). On July 12, 2005, Heritage Fields transferred the Dedication Lands, partly in fee, and partly via several leases to the City of Irvine. As discussed below, the Pre-Annexation Agreement between the County, City, and Irvine Redevelopment Agency provides for the transfer of property on the former MCAS El Toro site, including the Project site, to the County. The LIFOC area is depicted on Exhibit 2-1.

As discussed in Section 2.5, Environmental Setting, and Section 4.8, Hazards and Hazardous Materials, portions of MCAS El Toro are being held by the DoN in fee while the property undergoes remediation.

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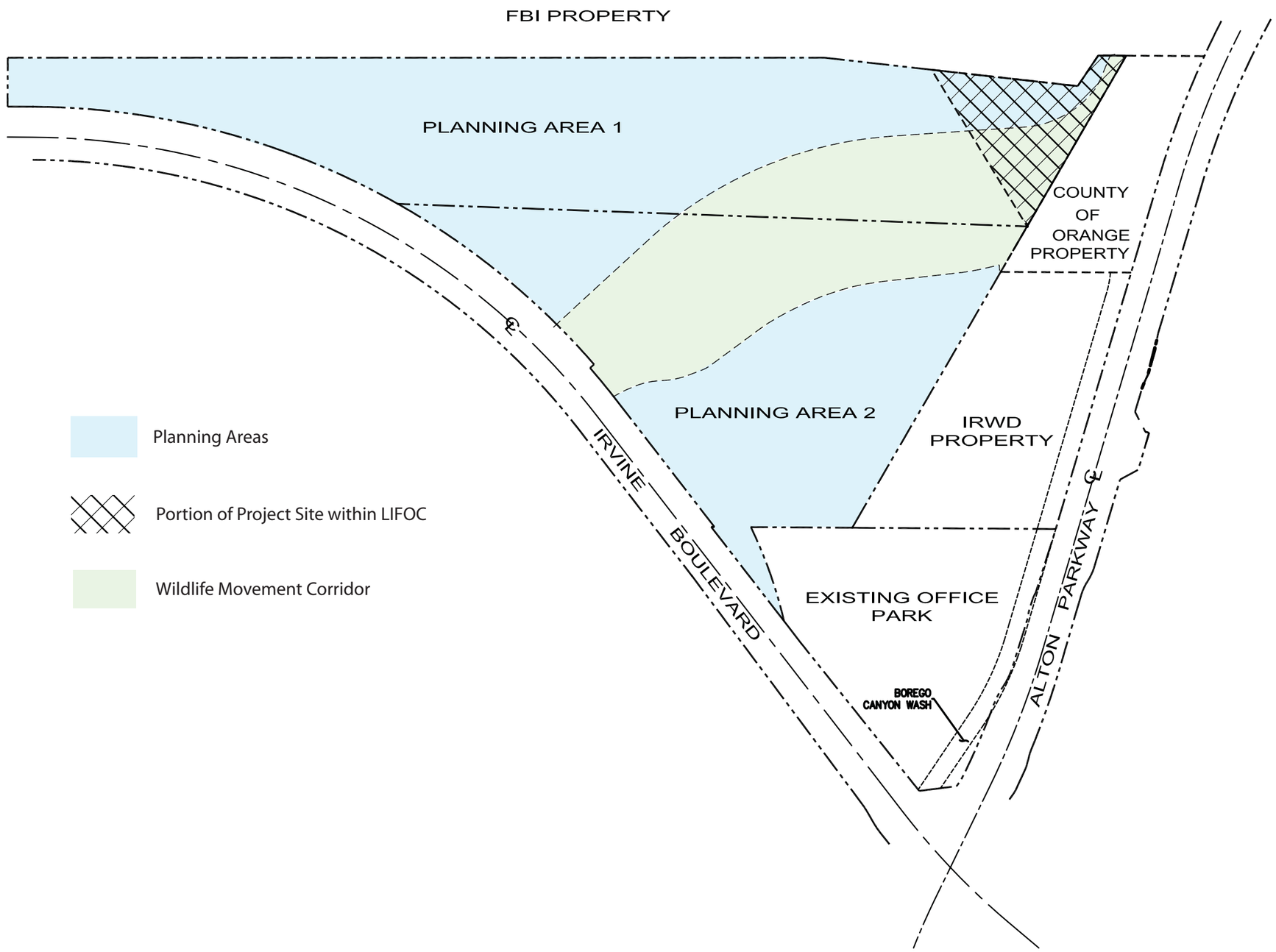
[2] Heritage Fields El Toro LLC is a joint venture of Lennar Homes of California, Inc., LNR Property Corporation, and real estate investment funds sponsored by Rockpoint Group, L.L.C., Blackacre Institutional Capital Management, LLC and MSD Capital, L.P.

[3] For lands that likely are contaminated, the DoN provides for long-term leases or LIFOC as a means of allowing use of the land until such time as the Project site is remediated and is appropriate for fee transfer of the land. For the Project site, the areas in LIFOC are leased to City of Irvine by a LIFOC pending further environmental investigation and/or remediation by the DoN, and subleased to the County.



Source: TAIT, West Alton Parcel Development Plan, 2016

Lease In Furtherance of Conveyance Area

Exhibit 2-1

West Alton Parcel Development Plan EIR

500 250 0 500 Feet

D:\Projects\LoweEnt\J0001\Graphics\EIR\West_Alton\Ex_LIFOC_20160713.ai

2.4.2 PROPERTY TAX TRANSFER AND PRE-ANNEXATION AGREEMENT

A Local Agency Formation Commission (LAFCO) has the authority to determine which unincorporated areas fall within a city's sphere of influence and whether to approve an annexation.[4] To "establish and demonstrate the mutual desire and commitment to cooperate" on the annexation proceedings, the County, the City, and the Irvine Redevelopment Agency entered into a tri-party Pre-Annexation Agreement regarding the annexation and reuse of MCAS El Toro (Irvine et al. 2003). As part of that agreement, the City agreed to provide fee ownership of certain lands to the County. The Project site was included in the parcels to be conveyed to the County as part of the Pre-Annexation Agreement. The Pre-Annexation Agreement states that the Property "shall be for the exclusive use of the County or its designees, lessees, or concessionaires, including but not limited to joint ventures with private or public agencies to construct and operate permitted uses and facilities" (Irvine et al. 2003).

Based on Section 2.2.4 of the Pre-Annexation Agreement, the County and the City agreed the Project site would be annexed into the City, and that the City (Irvine et al. 2003):

> … will zone County's parcels and designate them in Irvine's General Plan, in accordance with County's direction. In addition, County shall retain exclusive land use control over said parcels, and shall be entitled to place any development upon said parcels that County shall determine to be desirable for County's needs, as though said property remained unincorporated, without the obligation for payment to Irvine of any permit fees or other mitigation/impact fees, other than in Section 2.2.5.[5]

The Project site, which is approximately 44.16 acres, includes an 11.84-acre Wildlife Movement Corridor that was created as compensatory mitigation for the extension of Alton Parkway. Although the Wildlife Movement Corridor is included in the Project site, no change in use is proposed within the Wildlife Movement Corridor as part of this Project. The DoN has released all but approximately 1.4 acres of the Project site in fee title, with some use restrictions, to the City of Irvine who, in turn, conveyed it to the County of Orange as required by the Pre-Annexation Agreement. The 1.4 acres that have yet to be released are subject to a lease instrument called a "Lease in Furtherance of Conveyance" or "LIFOC." Once this portion of the Property is remediated by the DoN, the DoN will make a Finding of Suitability to Transfer (FOST), allowing the transfer of the remaining 1.4 acres of Property, in fee, to Heritage Fields. Subsequently, that portion of the Project site will be transferred to the City, who must then

[4] Section 56076 of the *California Government Code* defines sphere of influence as "a plan for the probable physical boundaries and service area of a local agency, as determined by the [LAFCO] commission". The Commission uses sphere of influence as a long-range planning tool to guide future LAFCO decisions on individual jurisdictional boundary changes, incorporation proposals, district formation, and proposals for consolidation, merger, or subsidiary district formation.

[5] Section 2.2.5 pertains to creation of "a funding mechanism whereby all Base users pay their fair share of the cost of developing the necessary infrastructure and related improvements". Infrastructure improvements referred to in the Agreement include "utilities, roadways, sewer lines and other type of infrastructure needs that are necessary to service each County parcel" (Irvine et al. 2003).

transfer it to the County, as required by the Pre-Annexation Agreement.[6] The LIFOC area is depicted on Exhibit 2-1.

As previously indicated, a portion of the Project site has been designated as the Wildlife Movement Corridor as partial mitigation (on-site) for the construction of the Alton Parkway extension project. Mitigation site installation (planting/seeding, etc.) was completed in March 2012, and the Wildlife Movement Corridor is currently in year five of the ten-year maintenance and monitoring program, in compliance with permit requirements and the approved Habitat Mitigation and Monitoring Plan (HMMP). The Wildlife Movement Corridor is approximately 1,600 feet in length and is approximately 300 feet in width, with a channel bottom that varies from 200 to 250 feet in width. The Wildlife Movement Corridor is currently maintained by the County of Orange. Upon resource agency sign-off of the mitigation program, the maintenance responsibilities will be transferred to the City of Irvine under a long-term management program as described in the HMMP.

2.4.3 GREAT PARK IMPROVEMENT AREA MASTER PLAN

With the closure of MCAS El Toro and the online auction of the property in February 2005, the formal transfer of the property to Heritage Fields occurred on August 29, 2005. As part of the Master Planning effort for the Base, the City approved residential and non-residential development on portions of Planning Area (PA) 51 and former PA 30 (Combined PA 51). The property, which was held by Heritage Fields, was commonly referred to as the "Orange County Great Park" (OCGP). Currently, OCGP refers to the public park, which is owned and operated by the City of Irvine (excluding those areas held by the DoN that are undergoing remediation). The private residential and non-residential development is referred to as "Great Park Neighborhoods."

Previous Environmental Documents

In May 2003, the City certified a Program EIR for the OCGP Project, which analyzed and provided CEQA clearance for the following actions: (1) annexation, General Plan Amendment (GPA), Pre-Zoning (prior to annexation), and Zoning of the unincorporated portion of PA 51, which include the proposed Project site; (2) annexation of the unincorporated portion of PA 35 (James A. Musick Branch Jail and the Irvine Ranch Water District Parcel); (3) GPA and Zone Change (ZC) for PA 30; and (4) the Great Park Development Agreement that vested approval of overlay uses and intensities in consideration for the (i) dedication of land for public purposes, (ii) development and funding of certain infrastructure improvements, and (iii) funding of circulation facilities and infrastructure. Together, these actions established the policy and legislative structure for guiding the future development of the former MCAS El Toro.

The OCGP Program EIR served as the basis for CEQA compliance for a number of subsequent actions associated with implementation of the OCGP project. These actions included

[6] While the Project would include a park within the Lease in Furtherance of Conveyance (LIFOC) area, construction of the park would not occur until the completion of the remediation and issuance of the FOST by the DoN, and approval of the same by the United States Environmental Protection Agency (USEPA), Department of Toxic Substances Control (DTSC), and Regional Water Quality Control Board (RWQCB). Upon issuance of the FOST and conveyance of fee title to the presently designated LIFOC area, the site would be considered safe and no potential impact related to exposure of the users of the park to hazardous materials would occur.

preparation of nine subsequent Addenda to the 2003 EIR and two supplemental EIRs (SEIR and SSEIR). The subsequent actions included the following:

- **Addendum No. 1 (May 2006).** Addressed the potential environmental impacts associated with implementation of the OCGP Redevelopment Plan (OCGPRP), which was previously approved by the City and its redevelopment agency in 2004. The OCGPRP established a process for specific development plans and projects.
- **Addendum No. 2 (October 2006).** Analyzed a GPA and ZC for the Revised Overlay Plan, which allowed for the reconfiguration of the property boundaries between the Orange County Great Park Corporation (GPC) and Heritage Fields. The GPA and ZC also included creation of a new zoning designation, known as Lifelong Learning District (LLD), to allow mixed-use development in PA 51 and modifications to the text and figures in PA 51 and in former PA 30.
- **Addendum No. 3 (May 2007).** Addressed the Master Subdivision Map, Vesting Tentative Tract Map (VTTM) No. 17008, which subdivided Heritage Fields' approved project site consistent with adjustments analyzed in Addendum No. 2.
- **Addendum No. 4 (August 2007).** Addressed the GPC-requested master plan to accommodate the future buildout of a multi-use public park in the Great Park. The uses in the park consisted of passive and active recreation uses and institutional uses, as well as the Approved Wildlife Corridor Feature.
- **Addendum No. 5 (July 2008).** Addressed a GPA and ZC related to relocating the intersection of Bake Parkway/Marine Way and reconfiguring Rockfield Boulevard in the southern portion of the former PA 30. It additionally assessed the amendments to the Amended and Restated Development Agreement (ARDA) between the City and Heritage Fields.
- **Addendum No. 6 (October 2008).** Analyzed the potential environmental issues associated with the amended VTTM No. 17008, VTTM 17283, modification to the OCGP Streetscape Design Guidelines, Master Landscape and Trails Plan (MLTP), and Master Plan for Non-Residential Development within the Lifelong Learning District.
- **Addendum No. 7 (June 2010).** Addressed the update to the North Irvine Transportation Mitigation (NITM) Program, which removed planned traffic improvements at seven intersections from the list of traffic mitigation measures in the OCGP FEIR.
- **Supplement to the OCGP FEIR (August 2011).** Addressed modifications to the project analyzed in the 2003 OCGP FEIR and subsequent Addenda 1 through 7. The entitlements included a GPA, a ZC, seven subdivision maps, six master plans, and five park plans associated with the private development of a portion of the Heritage Fields property in PA 51 and in former PA 30.
- **Addendum No. 8 (October 2011).** Addressed a minor modification to the approved OCGP Master Plan and the Park Design Review associated with the Western Sector Park Development Plan Phase I. The minor modifications included reallocating and transferring some uses within the districts of OCGP.
- **Second Supplement to the OCGP FEIR (November 2013).** Analyzed the 2012 Modified Project as compared to the 2011 Approved Project and addressed the GPA and

ZC and a series of actions associated with combining PAs 30 and 51; relocating Segments 2 and 3 of the Approved Wildlife Corridor Feature; eliminating the extension of Rockfield Boulevard; increasing residential units; and modifying residential and non-residential uses.

- **Addendum No. 9 (July 2014).** Addressed potential environmental impacts of the modifications to the 688-acre OCGP Improvement Area, which includes the following districts: Upper Bee Canyon, Bosque, Agriculture, Golf Course, Sports Park, and Wildlife Corridor. The modifications included the Unilateral Program changes allowed in the ALA II and other staff recommended changes to the OCGP Improvement Area.[7] The proposed modifications analyzed in Addendum 9 were in the Sports Park and Bosque Districts of the 688-acre OCGP Improvement Area. Within the Sports Park District, the modifications included eliminating the planned volleyball support building and 10 planned sand volleyball courts and reconfiguring the remaining planned courts as well as eliminating eight planned basketball courts and reconfiguring parking and other elements. Within the Bosque District, the modifications, recommended by the City staff, included relocation and design of the Great Park Farm and Food Lab, further site development of the dog park, improvement in the quality of planned public restrooms, construction of utilities infrastructure in certain parking facilities, and a parking plan. Additionally, two design features of the project that would be incorporated upon project implementation included dual 250-foot long eastbound left-turn pockets at Marine Way and Great Park Boulevard West and a 250-foot long westbound right-turn lane at the Marine Way right in/right out driveway, located west of Great Park Boulevard West.

2.5 ENVIRONMENTAL SETTING

The Project site is a triangular shaped parcel that is located in PA 51 in the City of Irvine, which encompasses the former MCAS El Toro property. The Project site is designated on the *City of Irvine General Plan* as "Orange County Great Park" (PA 51) (Irvine 2015a, 2015b). Table A-1 in the City General Plan Land Use Element identifies a variety of uses in this designation, including Multi-Use, Institutional, Industrial, and Commercial. The General Plan Land Use Element identifies Zoning Districts 1.1 (Exclusive Agriculture), 1.4 (Preservation Area), 1.9 (Orange County Great Park), 6.1 (Institutional), and 8.1 (Trails and Transit Oriented Development) as being correlated with the OCGP land use designation. The City of Irvine Zoning Map designates the Project site as 1.1 along the easterly portion of the Project site and 1.4 along the westerly portion of the Project site.

The Project site is 44.16 acres; however, this includes the Wildlife Movement Corridor and an Orange County Flood Control District (OCFCD) drainage outlet structure, which together occupy 11.84 acres. The Wildlife Movement Corridor bisects the Project site into two development areas. The northern development area or Planning Area 1 is about 21.98 acres

[7] Concurrent with the certification of the Heritage Fields Project 2012 GPA/ZC Second Supplemental EIR (SSEIR) on November 26, 2013, the City Council also approved a contractual agreement (ALA II) with Heritage Fields El Toro, LLC (Heritage Fields) that required Heritage Fields to construct 688 acres of the Great Park (the Design Package). The ALA II included provisions that permitted the City to unilaterally require program changes within the 688-acre OCGP Improvement Area with respect to the following elements: a) sand volleyball, parking, and sports courts within the Sports Park sub-area and b) the dog park and mini-amphitheater within the Bosque sub-area. On March 18, 2014, the City Council approved the unilateral changes to the Design Package of the ALA II. The CEQA clearance for the "Design Package" was established through the SSEIR.

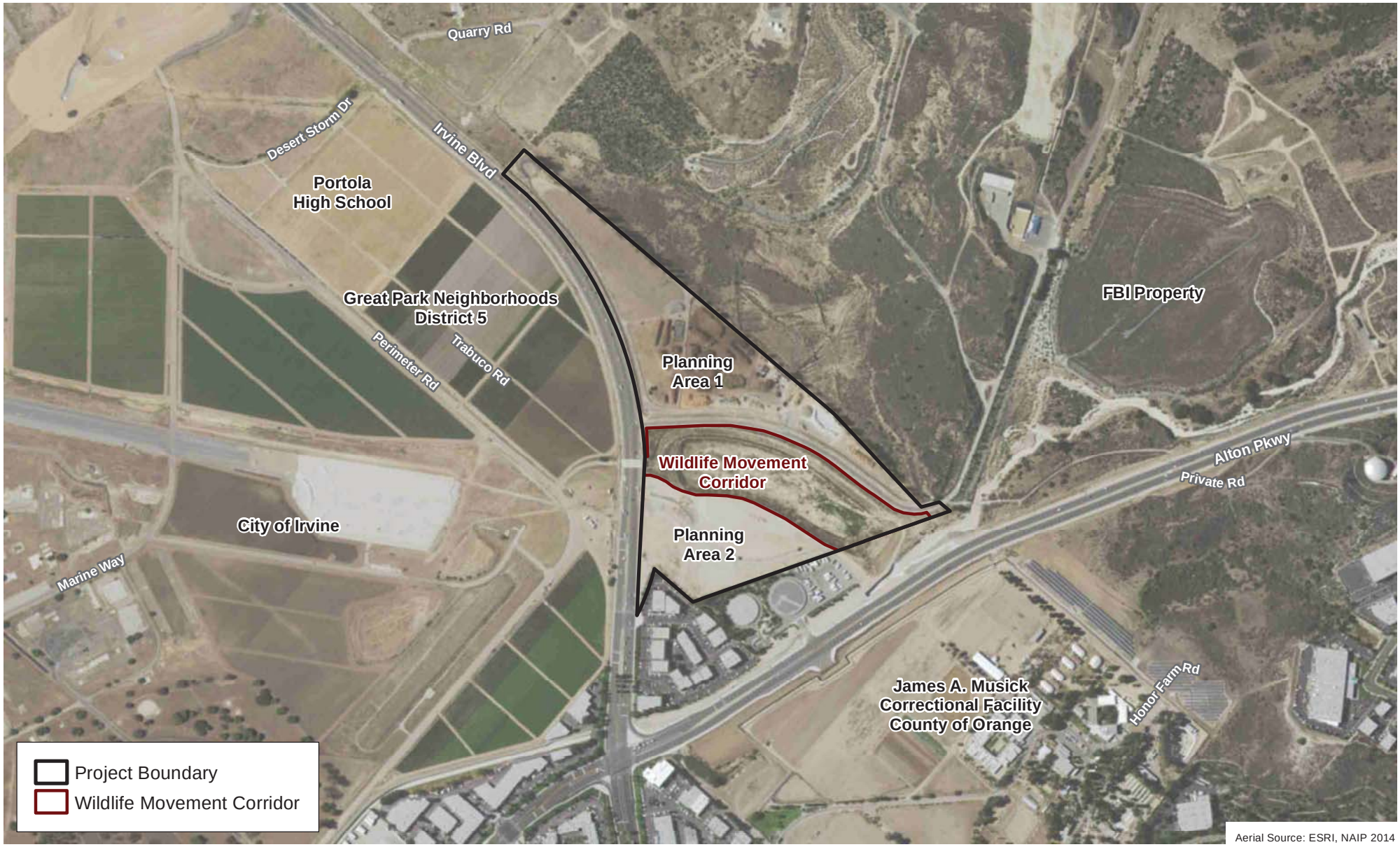
and the southern development area or Planning Area 2 is 10.34 acres; resulting in 32.32 net development acres. An aerial photograph of the site and surrounding area is provided in Exhibit 2-1. The Wildlife Movement Corridor, which is a biological resources mitigation area for the loss of sensitive habitat associated with the Alton Parkway improvements, has been planted with native vegetation. A feature of the Wildlife Movement Corridor is a 72-inch culvert provided under Alton Parkway to allow wildlife to travel from the Wildlife Movement Corridor on the Project site to a different parcel (known as the Eastern Alton Parcel) owned by the County of Orange. Once the mitigation performance standards (which were established as part of the Alton Parkway permitting process) have been achieved (this is generally five years from initial implementation, which occurred in 2012[8]), the Wildlife Movement Corridor will be turned over to the City of Irvine.

The Project site is generally disturbed by prior and existing uses. Since July of 2012 the Project site, including Planning Area 1 and Planning Area 2, has been utilized subject to an encroachment permit with R&S Soil Products Inc. with green waste and nursery operations in Planning Area 1 and vehicle storage associated with those operations in Planning Area 2. The Wildlife Movement Corridor, Magazine Road, and an existing access road serve as the only other improvements on the Project site. Historically, the Project site has been leased for agricultural uses, which has resulted in the natural vegetation having been removed from the majority of the Project site.

Surrounding uses include previously developed portions of PA 51, which are slated for development of the Orange County Great Park Neighborhoods, District 5 to the west, across Irvine Boulevard and District 7 to the northwest. Immediately south of the Project site are business/industrial uses and IRWD facilities, which include two large water reservoirs, a parking lot and other facilities. Further to the southeast, across Alton Parkway, is the James A. Musick Jail, a County-run facility. To the northeast, on property owned by the Federal Bureau of Investigation (FBI), there is a shooting range, which obtains access through the Project site via Magazine Road. The Irvine United School District (IUSD) recently opened, Portola High School, located northwest of the proposed Project site across Irvine Boulevard. See Exhibit 2-2, Aerial Photograph of the Site.

The Borrego Canyon Wash is located near the Project site. Borrego Canyon Wash is the ephemeral drainage that originates in the foothills of the Santa Ana Mountains just southwest of Santiago Creek. Water only flows in the drainage following rain events. East and southeast of the Project site, Borrego Canyon Wash is a natural sandy bottom channel with riprap on some banks and vegetation on other banks. The portion of the Wash that runs south of the Project site has been channelized in a box culvert that crosses under Irvine Boulevard. The OCFCD has designated Borrego Canyon Wash as Facility No. F20 (County of Orange 2007).

[8] Site preparation work, including rock placement, began in December 2011, but irrigation system and plant/seed materials installation occurred in February/March 2012 and was completed on March 29, 2012.



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Aerial Photograph of Site

Exhibit 2-2

West Alton Parcel Development Plan EIR

N W E S

750 375 0 750 Feet

2.6 ORGANIZATION OF THE DRAFT EIR

This EIR is organized into eight sections, with each containing its own references section. A list of the EIR sections and a brief description of their contents is provided below to assist the reader in locating information.

- **Section 1.0, Executive Summary:** This section provides summaries of the Project Description, alternatives to the proposed Project, environmental impacts, and mitigation measures.
- **Section 2.0, Introduction, Project History and Setting:** This section briefly discusses the purpose of the EIR; describes the environmental review process; provides an overview of the Project history; describes the environmental setting of the Project; and gives an overview of the EIR's organization.
- **Section 3.0, Project Description:** This section provides a detailed description of the Project characteristics and a statement of the Project Objectives.
- **Section 4.0, Existing Conditions, Impact Analysis, Cumulative Impacts, and Mitigation Program:** This section contains subsections 4.1, Aesthetics, through 4.16, Utilities and Service Systems. Each subsection includes discussions on the following topics: regulatory setting (if applicable); methodology; existing conditions; thresholds of significance; impact analysis; cumulative impacts; mitigation program (if any); level of significance after mitigation; and references.
- **Section 5.0, Alternatives:** This section considers four alternatives to the proposed Project, including the No Project Alternative. The alternatives were developed to mitigate or avoid the significant effects the Project may have on the environment. In addition, this section identifies the environmentally superior alternative.
- **Section 6.0, Long-Term Implications:** This section contains a summary discussion of any significant unavoidable impacts; potential growth-inducing impacts; a discussion of energy (electricity and natural gas) in accordance with Appendix F of the State CEQA Guidelines; and any significant irreversible environmental changes that would be caused by the Project.
- **Section 7.0, Persons and Organizations Consulted:** This section lists the persons and organizations that were contacted to obtain data on the preparation of this EIR.
- **Section 8.0, Preparers:** This section lists the persons that directly contributed to preparation of this EIR.

Sections 1.0 through 8.0 and Appendices A through M are provided on a CD.

2.7 REFERENCES

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3.0 PROJECT DESCRIPTION

3.1 PURPOSE OF THE PROJECT DESCRIPTION

The purpose of the Project Description is to describe the proposed Project in a way that allows for meaningful review by the public, reviewing agencies, and decision makers. Section 15124 of the California Environmental Quality Act (CEQA) Guidelines requires that the project description for an environmental impact report (EIR) contain: (1) the precise location and boundaries of a proposed project; (2) a statement of objectives sought by the proposed project including the underlying purpose of the project; (3) a general description of the project's technical, economic, and environmental characteristics; and (4) a statement briefly describing the intended uses of the EIR, including a list of the agencies that are expected to use the EIR in their decision making, a list of the permits and other approvals required to implement the project, and a list of related environmental review and consultation requirements required by federal, State, or local laws, regulations, or policies. An adequate project description need not be exhaustive, but should supply the detail necessary for project evaluation.

An EIR is the most comprehensive form of environmental documentation identified in CEQA and the State CEQA Guidelines. The following project description provides the information needed to assess the environmental effects associated with the development, construction, and operation of the proposed Project.

3.2 PROJECT LOCATION

The Project site consists of property that is or will be owned by the County of Orange (County), located in the City of Irvine (City). The Project site is located near the northeasterly portion of the former Marine Corps Air Station (MCAS) El Toro, northwest of the intersection of Alton Parkway and Irvine Boulevard in Orange County. Irvine Boulevard intersects Alton Parkway 900 feet southeast of the Project site. Magazine Road traverses the Project site in a west-east direction. Local access to the Project site is provided from the existing six-lane Irvine Boulevard, which is classified as a Major Highway, Six Lanes (City of Irvine 2015a). Regional access from State Route (SR) 133 is within 2.5 miles northwest of the Project site via Irvine Boulevard, and access to SR-241 is within 2.5 miles northeast of the Project site via Alton Parkway.

The Project site is bound by Irvine Boulevard on the southwest; existing business park, Allred Centre, and Irvine Ranch Water District (IRWD) facilities on the south and southeast; and property owned by the Federal Bureau of Investigation (FBI), which is identified for inclusion in the Reserve Area for the Central-Coastal Natural Communities Conservation Plan (NCCP)/Habitat Conservation Plan (HCP) to the north/northeast. The Project's development area consists of approximately 32.32 acres, which does not include the 11.84-acre Wildlife Movement Corridor. The total West Alton Parcel is 44.16 acres. No change in use is proposed within the Wildlife Movement Corridor. The regional location and local vicinity are shown on Exhibits 3-1 and 3-2, respectively.

Regional Location

Exhibit 3-1

West Alton Parcel Development Plan EIR

N W E S

10 5 0 10 Miles

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Local Vicinity

Exhibit 3-2

West Alton Parcel Development Plan EIR

N W E S

3,000 1,500 0 3,000 Feet

3.3 PROJECT OBJECTIVES

Section 15124(b) of the State CEQA Guidelines requires "[a] statement of objectives sought by the proposed project. A clearly written statement of objectives will help the lead agency develop a reasonable range of alternatives to evaluate in the EIR and would aid the decision makers in preparing findings or a statement of overriding considerations, if necessary. The statement of objectives should include the underlying purpose of the project". Not only is a project analyzed in light of its objectives, compatibility with project objectives is one of the criteria used in selecting and evaluating a reasonable range of project alternatives. Clear project objectives simplify the selection process by providing a standard against which to measure project alternatives.

The following objectives have been identified for the Project:

1. Build a project that is compatible with the surrounding existing and planned land uses in the area.
2. Create a development that would fully maximize mutual benefits from proximity to the area's employment opportunities and recreational amenities.
3. Maximize the potential for use of this County real estate asset to stimulate economic commerce in the City.
4. Promote efficient use of land through construction of a medium to high density residential development.
5. Take advantage of the ability to develop the Project site without the requirement for the extension of major infrastructure to support the development.
6. Revitalize the previously disturbed and presently underutilized Project site.
7. Develop the Project in a manner that will materially improve the jobs-housing balance of the area.
8. Use an existing County real estate to provide the County with a new source of revenue to support County operations and services.
9. Develop a project to provide attractive housing opportunities for young professionals to help curtail the trend of young professionals leaving the Orange County area.
10. Incorporate housing at a minimum density of 11 dwelling units/acre consistent with State of California guidance regarding the minimum density for facilitating the creation of affordable housing.
11. Provide a project with a range of density, bedroom, and unit types to facilitate the development of up to one percent of the units as transitional housing for the region's diverse population of homeless or those at risk of becoming homeless.
12. Develop a mixed-income project that includes ten percent affordable housing on site in several different product types to help meet the diverse needs of the region's population.

3.4 PROJECT PROCESSING

According to Sections 53090–53091 of the *California Government Code,* counties and cities are exempt from zoning regulations when one entity owns territory within the jurisdiction of another entity. Additionally, according to Section 7-9-20(i) of the Orange County Zoning Code (Orange County Municipal Code, Title 7, Land Use and Building Regulations; Division 9, Planning; Article 2, The Comprehensive Zoning Code), land owned or leased by the County is not subject to the County's land use regulations, including the Zoning Code, specific plans, and planned communities. Further, Section 2.2.4 of the Property Tax Transfer and Pre-Annexation Agreement (Pre-Annexation Agreement) provides that the "County shall retain exclusive land use control over [its parcels within the Former MCAS El Toro], and shall be entitled to place any development upon said parcels that County shall determine to be desirable for County's needs, as though said property remained unincorporated, without the obligations for payment to Irvine of any permit fees or other mitigation/impact fees."

The Orange County Board of Supervisors is the decision-making body for the Project. The Board of Supervisors will consider whether to certify the Final EIR and to adopt findings relative to the Project's environmental effects. It will then consider whether to approve or deny the Project. If the Project is approved by the County, consistent with the Pre-Annexation Agreement, the Orange County Board of Supervisors may recommend changes to the City General Plan and Zoning Ordinance consistent with that approval. In accordance with the Pre-Annexation Agreement, the City Council will then consider the requested amendments to the City General Plan and Zoning Ordinance. The Development Plan is appended to this EIR and, will serve as the source of information regarding the use and development of the Project site.

The proposed land uses, development standards, circulation network, design guidelines, processing requirements and development intensities for the Project site are identified in the Development Plan, which would be approved and implemented by the County. The Development Plan would serve as the planning document that will be used to evaluate specific development proposals for consistency with the approved Project goals, vision, and requirements. The vision and elements of the Development Plan would be implemented by the design guidelines in Section 2 and development standards in Section 3 of the Development Plan. If design guidelines and development standards are in conflict, the provisions of the development standards would prevail.

All development proposed on the Project site would be subject to the implementation procedures established in the Development Plan in addition to the applicable local, State, and federal accessibility regulations. The implementation procedures are identified in Section 4 of the Development Plan.

The Development Plan would be implemented through a development review process, overseen by the County of Orange/CEO Real Estate/Land Development. A Level I, II, or III Review process, as defined below and in the Development Plan, would be required prior to any development or use of the Project site, except as otherwise noted in Section 4, Implementation, of the Development Plan. The review processes for future developments within the Project site are depicted in Table 3-1, below.

TABLE 3-1
DEVELOPMENT REVIEW PROCESS

Development Review	Approving Authority	Process Type	Courtesy Review Required? [a]
Level I Review	Manager, CEO Real Estate/Land Development (or designee)	Administrative	Yes
Level II Review	Chief Real Estate Officer (or designee)	Administrative	Yes
Level III Review	El Toro Review Board	Hearing	Yes

CEO: Chief Executive Office

[a] The Courtesy Review would include anyone on the Interested Party List, which will include the City of Irvine, and other individuals or groups that have requested in writing to be included on the Interested Party List. The list is maintained by the Manager, CEO Real Estate/Land Development.

Source: KTGY 2016

Level I Review. The purpose of a Level I Review Permit is to provide for the administrative review of detailed plans for a proposed development design and/or use. Where the approving authority for a Level I Review is not otherwise specified, the Manager of Land Development (or his/her designee) would be the approving authority for a Level I Review. A hearing would not be required for this action.

Level II Review. The purpose of a Level II Review is to provide for a more thorough administrative review of detailed development plans for certain development designs and/or uses specified in the Development Plan. The Chief Real Estate Officer (or his/her designee) would be the approving authority for a Level II Review. A hearing would not be required for this action.

Level III Review. Deviations in excess of 20 percent from applicable development standards may be approved for a building site through a Level III Review. Level III Reviews would require a hearing before the El Toro Review Board with public notification, as required. A public meeting would be scheduled in compliance with provisions of the Development Plan.

The El Toro Review Board would consist of five members, each appointed by the Chief Real Estate Officer for a three-year term. Upon completion of the term, members can be reappointed, as long as the total term of an individual Board member does not exceed three consecutive terms. For more detail, refer to Section 4.3.3.5, El Toro Review Board, of the Development Plan.

3.4.1 ROLE OF THE DEVELOPMENT PLAN

The Project proposes approval of a Development Plan for the West Alton Parcel. The Development Plan would be used to guide future development on the Project site. This Development Plan contains detailed development standards and design guidelines to ensure a comprehensively planned Project. The main purpose of the Development Plan is to provide direction on the overall amount of development and permitted land uses; provide the general

standards for internal streets, parking, building types, improvements, and landscape; and set overall height and density/intensity limits for the Project site. The Development Plan includes development standards and design guidelines that are generally consistent with the City's 8.1 Trails and Transit-Oriented District (TTOD), a zoning district, found within the City's Zoning Code and creates a framework for design and development of the proposed Project.

The Development Plan includes development standards to guide builders, architects, and engineers in Project design. The development standards are specified in Section 3, Development Standards, of the Development Plan. These development standards also form the basis of evaluation for review and approval of future development parcels through the development review process and would be used by the County when reviewing the designs and landscape of the individual developments to ensure consistency with the goals, vision, and requirements of the Development Plan.

The design guidelines would be the design criteria by which the Project would be reviewed during the development review process. The design guidelines are intended to be flexible, while establishing basic evaluation criteria for the preparation and review of future applications as part of the development review process.

3.4.2 IMPLEMENTATION OF THE DEVELOPMENT PLAN

Procedures and application requirements for processing specific projects within the Development Plan limits are included in Section 4, Implementation, of the Development Plan, which is provided as Appendix A of this EIR. The Development Plan would be implemented through Level I, II, and III Reviews, processed through the Manager, CEO Real Estate/Land Development. This process is required prior to the taking of actions with respect to the Project site such as the issuance of certain applicable permits or the establishment of certain uses. [1]

For any details, standards, or procedures not covered by the Development Plan, the Chief Real Estate Officer may incorporate codified details, standards, and procedures into the Development Plan. The new language incorporated into the Development Plan cannot conflict with any existing design guidelines and/or development standards. If there is a conflict, an amendment to the Development Plan may be required. Language incorporated by the Chief Real Estate Officer may be appealed to the El Toro Review Board.

Since the Project will be processed through the County, the County will be responsible to monitor the implementation of the Project. The development of the Project is subject to specific limits as indicated in Section 3.4, Maximum Allowable Development, of the Development Plan. The precise allocation of density and type of development would be determined as the Development Plan area is built out.

[1] These permits are precise plans of development that provide for administrative review or a public hearing prior to the taking of any action on the detailed final plans for a proposed development or use. Section 4.3.1 of the Development Plan describes the various development reviews and when they are required.

3.5 DEVELOPMENT PROPOSAL

The analysis in this EIR evaluates the Development Plan. Where necessary for the analysis, this EIR utilizes the Conceptual Site Plan as a representative example of what the Development Plan authorizes. The Conceptual Site Plan is depicted on Exhibit 3-4. The Conceptual Site Plan includes the maximum number of allowed multi-family residential units, including 10 percent (80 units) affordable[2] and 1 percent (8 units) transitional housing units[3], across two planning areas. Consistent with the Development Plan, the total number of units within the Project will not exceed a maximum of 803. It should be noted that other development scenarios, as variations of the proposed Conceptual Site Plan, can be implemented as long as the proposed plans comply with the provisions of the West Alton Development Plan.

The distribution of the units between the two planning areas is discussed below. Each planning area would feature a network of parks and open spaces that would provide recreational opportunities for future residents and defensible space for wildfires. The character of the Project would be similar to other development in the City. The land uses considered in the Development Plan and the design guidelines and development standards contained therein are generally consistent with the City's 8.1 TTOD.

In addition to the development concept presented below, the 11.84-acre Wildlife Movement Corridor, which bisects the Project site and is part of the West Alton Parcel, would remain undeveloped. This leaves 32.32 acres for development.

3.5.1 PROPOSED LAND USES

The proposed Project is the approval of the Development Plan, which provides for the development of up to 803 dwelling units in Planning Areas 1 and 2. The Conceptual Site Plan included in the Development Plan proposes four residential neighborhoods (Neighborhoods A through C in Planning Area 1 and Neighborhood D in Planning Area 2). The primary land use addressed in the Development Plan is multi-family residential with a maximum of 803 dwelling units (the Conceptual Site Plan provides for 573 units in Planning Area 1 and 230 units in Planning Area 2). Of the total, 80 units will be committed to affordable housing and 8 units will be dedicated as transitional units. The Conceptual Site Plan shown in Exhibit 3-4 identifies four residential neighborhoods that consist of: Neighborhood A with 131 units on 6.8 acres; Neighborhood B with 347 units on 7.3 acres; Neighborhood C with 95 units on 5.9 acres; and Neighborhood D with 230 units on 10.3 acres. These neighborhoods are defined by building type, design, landscaping, and open space and recreation amenities. The Project would provide or exceed the minimum parking requirements outlined in the Development Plan. For the Land Use Concept Plan, which proposes 803 dwelling units, 1,463 spaces would be required to meet the needs of future residents and visitors. As noted above, the neighborhoods identified in the concept plan simply present a representative example of what the Development Plan contemplates for purposes of the CEQA analysis. Other development scenarios that comply

[2] According to the California Housing and Community Development, housing is considered affordable when it requires 30 percent (35 percent for owner-households) or less of the household's gross income.

[3] Transitional housing is short-term supportive housing that transitions individuals into permanent housing, self-sufficiency, and independent living. In Orange County transitional units are supported through services from a variety of community-based service organizations.

with the provisions of the Development Plan could also be implemented. Consistency would be determined as part of the Level I, II, or III reviews.

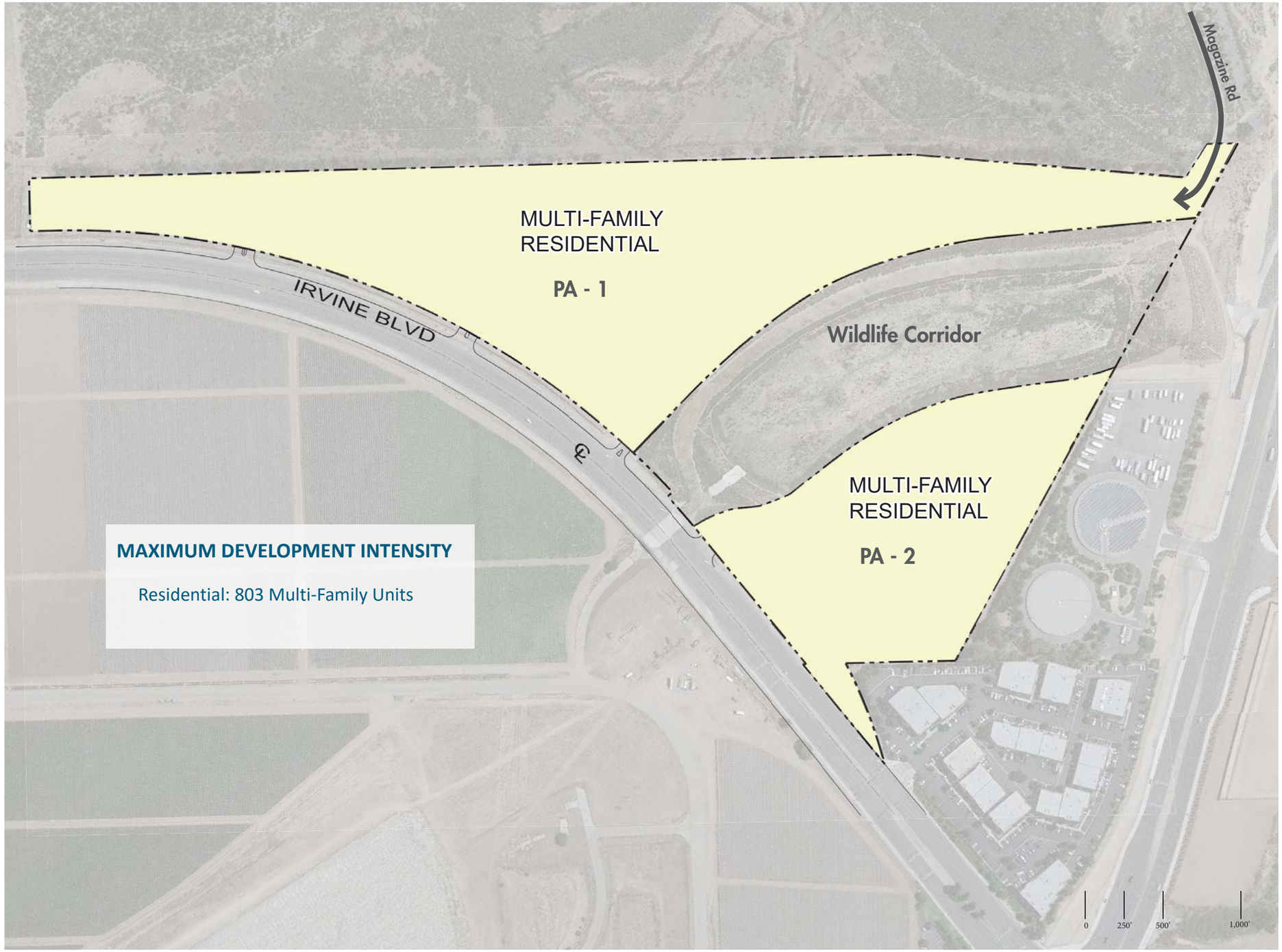
Additionally, a network of parks and open space would be provided within the two planning areas and would include neighborhood parks, private recreational areas, focal gardens, pocket parks, and a systems of trails. The Land Use Plan is depicted on Exhibit 3-3. The proposed land use regulations and development standards are discussed in Section 3, Development Standards, of the Development Plan and key points are summarized below. Exhibit 3-4 provides the Conceptual Site Plan, which is compatible with the Development Plan. The Development Plan defines allowed uses and if the uses are permitted by right, or if a Level I or II review would be required. These uses are shown in Table 3-2 below.

TABLE 3-2
LAND USE

Use	Multi-Family Residential
Accessory uses	P
Agriculture (above-grade)	P
Automobile parking lots and structures	P
Caretaker's quarters	P
Child care/day care center	I
Churches (and other places of religious worship)	II
Congregate care facility	II
Home care	P
Model home sales complex	P
Nonprofit groups and meeting facility	P
Outdoor vendor	P
Parks (including parking for recreational uses)	I
Picnic area	P
Recreation facility (including health and tennis clubs and spas)	P
Residential care facility (under 7 beds)	P
Residential care facility (7 or more beds)	II
Residential shelter	II
Residential, attached	P
School (public or private)	I
Senior housing	I
Sober living facility	II
Transitional housing*	P
Utility building and facility	II
Wireless facility, commercial	I

P: Permitted; I: Level I Review Required; II: Level II Review Required

* Transitional housing is short-term supportive housing that transitions individuals into permanent housing, self-sufficiency, and independent living. In Orange County transitional units are supported through services from a variety of community-based service organizations.



Source: West Alton Parcel Development Plan, 2016

Land Use Plan

Exhibit 3-3

West Alton Parcel Development Plan EIR

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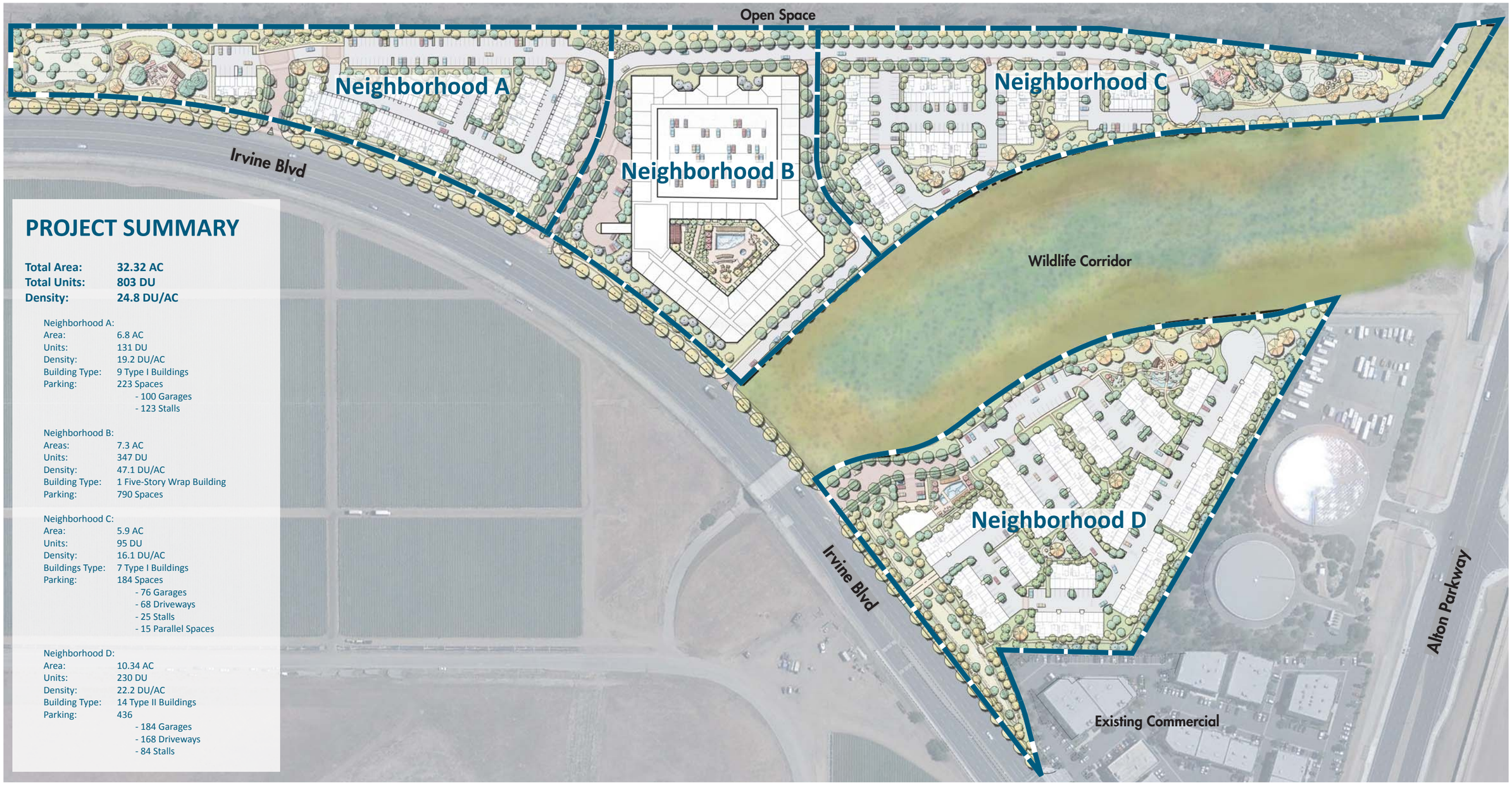

PROJECT SUMMARY

Total Area: 32.32 AC
Total Units: 803 DU
Density: 24.8 DU/AC

Neighborhood A:
Area: 6.8 AC
Units: 131 DU
Density: 19.2 DU/AC
Building Type: 9 Type I Buildings
Parking: 223 Spaces
- 100 Garages
- 123 Stalls

Neighborhood B:
Areas: 7.3 AC
Units: 347 DU
Density: 47.1 DU/AC
Building Type: 1 Five-Story Wrap Building
Parking: 790 Spaces

Neighborhood C:
Area: 5.9 AC
Units: 95 DU
Density: 16.1 DU/AC
Buildings Type: 7 Type I Buildings
Parking: 184 Spaces
- 76 Garages
- 68 Driveways
- 25 Stalls
- 15 Parallel Spaces

Neighborhood D:
Area: 10.34 AC
Units: 230 DU
Density: 22.2 DU/AC
Building Type: 14 Type II Buildings
Parking: 436
- 184 Garages
- 168 Driveways
- 84 Stalls

Source: West Alton Parcel Development Plan, 2016

Conceptual Site Plan

Exhibit 3–4

West Alton Parcel Development Plan EIR

Map Not to Scale

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Residential

The Project allows for the development of two different types of residential dwelling units, Low-Rise Attached and Mid-Rise Attached Housing Types. Details regarding the housing types and representative pictures can be found in the Development Plan (see Section 2.5, Architectural Guidelines in the Development Plan).

For purposes of this EIR, based on the Conceptual Site Plan, Planning Area 1 would be approximately 21.98 acres, including 2.58 acres of parks, and would consist of 573 dwelling units. This planning area would include Low- and Mid-Rise Attached Housing Type dwelling units at 3 to 5 stories in height. The Conceptual Site Plan identifies 71 one-bedroom units and 60 two-bedroom units in Neighborhood A; 145 one-bedroom units, 162 two-bedroom units, 20 three-bedroom units, and 20 studio apartments in Neighborhood B; and 4 one-bedroom units, 70 two-bedroom units, and 21 three-bedroom units in Neighborhood C.

Planning Area 2 would be approximately 10.34 acres, including 1.53 acres of park, and would consist of 230 dwelling units. The Conceptual Site Plan identifies Low-Rise Attached Housing Type dwelling units at 3 stories in height and 34 one-bedroom units; 154 two-bedroom units; and 42 three-bedroom units; however, for purposes of measuring potential aesthetic impacts, the EIR uses the maximum allowable height.

Low-Rise Attached Housing

The Development Plan identifies four different housing types in the Low-Rise Attached Housing category. This category includes units that are typically located side by side. The Development Plan provides for buildings up to three stories tall. The housing styles include townhomes, attached motor court cluster homes, attached green court cluster homes, and stacked flats or lofts. The Conceptual Site Plan incorporates two of these styles—the stacked flats and lofts.

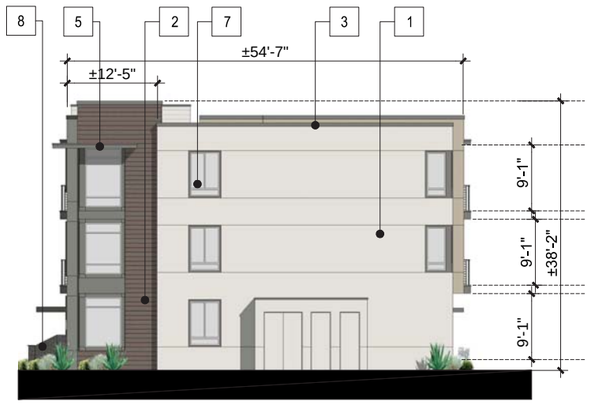
Mid-Rise Attached Housing

The Development Plan identifies two different housing types in the Mid-Rise Attached Housing category. This category includes attached homes, which may be up to five stories tall. Housing styles would include a wrap building or podium building. The Conceptual Site Plan proposes a wrap building, which is designed with potentially different housing styles oriented around a parking structure.

Exhibits 3-5a and 3-5b depict architectural elevations for the three-story walk-up buildings. Exhibits 3-6a through 3-6d depict architectural elevations for the five-story wrap building.

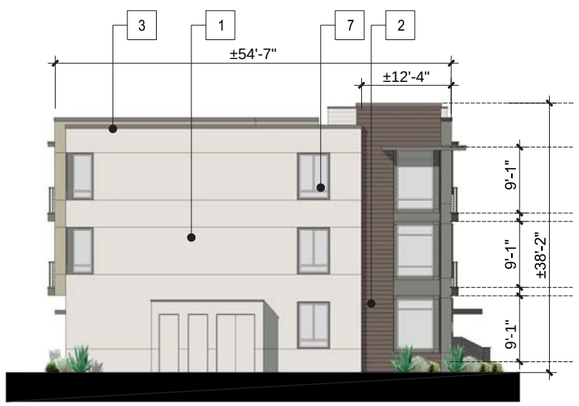
Open Space and Recreation

The Project will include open space components that would provide active and passive recreation opportunities for future Project residents. Consistent with Development Plan requirements, each planning area would allocate a minimum of approximately 200 square feet of common open space and recreation area per dwelling unit. This area may include active or passive recreational uses. The common recreation uses may be located indoors and within any portion of the Project site, except for the Irvine Boulevard required setback area. In order to count toward the approximately 200 square feet of common open spaces and recreation area



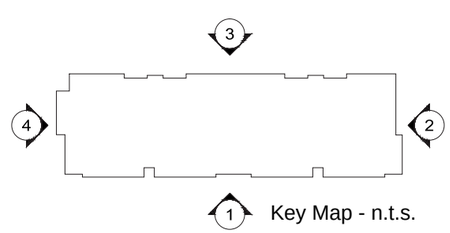
2. Type C - Right Elevation

1. Type C - Front Elevation



4. Type C - Left Elevation

3. Type C - Rear Elevation



Key Map - n.t.s.

Material Legend

1. Stucco
2. Wood Siding
3. Trim
4. Metal Railing
5. Metal Awning
6. Sectional Garage Door
7. Vinyl Windows
8. Brick Veneer

Source: West Alton Parcel Development Plan, 2016

Architectural Elevation (Walk-Up Building I)

Exhibit 3-5a

West Alton Parcel Development Plan EIR

Map Not to Scale

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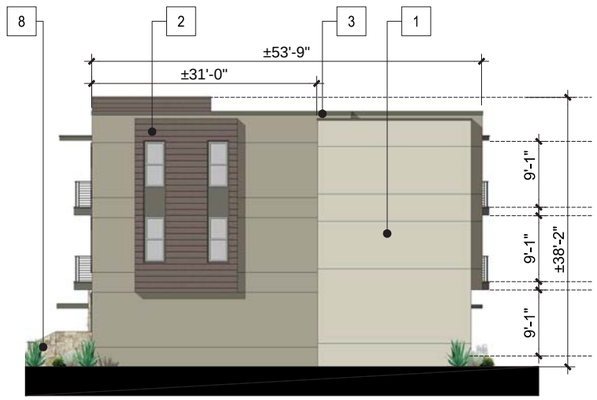
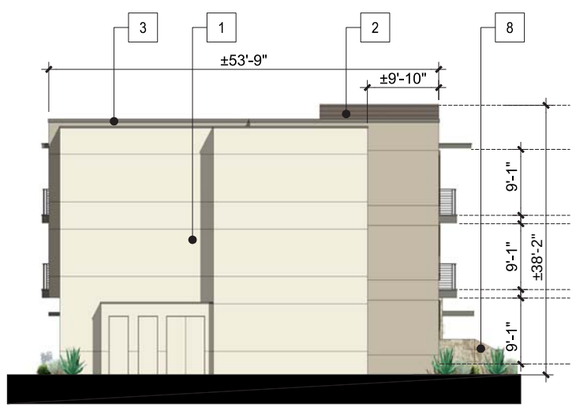


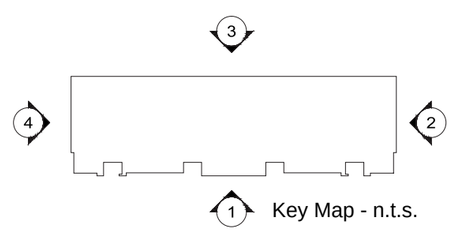
2. Type i - Right Elevation

1. Type i - Front Elevation



4. Type i - Left Elevation

3. Type i - Rear Elevation



Key Map - n.t.s.

Material Legend
1. Stucco
2. Wood Siding
3. Trim
4. Metal Railing
5. Metal Awning
6. Sectional Garage Door
7. Vinyl Windows
8. Stone Veneer

Source: West Alton Parcel Development Plan, 2016

Architectural Elevation (Walk-Up Building II)

Exhibit 3-5b

West Alton Parcel Development Plan EIR

Map Not to Scale

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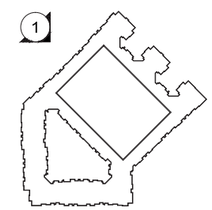
1A. Northwest Elevation - left



Key Map - n.t.s.

Material Legend

1. Stucco
2. Wood Siding
3. Stone Veneer
4. Trim
5. Glass Railing
6. Metal Railing
7. Metal Awning
8. Metal Panel
9. Vinyl Windows
10. Storefront Windows

1B. Northwest Elevation - right

Source: West Alton Parcel Development Plan, 2016

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Architectural Elevation (Wrap Building)

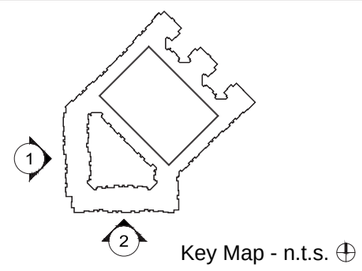
Exhibit 3-6a

West Alton Parcel Development Plan EIR

Map Not to Scale

1. West Elevation

2. South Elevation



Key Map - n.t.s.

Material Legend
1. Stucco
2. Wood Siding
3. Stone Veneer
4. Trim
5. Glass Railing
6. Metal Railing
7. Metal Awning
8. Metal Panel
9. Vinyl Windows
10. Storefront Windows

Source: West Alton Parcel Development Plan, 2016

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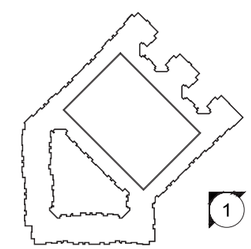
Architectural Elevation (Wrap Building)

Exhibit 3-6b

West Alton Parcel Development Plan EIR

Map Not to Scale

1A. Southeast Elevation - left



Key Map - n.t.s.

Material Legend

1. Stucco
2. Wood Siding
3. Stone Veneer
4. Trim
5. Glass Railing
6. Metal Railing
7. Metal Awning
8. Metal Panel
9. Vinyl Windows
10. Storefront Windows

1B. Southeast Elevation - right

Source: West Alton Parcel Development Plan, 2016

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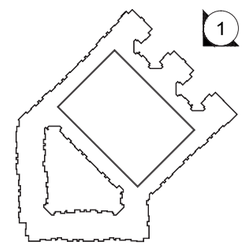
Architectural Elevation (Wrap Building)

Exhibit 3-6c

West Alton Parcel Development Plan EIR

Map Not to Scale

1A. Northeast Elevation - left



Key Map - n.t.s.

Material Legend

1. Stucco
2. Wood Siding
3. Stone Veneer
4. Trim
5. Glass Railing
6. Metal Railing
7. Metal Awning
8. Metal Panel
9. Vinyl Windows
10. Storefront Windows

1B. Northeast Elevation - right

Source: West Alton Parcel Development Plan, 2016

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Architectural Elevation (Wrap Building)

Exhibit 3-6d

West Alton Parcel Development Plan EIR

Map Not to Scale

per dwelling unit, an outdoor area is required to be a minimum of 5,000 square feet and have a maximum average grade of 5 percent.

The open space system provided for in the Conceptual Site Plan includes a number of neighborhood parks, private recreational spaces, focal gardens, and pocket parks, some of which are connected by a trail system that takes advantage of the Project site's surrounding terrain and natural viewsheds. The Project proposes 2.58 acres of parks in Planning Area 1 and 1.53 acres of parks in Planning Area 2.

This open space system and parks would extend into every neighborhood community. Types of parks contemplated by the Development Plan include neighborhood parks, private recreational areas, focal gardens and pocket parks. As with the residential uses, the precise configuration of the open space and parks may vary from what is presented in the Conceptual Site Plan. The Conceptual Site Plan serves as a representative example of what the Development Plan allows for purposes of conducting the CEQA analysis.

Neighborhood Parks

A total of three neighborhood parks are proposed within the Project site. Neighborhood Parks A and C are proposed in Planning Area 1 and Neighborhood Park B is proposed in Planning Area 2. Neighborhood Park A is proposed in the southeast portion of Planning Area 1 between Magazine Road and the eastern boundary of Planning Area 1. This park would have a landscape planting area adjacent to the Reserve, and a radiant heat wall per the Fire Behavior Analysis Report would be included within a portion of this landscape planting area. Neighborhood Park A would include both active and passive program elements, as listed below:

- Active program elements: children's play area and open turf areas
- Passive program elements: 5-foot concrete pedestrian walk; picnic area; lookout pavilion; interpretive signage; wildlife habitat feature; and bench seating

Neighborhood Park B is proposed in the northeast portion of Planning Area 2 adjacent to the Wildlife Movement Corridor. This park would have a landscape planting area adjacent to the Wildlife Movement Corridor fence line. A radiant Heat Wall per the Fire Behavior Analysis Report would be included within this landscape planting area. Neighborhood Park B would include both active and passive program elements as listed below.

- Active program elements: children's play area and open turf areas
- Passive program elements: 5-foot concrete pedestrian walk; picnic area; lookout point; dry creek; pedestrian bridges; interpretive signage; and wildlife habitat feature

Neighborhood Park C is proposed in the northwest portion of Planning Area 1 between the eastern boundary of the Project site (adjacent to the Reserve) and Irvine Boulevard. This park would have a landscape planting area adjacent to the Reserve Area, and a radiant Heat Wall per the fire Behavior Analysis Report would be included within a portion of this landscape planting area. Neighborhood Park C would include both active and passive program elements as listed below.

- Active program elements: children's play area and open turf areas
- Passive program elements: 5-foot concrete pedestrian walk; picnic area; lookout point; bench seating; and interpretive signage

Private Recreational Area

Two private recreation areas, intended to serve the residential developments, are proposed, one in each planning area. Private Recreation Area A, located in Neighborhood B, would include planting that would create a buffer between the surrounding building and the recreational amenity. This facility would include a clubhouse as well as both active and passive program elements.

Private Recreation Area B, located in northwestern portion of Planning Area 2 (Neighborhood D), would also include a clubhouse. A 5-foot concrete walk proposed in Planning Area 2, would traverse the periphery of this recreation area. This facility would also include both active and passive program elements.

Focal Gardens

Two focal gardens are proposed in Planning Area 1 in the vicinity of Neighborhoods A and B, along the eastern boundary of the Planning Area 1 interfacing the Reserve. The landscaping within focal gardens would utilize fire-resistant planting and drought-tolerant accent trees. The focal gardens are intended as passive recreation area and would include a variety of features, including concrete walks; interpretive signage; focal landscape elements; and butterfly gardens.

Pocket Parks

A number of pocket parks would be provided in Planning Areas 1 and 2 as minor outdoor recreational spaces. These parks would include small-scale amenities and supplement the Project's overall paseo system. Pocket parks are intended as passive recreation and would include features such as paved pedestrian paseo walks; rest areas with bench seating; small picnic areas; and open turf areas.

Open space trails within the Irvine Boulevard setback area and paseos internal to the Project site would provide additional linkages between all neighborhoods. Locations for planned neighborhood parks, recreational spaces, sidewalks, and trails within the Project site are identified on Exhibit 3-7, Conceptual Open Space and Recreation Plan.

3.5.2 INFRASTRUCTURE

The Project includes various on- and off-site infrastructure improvements to facilitate the development. These improvements include, but are not limited to, the installation of potable and recycled water lines, storm water detention and conveyance systems, electrical lines, phone lines, gas lines, and sanitary sewers. The precise location of the necessary infrastructure improvements would be determined as part of the final design process and coordination with the service providers. However, no new infrastructure would traverse the Wildlife Movement Corridor or extend into the NCCP/HCP Reserve Area. All infrastructure improvements are

LEGEND

Open Space

Neighborhood Park
- Open Space for Private Development

Private Recreational Space
- Open Space for Private Development

Focal Garden
- Landscape Planting + Accent Trees
- Open Turf
- Butterfly Gardens
- Succulent Gardens
- Bench Seating

Pocket Park
- Connective Paseo System
- Bench Seating
- Picnic Areas
- Mini Children's Play Elements

Trail Network

- 5′ Curb-Separated Walk (Irvine Blvd) (0.5 Miles)
- 5′ Concrete Walk (1.4 Miles)
- 4′ Concrete Paseo Walk (0.2 Miles)
- 3′ Decomposed Granite Trail (0.4 Miles)

Total: 2.5 Miles

Recreation Areas

1. **Neighborhood Park A**
   - Natural Child Play Area
   - Open Turf Play Area
   - Park Walks
   - Focal Art Features
2. **Neighborhood Park B**
   - Natural Child Play Area
   - Open Turf Play Area
   - Park Walks
   - Focal Art Features
3. **Neighborhood Park C**
   - Natural Child Play Area
   - Open Turf Play Area
   - Park Walks
   - Focal Art Features
4. **Clubhouse**
   - Multi-Purpose Room (Wi-Fi cafe, library, music/movie rooms, crafts, indoor game tables, etc.)
   - Restrooms / Shower Facility
   - Fitness Center
5. **Private Rec Area A**
   - Recreational Lap Pool + Spa
   - BBQ/Dining Area + Outdoor kitchen
   - Shade Structures
   - Lounge + Fire Pit
   - Pool Equipment Room (Garage)
   - Parking in Structure
6. **Private Rec Area B**
   - Multi-Purpose Room
   - Game Room
   - Resort Pool/Lagoon + Spa
   - Cabanas
   - Restroom/Shower Facility
   - Outdoor Fireplace/Lounge Seating
   - Pool Equipment Building
   - On-Site/On-Street Parking
   - Bocce Ball

Focal Features

Project Monument / Identification

A Focal Art Feature
- Public artwork
- Sculptures
- Compass rose/sundials

B Interpretive Signage
- Creative signage displays
- Educational information displays
- Trail markers
- Wayfinding elements

C Play Equipment

D Lookout Points
- View decks
- Focal shade structures (non-combustible material)
- Tower viewers/binoculars for bird-watching and locating features within wildlife corridor

E Wildlife Habitat Feature

Open Space & Recreation Plan

West Alton
Irvine, California

Prepared for:
Lowe Enterprises

12 May 2016

Source: EPT, 2016

Conceptual Open Space and Recreation Plan

Exhibit 3–7

West Alton Parcel Development Plan EIR

Map Not to Scale

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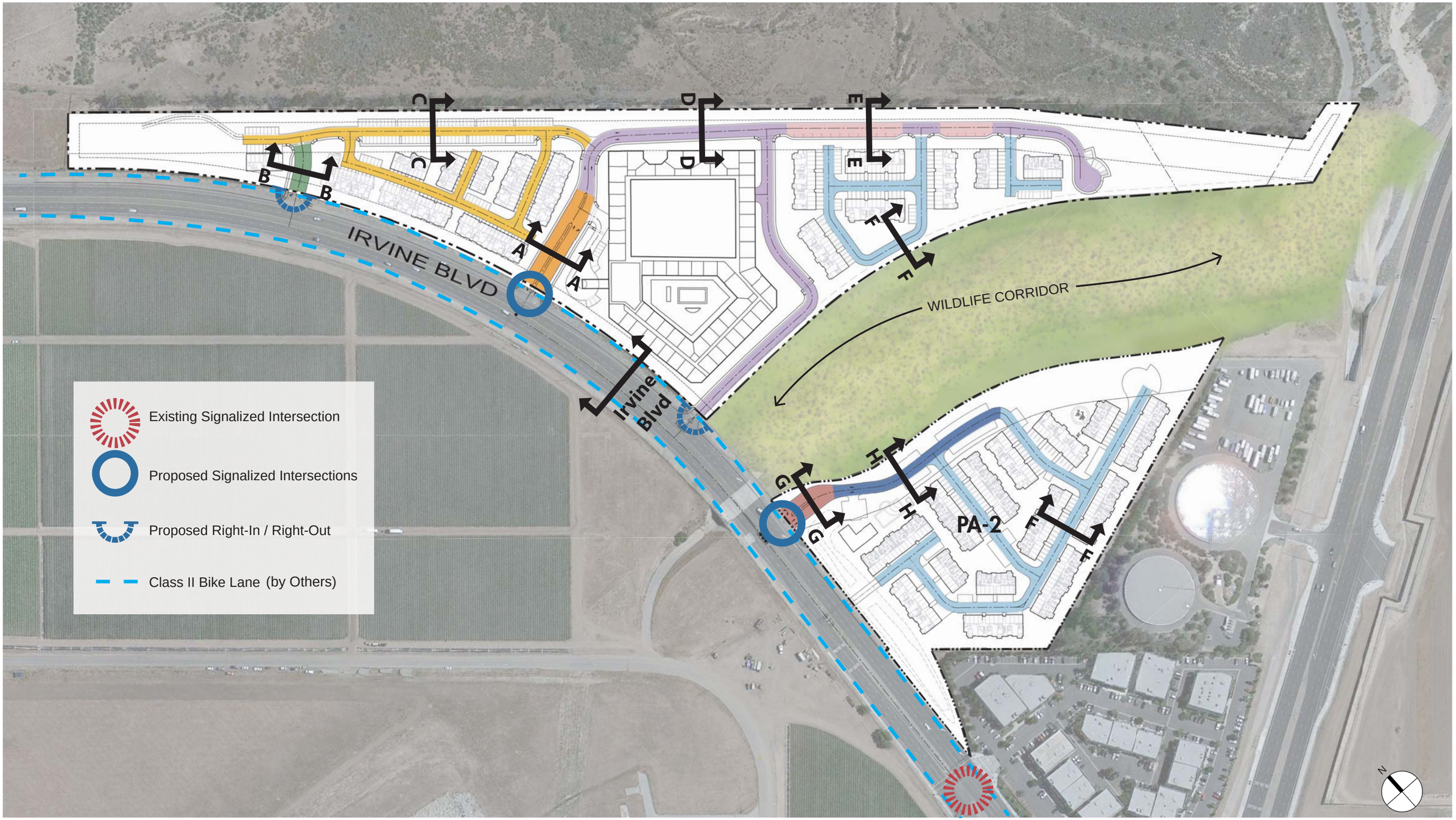
expected to be within the development areas of the Project analyzed in this EIR or existing public rights-of-way.

Roadways

Primary access to the Project site is provided by Irvine Boulevard, as depicted on Exhibit 3-8a, Circulation Plan. The City of Irvine classifies Irvine Boulevard as a six-lane Major Arterial Highway. As shown on Exhibit 3-8b, Cross-Sections, Irvine Boulevard, upon completion of on-going improvements, will include three travel lanes and a Class II bike lane in each direction. The proposed Project includes up to two signalized intersections on Irvine Boulevard. Non-signalized, right-in, right-out only intersections along Irvine Boulevard are also planned at two locations serving Planning Area 1. Planning Area 2 also includes a secondary emergency vehicular access point onto Irvine Boulevard.

The signalized intersections into Planning Areas 1 and 2 serve as primary entries into these areas. As depicted on Exhibit 3-8b, the entry into Planning Area 1 would include two lanes of traffic in each direction, a median and sidewalks on the northern and southern sides of the street. The signalized entry into Planning Area 2 would include two lanes in each direction for entering and exiting the site, a median and no sidewalks. Public sidewalk access to Planning Area 2 would be provided via a separate connection just south of this main entry and at the secondary emergency access off Irvine Boulevard.

The internal circulation of the Project, depicted on Exhibits 3-8a and 3-8b, would typically feature a two-lane street, and where right-of-way width is a minimum of 28 feet of pavement and includes a five-foot sidewalk on one side of the street (Sections B-B, D-D, and E-E on Exhibit 3-8b). Smaller internal streets, such as alleys, would generally provide access to the residential units and would not have on-street parking or sidewalks. On-street parking would be provided on a portion of the circulation system in Planning Area 1, adjacent to the northeastern Project boundary (Section E-E on Exhibit 3-8bdepicts a 28-foot paved roadway, with parallel parking on one side and an 8-foot sidewalk). Stop-sign-controlled intersections would be included throughout the Project site to facilitate safe and efficient traffic flow. The Development Plan promotes the use of alternative modes of travel (biking, walking, and transit) and increases vehicle travel efficiency. This is accomplished by a number of design guidelines, including promoting connections to the Class II bike lane on Irvine Boulevard; incorporating sidewalks on at least one side of all streets; providing sharrows (a shared vehicle and bike lane) on internal streets; incorporating shade trees on all streets to provide pedestrian comfort; where appropriate, including traffic calming measures such as enhanced crosswalks, bump-outs, chokers, minimum curb radii, and narrow street widths to reduce vehicle speeds and promote pedestrian and bicycle safety; designing bike and pedestrian paths with easy, direct, and safe routes for non-vehicular commuting and promoting connections to the OCGP and nearby properties that do not include sensitive biological resources; providing opportunities to connect to off-side public transportation options and accommodating public transportation access within the community; including ample bicycle and pedestrian amenities in strategic locations; encouraging provision of shared community bicycles and/or electric bikes; and encouraging provision of fee-based EV charging stations within common parking structures.



Source: KTGY 2016

Circulation Plan

Exhibit 3-8a

West Alton Parcel Development Plan EIR

Map Not to Scale

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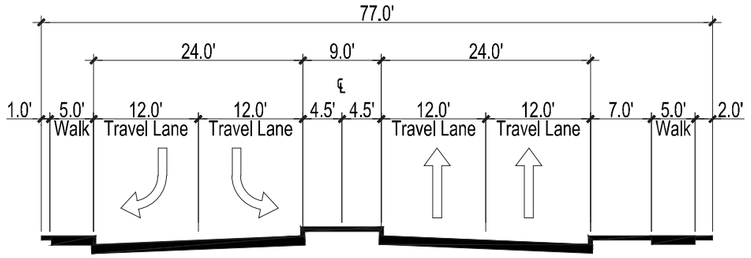

SECTION A-A
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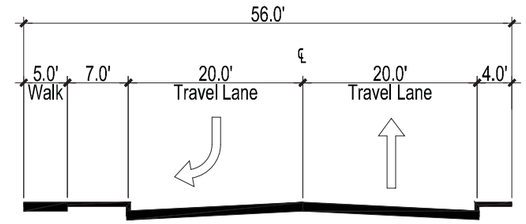

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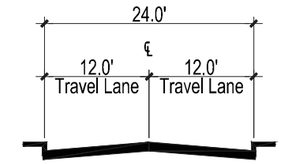

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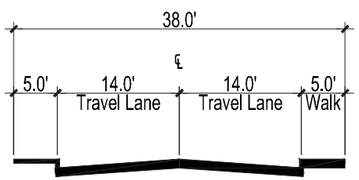

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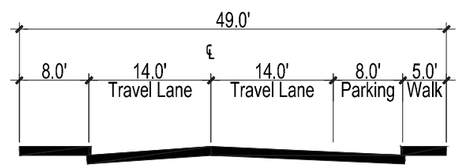

SECTION E-E
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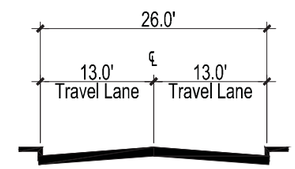

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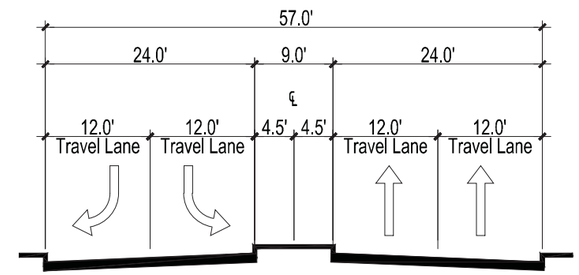

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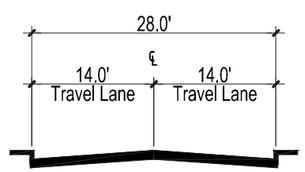

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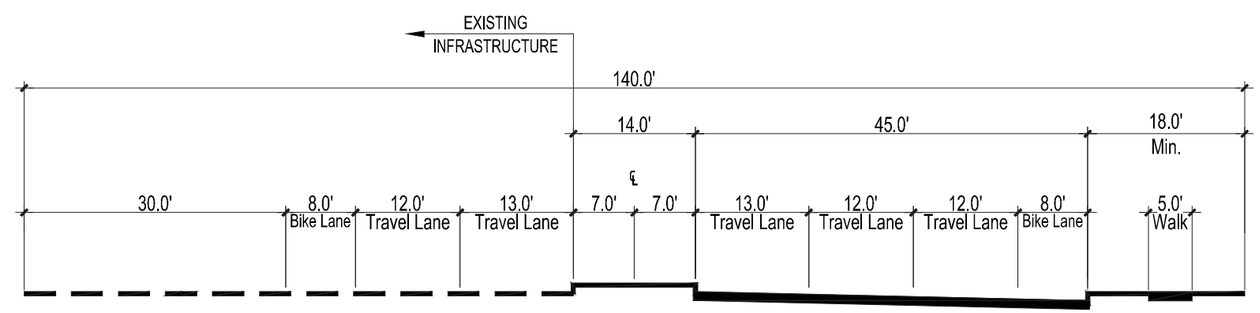

TYPICAL SECTION - IRVINE BLVD
NTS

Source: KTGY 2015

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Cross Sections

Exhibit 3-8b

West Alton Parcel Development Plan EIR

The existing Magazine Road, would be partially removed and access to the FBI property would be redirected through the development area of the Project site eventually connecting to the existing Magazine Road alignment near the southeasterly corner of Planning Area 1. Public access to the FBI property is and will continue to be restricted via a controlled gate provided by the County. This would also restrict access to the designated NCCP/HCP Reserve Area. Additionally, the existing private access road in Planning Area 2 would be removed as part of site preparation.

Drainage

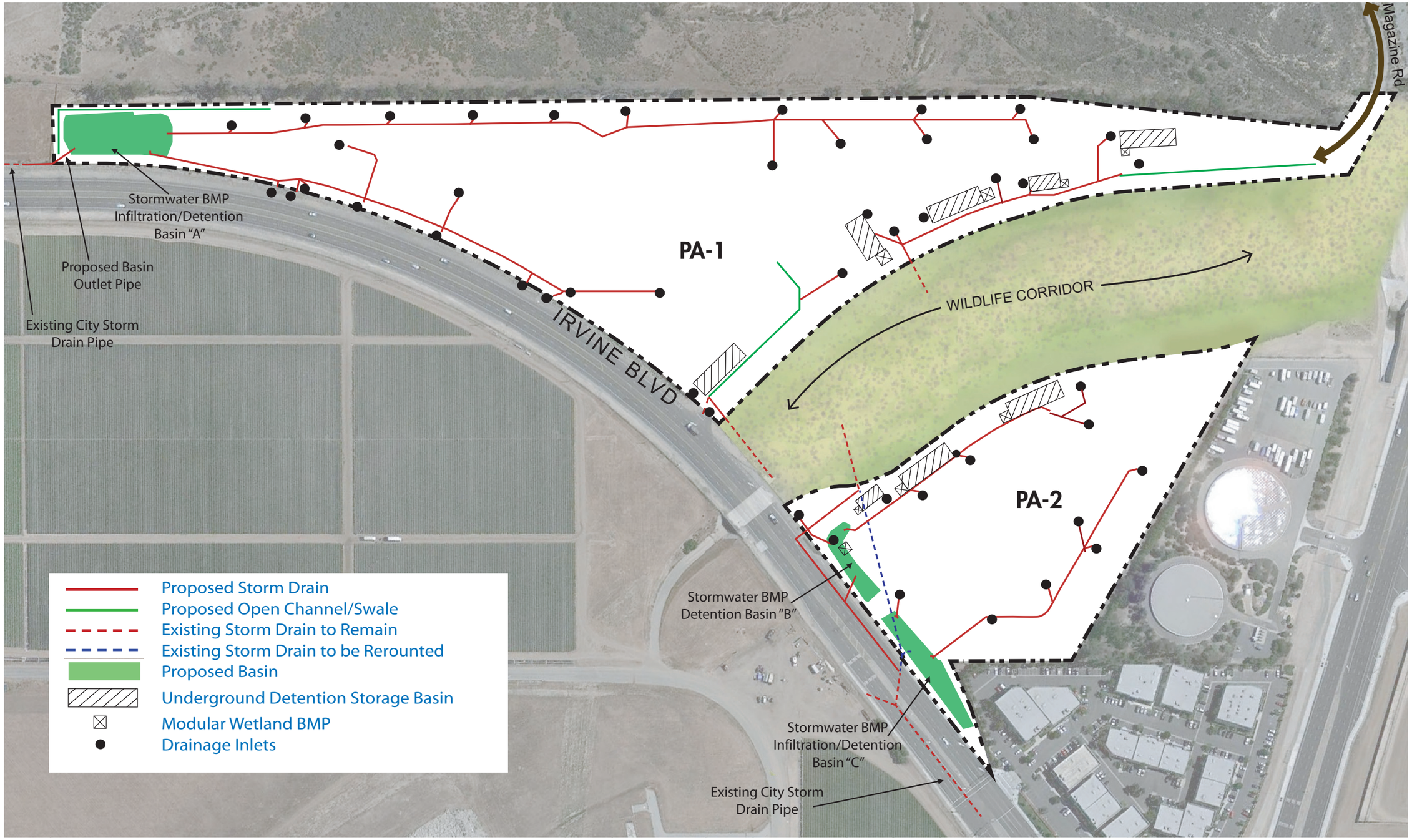
The existing Project site drains into two separate San Diego Creek Watershed tributary areas: Agua Chinon Channel Watershed and Borrego Canyon Channel Watershed. The Project's storm water run-off would be collected by new drainage facilities within the Project and would ultimately discharge into off-site drainage systems in these tributary areas. On-site drainage infrastructure would be located within the Project roadway and open space systems areas to connect to existing off-site storm drain facilities. Proposed on-site facilities and off-site connections are depicted on Exhibit 3-9, Drainage Infrastructure.

The Project's storm drain system would be designed to manage the post-development storm water discharge volume for the 100-year condition, and would not exceed the storm water discharge for the existing 100-year condition. The proposed storm water systems would also be designed to treat the 2-year, 24-hour storm water runoff volumes (Design Capture Volume) for pollutants of concern. This treatment system would be coordinated with the on-site detention systems to address the difference between the pre- and post-development storm water discharge volumes. Storm water treatment systems would include both infiltration and bio-filtration devices. Infiltration is currently planned to occur in two of the Project's three on-site storm water basins. The three on-site storm water runoff basins would also provide detention of peak 100-year storm water to address the Project's hydromodification goals.

Off-site storm drain improvements would include storm drain line connections to an existing storm drain line in Irvine Boulevard and a proposed storm drain line in Irvine Boulevard that is currently under construction by the City of Irvine. The proposed construction for PA-2 would also require the relocation of an existing private storm drain line that conveys storm water runoff from the Wildlife Movement Corridor to the existing storm drain line in Irvine Boulevard. The portion of the storm drain line to be relocated is outside of the Wildlife Movement Corridor and is located within Planning Area 2.

A portion of the storm water runoff from Planning Area 1 would discharge into two existing storm drain lines that discharge storm water runoff into the Wildlife Movement Corridor. The storm water flow would ultimately be conveyed to the Borrego Canyon Wash via the Wildlife Movement Corridor storm drain line that is to be relocated as part of the Planning Area 2 site improvements. The storm water runoff to the Wildlife Movement Corridor would be treated using bio-filtration techniques prior to connecting to the existing on-site Wildlife Movement Corridor storm drain lines. Storm water flows to the Wildlife Movement Corridor would be limited to the existing condition storm water volumes, unless approved by the jurisdiction of authority to allow increased volumes of storm water runoff.

The rest of the storm water runoff from Planning Area 2 would be discharged into the proposed City of Irvine storm drain line that is currently under construction within Irvine



Source: West Alton Parcel Development Plan, 2016

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Drainage Infrastructure

Exhibit 3-9

West Alton Parcel Development Plan EIR

Map Not to Scale

Boulevard. Storm water discharge in this line ultimately is conveyed to Agua Chinon Wash via existing city storm drain lines located downstream of the Project.

For the remainder of the drainage area within Planning Area 1 the on-site storm water runoff would be routed through several on-site private storm drain lines which would discharged into a storm water detention and infiltration basin located in the northwest corner of Planning Area 1. The proposed basin is an expansion of an existing storm water basin constructed for the property prior to the construction of the Wildlife Movement Corridor. The basin's drainage outlet pipe will then connect to the proposed City storm drain line that is currently under construction.

Storm water runoff from Planning Area 2 would discharge into an existing storm drain line in Irvine Boulevard that connects to the Borrego Canyon Wash box culvert located alongside Alton Parkway after going through the on-site infiltration and bio-filtration systems. Storm water detention for Planning Area 1 would be provided via the two proposed detention basins on the Project site.

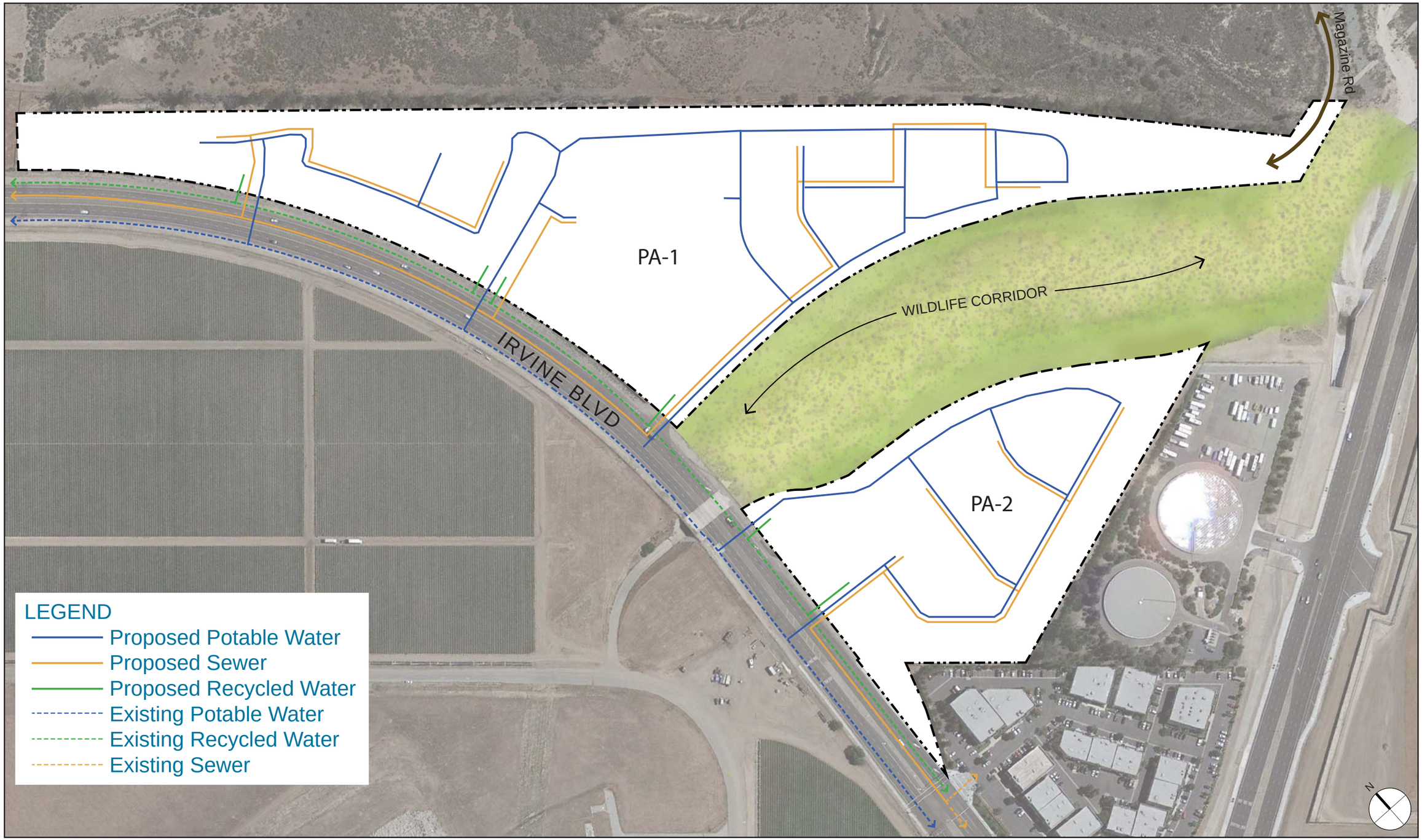
Potable Water

The IRWD would provide the Project's potable domestic water. The Project's backbone domestic water network would consist of 8- to 12-inch water lines within private street rights-of-way or open space areas and within dedicated utility easements with multiple connections to an existing IRWD domestic water line in Irvine Boulevard to provide a looped domestic water system on-site within Planning Area 1 and 2. The planned potable water lines serving the Project are depicted on Exhibit 3-10, Water and Sewer Infrastructure. This domestic water facility would also be used for fire protection services. Fire hydrants would be installed, where required, per the Orange County Fire Authority (OCFA) requirements for fire protection. A utility easement would be required for the IRWD domestic and fire water lines. The domestic water line improvements would be installed in accordance with IRWD requirements.

Recycled Water

The IRWD would provide the Project's recycled water. The improvement would include the installation of multiple recycled water service lines with meters being installed along Irvine Boulevard and connecting to the existing IRWD recycled water line in Irvine Boulevard. Connection points to IRWD's existing recycled water service in Irvine Boulevard is anticipated to occur at each roadway intersection along Irvine Boulevard. Additional connections may be required as part of the Project's final landscape features and requirements and coordination with IRWD.

A utility easement would be established for the IRWD's recycled water line and meters. Meter location may occur on- or off-site within the existing Irvine Boulevard right-of-way. Installation of the recycled water line improvements on-site would be completed in accordance with IRWD installation requirements.



Source: West Alton Parcel Development Plan, KTGY, 2016

Water and Sewer Infrastructure

Exhibit 3-10

West Alton Parcel Development Plan EIR

Map Not to Scale

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Sanitary Sewer

The IRWD would provide the Project's sanitary sewer system. The Project's backbone sewer network would consist of 8- to 12-inch sewer lines in the Project's private roadway rights-of-way and open space areas and connect to an existing IRWD sewer line in Irvine Boulevard. The planned sewer network serving the Project is shown on Exhibit 3-10, Water and Sewer Infrastructure. Planning Areas 1 and 2 would connect to two different IRWD sewer mains in Irvine Boulevard.

The sanitary sewer system in Planning Area 1 would connect to a proposed IRWD sewer line in the roadway along Merit Street, the eastern edge of Portola High School, which is currently being constructed in conjunction with the City of Irvine's street improvements. The Project may install up to approximately 2,500 linear feet of 8-inch sewer line in Irvine Boulevard and in Merit Street. The new 8-inch sewer line would be extended as part of the Project's off-site sewer improvements to connect to the Project's three 8-inch sewer outlet discharge points serving Planning Area 1 (see Exhibit 3-10). The new 8-inch sewer main would then be extended approximately 1,700 feet in Irvine Boulevard in a northwest direction until reaching Merit Street. If the IRWD sewer main extension is delayed or does not occur, an alternative solution would be to construct an on-site sewer lift station that would connect to the Planning Area 2 off-site sewer line in Irvine Boulevard, southeast of the Wildlife Movement Corridor.

The sanitary sewer line for Planning Area 2 would include installation of a new sewer line in Irvine Boulevard along the Project frontage to connect to the existing sewer main line in Irvine Boulevard that extends from Alton Parkway to Allred Centre and currently provides sanitary sewer service to the existing business park. The sewer improvements would include installation of a new sewer line in Irvine Boulevard along the Project frontage to connect to the existing sewer main line. The existing sewer line in Irvine Boulevard connects to an existing IRWD sewer main in Alton Parkway (known as the "Alton Trunk Sewer"). The proposed 8-inch sewer line in Irvine Boulevard would be extended approximately 500 linear feet from Allred Centre to the Planning Area 2 sewer main. A utility easement would be established for all proposed on-site IRWD sewer lines. Installation of sewer improvements would be completed in accordance with IRWD requirements.

Off-Site Infrastructure Improvements

Off-site improvements would be required to serve the Project and would be provided as part of future development. The following improvements would be implemented by the County, or County's designee, for the Project:

- Improvements to Irvine Boulevard along the Project frontage (may include minor street pavement improvements, signalized intersection[s], sidewalk improvements, a median emergency access crossing, the addition of two median turn pocket improvements and the construction of four street intersection connections to Irvine Boulevard).
- Utility and storm drain system connections and improvements within Irvine Boulevard (includes sewer, water [domestic and recycled], electrical gas, communication and cable television services, and storm drain improvements).

3.5.3 REGULATORY FRAMEWORK

The Development Plan provides the regulatory framework for the design and development of the Project site. The regulations provide specific Project planning, architectural design, and landscape design provisions for all development on the Project site. While development standards regulate design and development, and establish the minimum standards and requirements for the phased development of the West Alton Parcel Development Plan, design guidelines serve as a supplement to the development standards to provide a design framework for landscape, streets, and buildings. The full text of the design guidelines and development standards is contained in Section 2, Design Guidelines, and Section 3, Development Standards, of the Development Plan, which is provided in Appendix A of this EIR.

The following discussion provides an overview of key elements of the regulatory framework.

Parking Standards

The proposed Project would provide parking in accordance with the standards established by the Development Plan. The development contemplated by the Conceptual Site Plan exceeds the minimum parking requirement of 1,463 spaces to meet the needs of future residents and visitors. Compliance with the parking requirements contained in the Development Plan would be determined as part of the Level I Review.

Off-street parking for vehicles and bicycles would be provided throughout the Project site per the requirements of the Development Plan. Table 3.3, Parking Standards, of the Development Plan depicts the parking standards for the Project. Additionally, on-street parking within the Project boundaries would be allowed on one side of the internal drive behind Neighborhood C (Planning Area 1), adjacent to the southeast boundary of the Project site (see Exhibits 3-8a and 3-8b [Section E-E]). Parking would be restricted at the approaches to intersections due to intersection turning movements and sight distance requirements for safety reasons.

Off-street parking requirements are outlined in Section 3.9, Parking Standards and Table 3.3, of the Development Plan. The off-street parking standards are established based on the number of bedrooms for each residential use. Where applicable, parking on all internal drives counts towards the required residential visitor parking requirements. Tandem parking of up to two cars in depth may be counted towards the required off-street parking, where the spaces are assigned to the same unit. Parking may be provided on a different site than the use is located on, as long as the entrance of the parking area is within 600 feet of the entrance of a residential unit or building. All parking lots and/or structures would comply with Section 3.9.1, Parking Lot Design Standards, of the Development Plan.

Development Standards and Setback Requirements

The Project's development standards establish the minimum criteria for the development of individual lots within the Development Plan area. Specific standards, taken from the West Alton Parcel Development Plan, are described on Table 3-3, Development Standards, below.

TABLE 3-3
DEVELOPMENT STANDARDS

Standard	Residential Developments
Maximum gross density	30 du/ac per planning area
Maximum net floor area ratio (FAR)	N/A
Minimum site size	1 acre
Maximum site coverage	75%
Maximum building height	90 feet
Minimum site landscaping	15%
Minimum residential open space*	A minimum of 60 square feet of open space per unit, excluding parkland (either private or common)
Building separation	6 feet

du/ac: dwelling units per acre; FAR: floor area ratio; N/A: not applicable

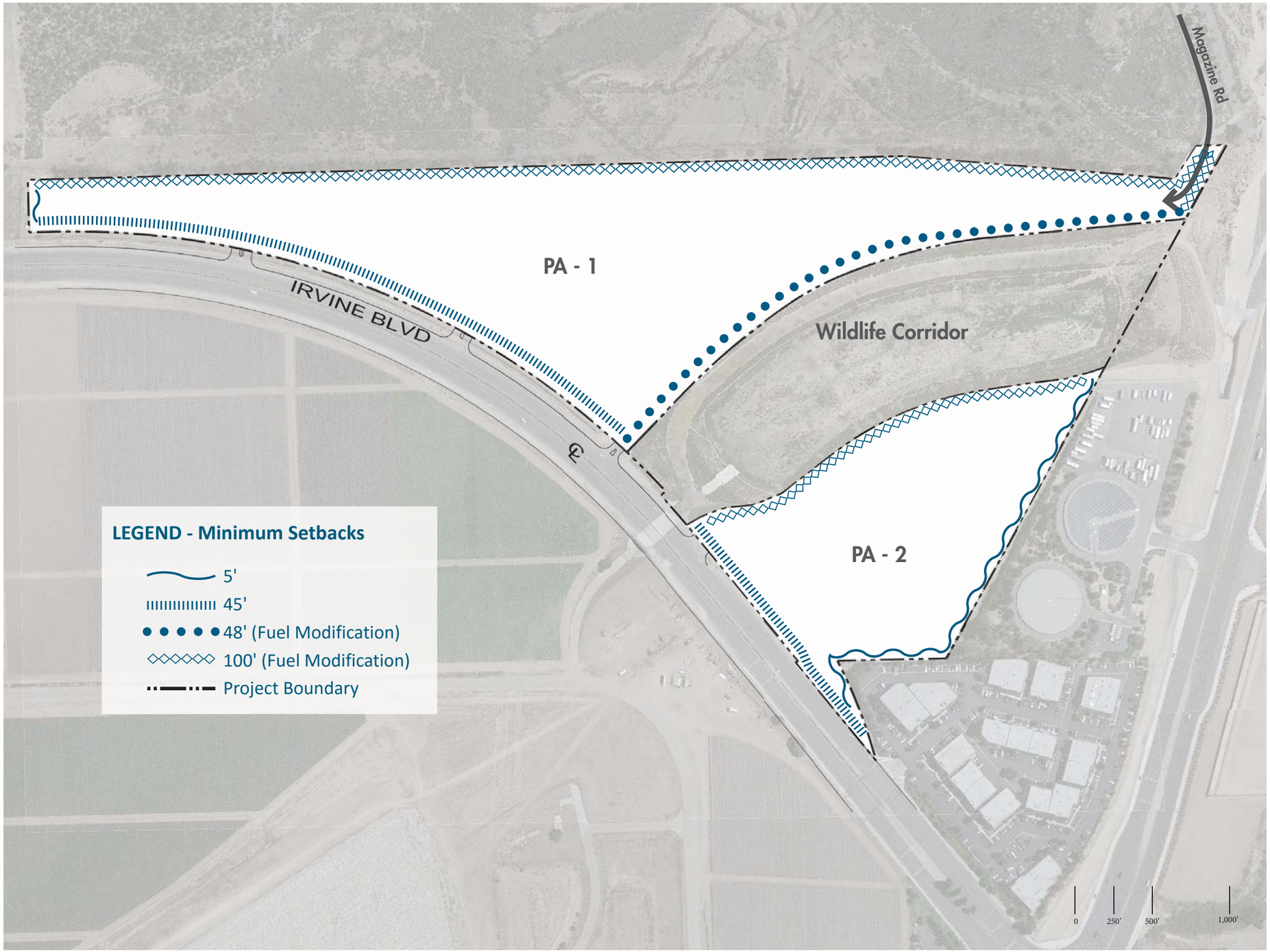
* Private balconies shall have a minimum dimension of 5 feet and private patios shall have a minimum dimension of 7 feet to count towards the open space requirement. Common open space areas shall have a minimum dimension of 20 feet to count towards this requirement.

Source: KTGY 2016.

The required minimum setbacks for the Development Plan area are shown in Exhibit 3-11, Minimum Setbacks. The intent of the setback requirements is to create an inviting residential neighborhood, while in some instances, protecting the Project from the potential risk of wildfires. The Development Plan establishes a range of setbacks from the maximum setback of 100 feet from the open space to the north of the Project and along the southerly boundary of the Wildlife Movement Corridor to a minimum of 1.5 feet between entrances to garages and carports to any drives. More detailed information on setback requirements and permitted setback encroachments is provided in Sections 3.6, Minimum Building Setbacks, and 3.7, Setback Encroachments, of the Development Plan. The permitted encroachments are intended to allow for architectural variation on facades to create an interesting street scene. In all cases, encroachments would comply with the California Building Code (CBC) as well as applicable codes and standards.

3.5.4 PRELIMINARY GRADING PLAN

The Preliminary Grading Plan for the proposed Project is depicted on Exhibits 3-12a through 3-12d. An estimated quantity of 360,000 cubic yards of cut and fill would be required for site preparation of the Project site. As part of the mass grading effort, demolition of Magazine Road and the private road that traverses Planning Area 2 would be required. Onsite crushing of the asphalt from the demolition of the roads may occur. /. The material would be reused as part of Project construction activities. The rough grading would include construction of the roadway subgrades and development of building pads within the residential neighborhoods. It is estimated that the depth of removals for the building pads would be about five feet below the existing surface or below the proposed building foundation elevation, whichever is worst case. For streets, the park site, trails, and other non-structural areas, removals may be on the order of three feet below the existing surface or the proposed roadway subgrade, whichever is a worst case condition. Planning Area 2 may serve as a borrow site and would provide



Source: West Alton Parcel Development Plan, 2016

Minimum Setbacks

Exhibit 3-11

West Alton Parcel Development Plan EIR

Map Not to Scale

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approximately 10,000 to 20,000 cubic yards of cut material to the three neighborhoods in Planning Area 1 to balance the Project's grading on-site. For purposes of this EIR, a worst case analysis has been provided. The air quality, GHG, and traffic analyses have assumed 20,000 cubic yards of export and import. The noise analysis assumes rock crushing onsite. (See Section 1.8, Areas of Controversy/Issues to be Resolved for a discussion on the potential rock crushing onsite and the import/export of soil.)

Grading for the residential neighborhoods would initially consist of rough graded building pads to accommodate the eventual precise grading and building construction. Where necessary, temporary storm water runoff desilting basins will be constructed to address storm water runoff from the rough-graded building pads. Storm drain improvements, including the grading for the three on-site storm water detention basins, would be constructed as part of the rough grading activities to accommodate storm water runoff. Project retaining walls would also be constructed during the period of rough grading. Street construction would commence after completion of the rough grading activity in each neighborhood.

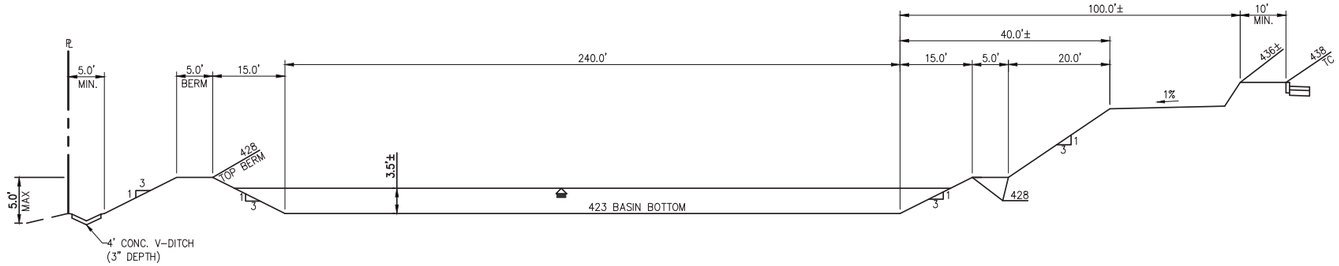
3.5.5 MASTER LANDSCAPE PLAN

The landscape character featured within the Project would be reinforced through neighborhood-based application of landscape and hardscape materials and thematic planting design. The Project landscaping seeks to achieve visual balance between the landscape and architectural features of the Project through introduction of street trees, open space areas, parks, and recreational trails. Exhibit 3-7, Open Space and Recreation Plan, above, depicts the overall community framework that encompasses parks, recreation areas, trail network, and focal features. This exhibit depicts the overall internal relationship of the various components of the open space concept.

The streetscape and hierarchy of neighborhood streets would also establish a community character, a sense of neighborhood, location, and dwelling and would blend with the residential, open space, and park land uses. Exhibit 3-13, Street Tree Hierarchy Plan, depicts the overall theme for street tree planting based on the street hierarchy (i.e., standard gateway street, enhanced gateway street, secondary street, and internal street) throughout the Project site. A variety of deciduous and evergreen street trees would be planted to define the character of the Project's streets, providing a foundation for a diverse landscape framework in the community. A diverse palette of plant materials to be used throughout the Project is included in the Development Plan (see Table 2.1, Community Plant Palette). The plant palette complies with the requirements in Section 3.14, Landscape and Irrigation, of the Development Plan. The palette is created with sensitivity to the Southern California climate and water-efficient landscape practices. Irrigation of all landscaped areas would be conducted in conformance to the rules and requirements of IRWD.

<u>Fuel Modification</u>

The Project site is located adjacent to a Very High Fire Hazard Severity Zone to the north and northeast. As part of the Fire Behavior Analysis Report and Fire Modification Design Criteria, prepared by Firesafe Planning Solutions to establish the appropriate criteria for the design of a defensible space, a Fuel Modification Plan is proposed. The purpose of the plan, depicted on Exhibit 3-14, Conceptual Fuel Modification Plan, is to minimize the spread of fires and to



BASIN SECTION A–A
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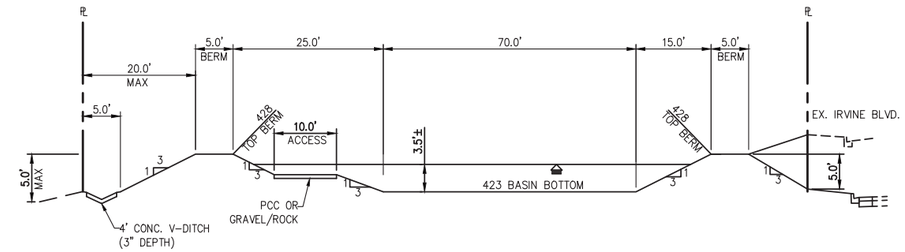

BASIN SECTION B–B
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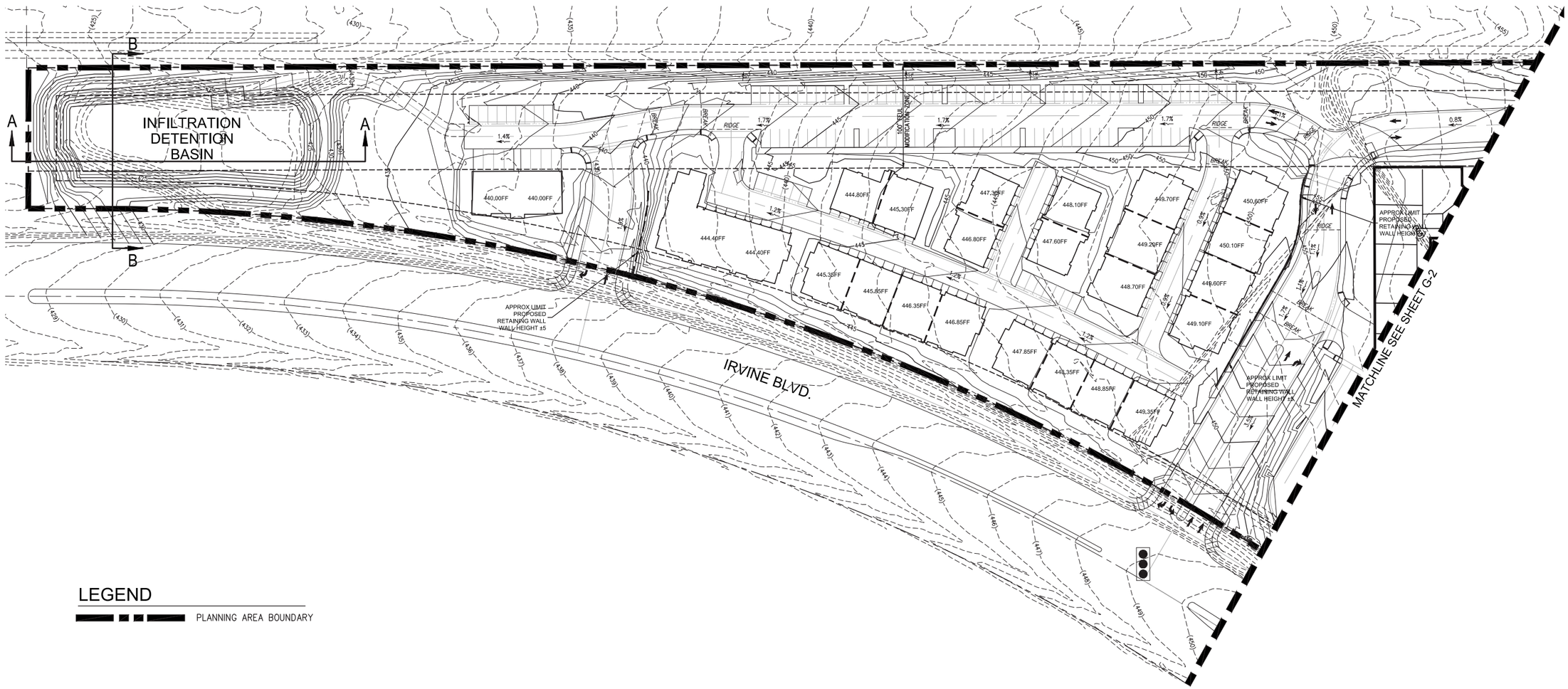

LEGEND

PLANNING AREA BOUNDARY

Source: West Alton Parcel Development Plan, 2016

Preliminary Grading Plan

Exhibit 3-12a

West Alton Parcel Development Plan EIR

N E S W

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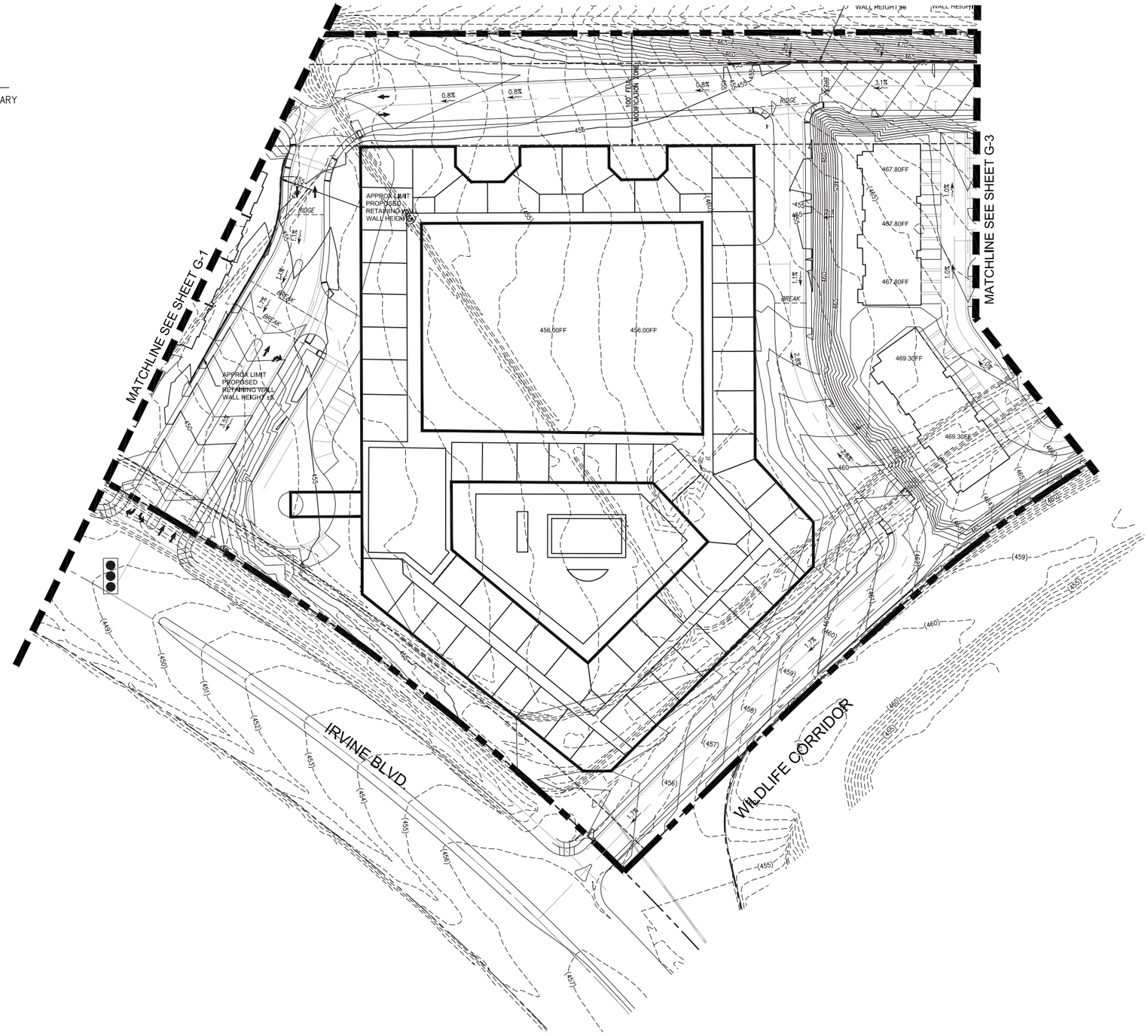
LEGEND

PLANNING AREA BOUNDARY



Source: West Alton Parcel Development Plan, 2016

Preliminary Grading Plan

Exhibit 3-12b

West Alton Parcel Development Plan EIR

N E S W

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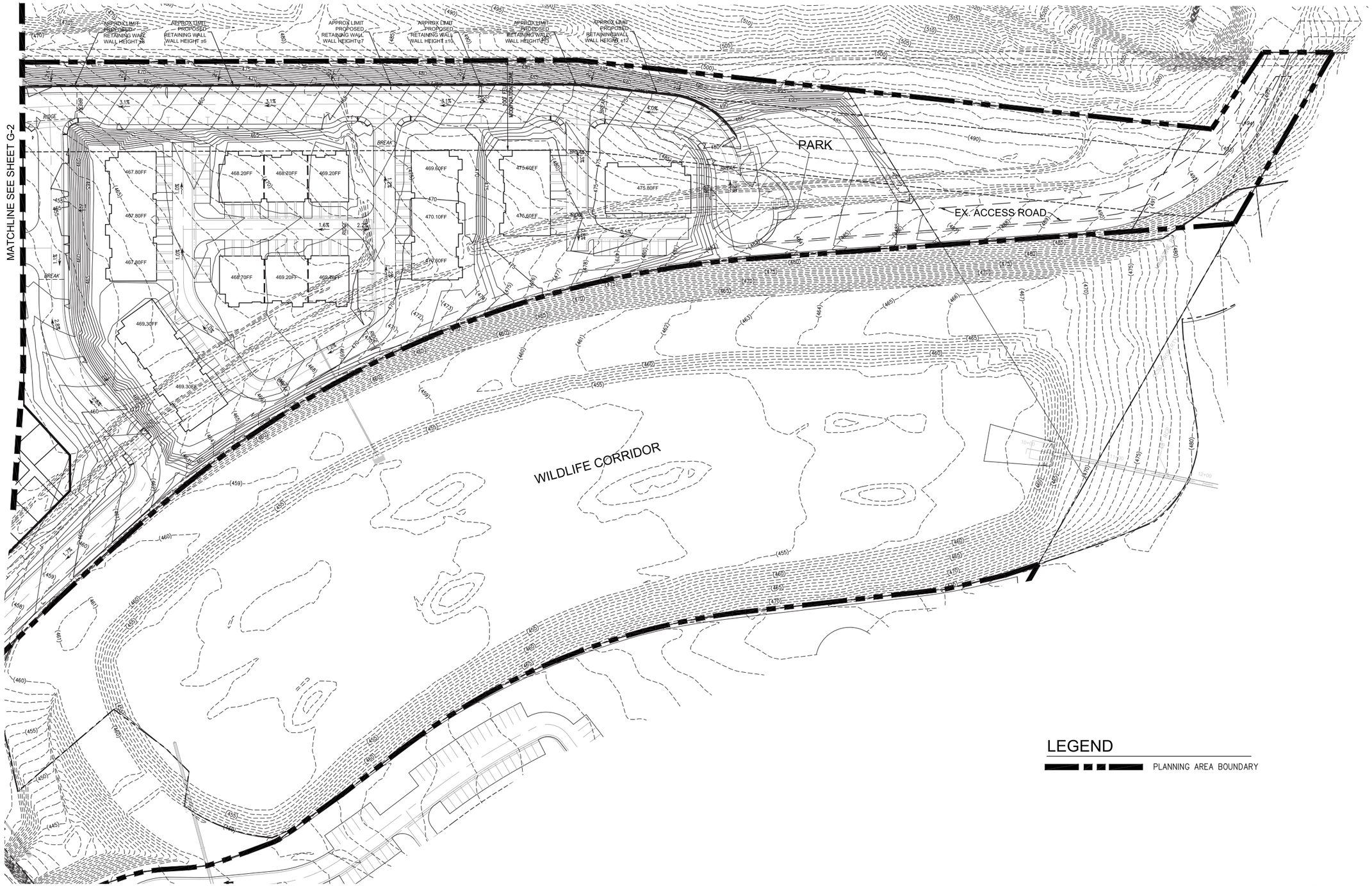

Source: West Alton Parcel Development Plan, 2016

Preliminary Grading Plan

Exhibit 3-12c

West Alton Parcel Development Plan EIR

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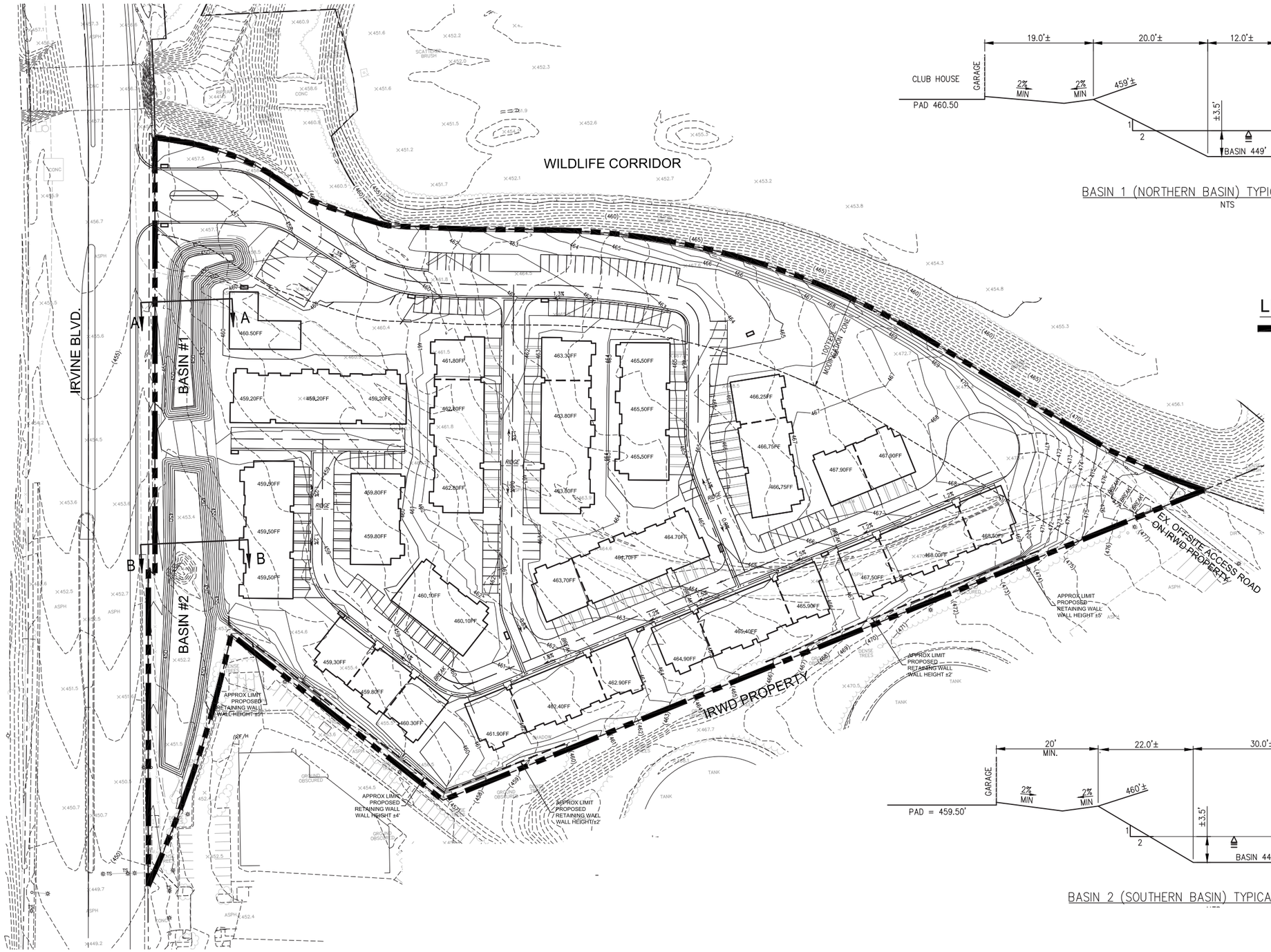
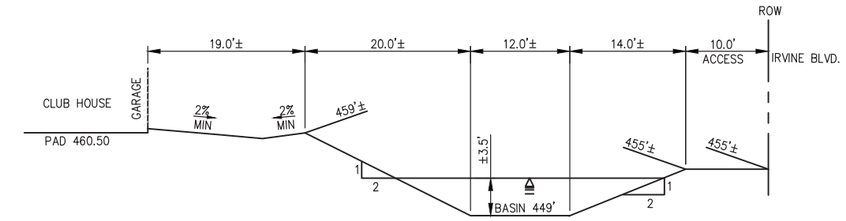
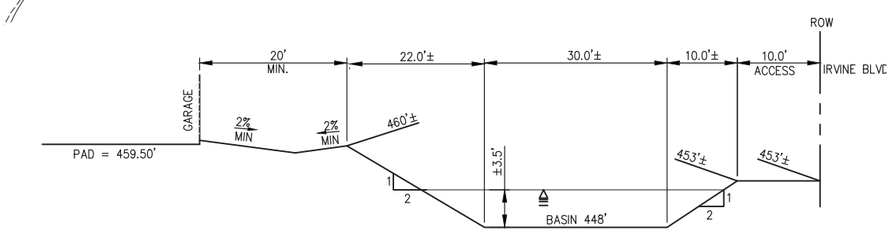




BASIN 1 (NORTHERN BASIN) TYPICAL SECTION A–A
NTS

LEGEND

PLANNING AREA BOUNDARY



BASIN 2 (SOUTHERN BASIN) TYPICAL SECTION B–B

Source: West Alton Parcel Development Plan, 2016

Preliminary Grading Plan

West Alton Parcel Development Plan EIR

Exhibit 3-12d

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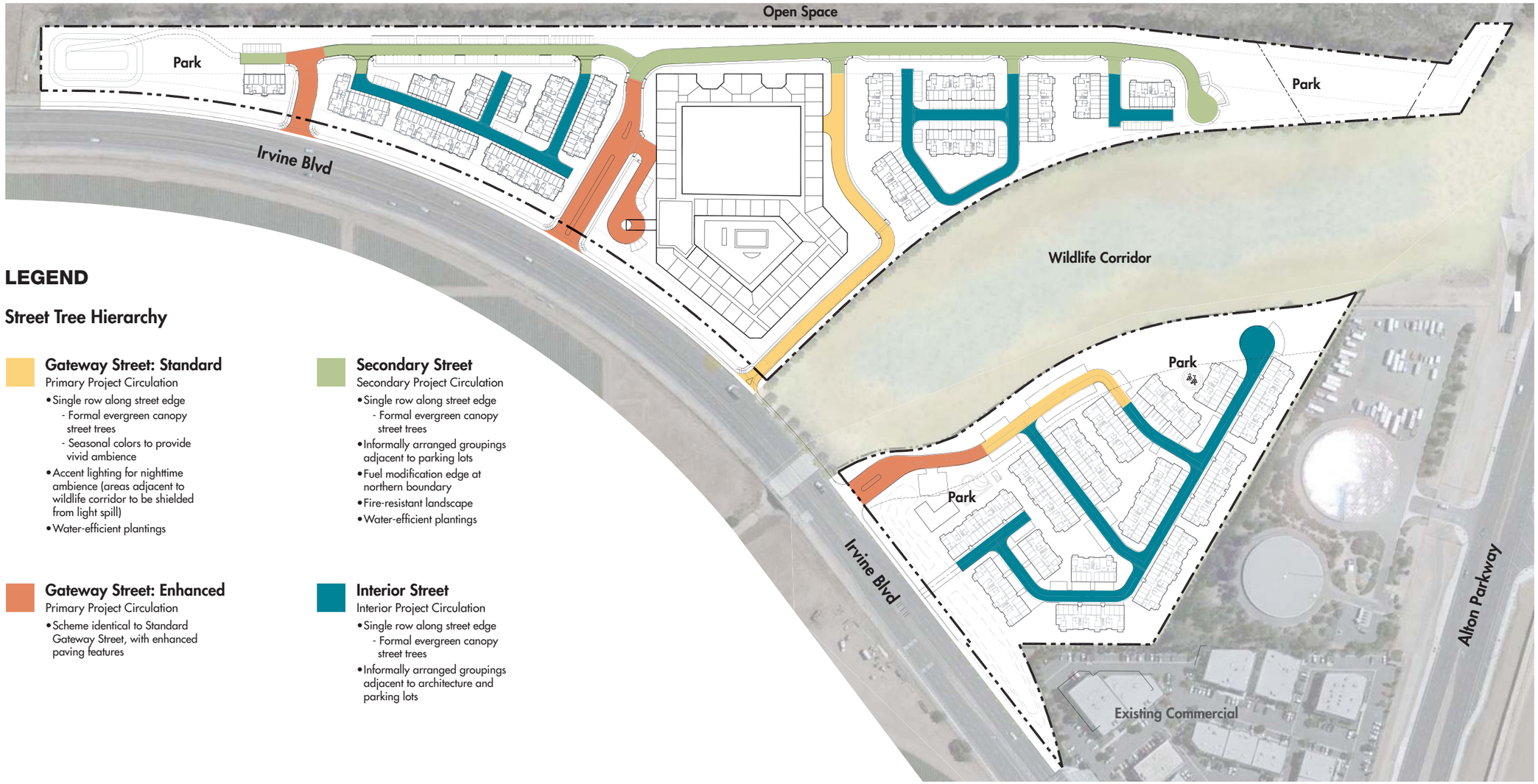

LEGEND

Street Tree Hierarchy

Gateway Street: Standard
Primary Project Circulation
- Single row along street edge
  - Formal evergreen canopy street trees
  - Seasonal colors to provide vivid ambience
- Accent lighting for nighttime ambience (areas adjacent to wildlife corridor to be shielded from light spill)
- Water-efficient plantings

Secondary Street
Secondary Project Circulation
- Single row along street edge
  - Formal evergreen canopy street trees
- Informally arranged groupings adjacent to parking lots
- Fuel modification edge at northern boundary
- Fire-resistant landscape
- Water-efficient plantings

Gateway Street: Enhanced
Primary Project Circulation
- Scheme identical to Standard Gateway Street, with enhanced paving features

Interior Street
Interior Project Circulation
- Single row along street edge
  - Formal evergreen canopy street trees
- Informally arranged groupings adjacent to architecture and parking lots

Street Tree Hierarchy Plan

West Alton
Irvine, California

Prepared for:
Lowe Enterprises

19 February 2016

Source: West Alton Parcel Development Plan, 2016

Street Tree Hierarchy — Exhibit 3-13

West Alton Parcel Development Plan EIR

Map Not to Scale

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protect the Project site from the potential of wildland fires from the adjacent property. Fuel modification is the practice of altering natural landscapes to reduce fire hazard, and it typically includes thinning, pruning, and removing plant material that might serve as fuel in a fire.

The proposed fuel modification zone would occur in areas adjacent to the Wildlife Movement Corridor and in areas that are adjacent to the natural open space to the north.

Plants in fuel modification zones would be selected for their resemblance to existing adjacent natural vegetation and for low water use characteristics in an effort to conserve water and to avoid excess irrigation runoff. Plants that appear on the Orange County Fire Authority's (OCFA) undesirable list would not be selected for the fuel modification zones. Spacing and maintenance requirements in these zones would follow the applicable guidelines established by the OCFA. Private vegetation management for each planning area would be provided by the ground lessee and/or the property owner.

In addition, a Fire Protection Plan is prepared to provide alternative design, construction features, and fuel modification to provide equal or added fire protection for the proposed development. The Conceptual Fire Protection Plan is depicted on Exhibit 3-15.

Details regarding fuel modification dimensions and planting criteria are included in the Fire Behavior Analysis Report and Fuel Modification Design Criteria for the Project site in Appendix D of the West Alton Development Plan (Appendix A of this EIR).

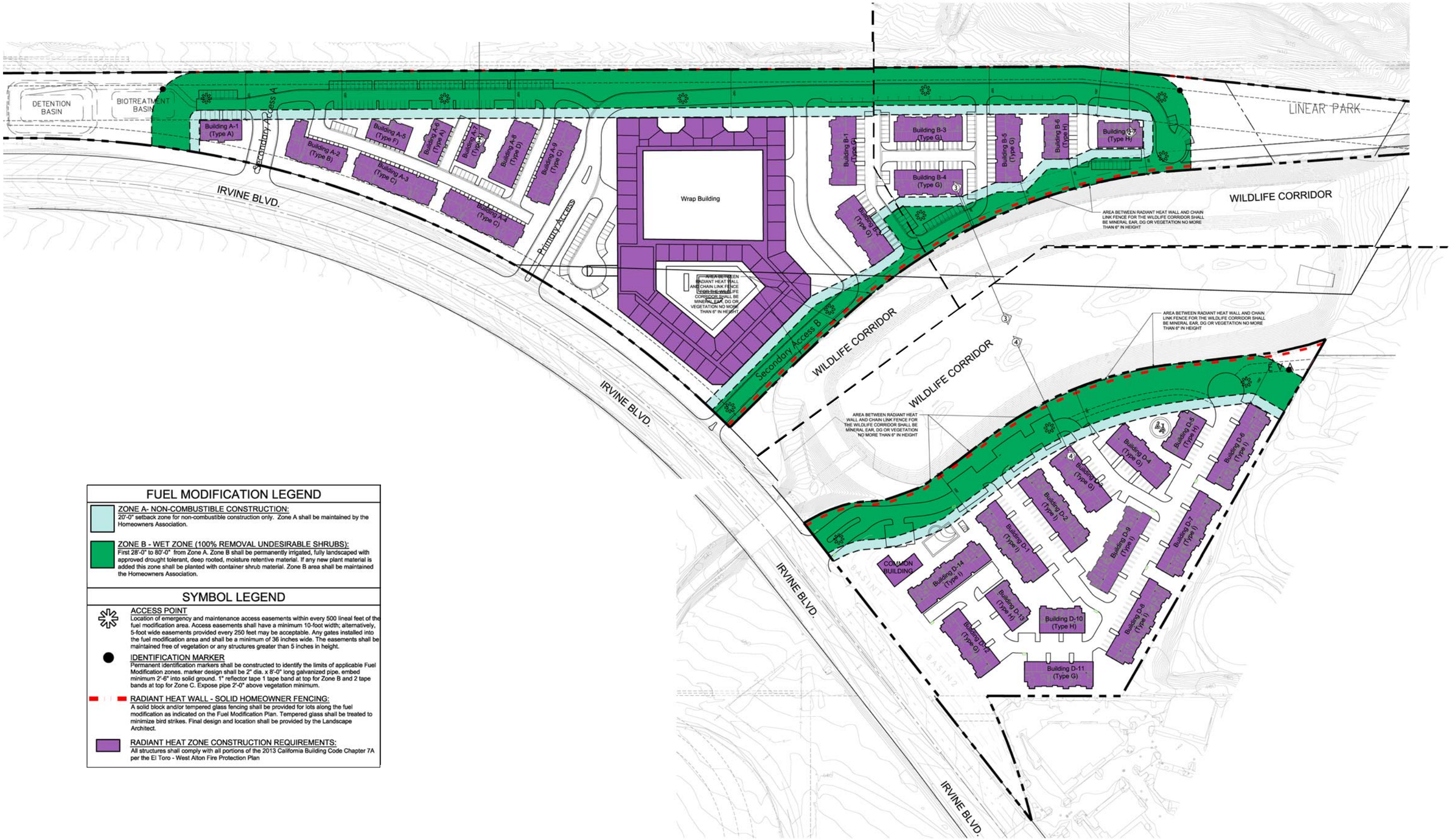
3.5.6 OTHER PROJECT ELEMENTS

Identity Features

Exhibit 3-7, Open Space and Recreation Plan identifies the location of identity features such as monuments, focal art, and interpretive signage to provide locational cues and identification for visitors. Monuments would be located within the Irvine Boulevard setback area and not within the right-of-way, unless an Encroachment Permit or other applicable approval is obtained. The design and location of the monuments would be outside of the "Limited Use Area", as defined in Section 3.10.1, Intersection Sight Line Standards, and in compliance with Section 2.3.2, Identity Features, of the Development Plan. The intent of the focal art features is to provide unique aesthetic character to each neighborhood within the Project and will include public art, sculptures, water features, overhead structures, special lighting, and site furnishings. These features will also be placed along the Project's open space paseo network. Interpretive signage will be incorporated throughout the landscape framework of the Project site. The intent of this element is to provide site information, historic background, way findings, and other facts about the Project's surroundings.

Signage

Signage on the Project site would also be used to create an identity for the Project. Provisions for the size, nature, and overall regulation for signage is presented in the Development Plan (specifically, Section 3.12, Signage, and Table 3.5, Permitted Sign Matrix). Signs such as directional signs in parking areas; residential wall signs; temporary political signs; temporary construction signs; public notices and signs; no trespassing signs; portable signs; temporary



FUEL MODIFICATION LEGEND

ZONE A- NON-COMBUSTIBLE CONSTRUCTION:
20'-0" setback zone for non-combustible construction only. Zone A shall be maintained by the Homeowners Association.

ZONE B - WET ZONE (100% REMOVAL UNDESIRABLE SHRUBS):
First 28'-0" to 80'-0" from Zone A. Zone B shall be permanently irrigated, fully landscaped with approved drought tolerant, deep rooted, moisture retentive material. If any new plant material is added this zone shall be planted with container shrub material. Zone B area shall be maintained the Homeowners Association.

SYMBOL LEGEND

ACCESS POINT
Location of emergency and maintenance access easements within every 500 lineal feet of the fuel modification area. Access easements shall have a minimum 10-foot width; alternatively, 5-foot wide easements provided every 250 feet may be acceptable. Any gates installed into the fuel modification area and shall be a minimum of 36 inches wide. The easements shall be maintained free of vegetation or any structures greater than 5 inches in height.

IDENTIFICATION MARKER
Permanent identification markers shall be constructed to identify the limits of applicable Fuel Modification zones. marker design shall be 2" dia. x 8'-0" long galvanized pipe, embed minimum 2'-6" into solid ground. 1" reflector tape 1 tape band at top for Zone B and 2 tape bands at top for Zone C. Expose pipe 2'-0" above vegetation minimum.

RADIANT HEAT WALL - SOLID HOMEOWNER FENCING:
A solid block and/or tempered glass fencing shall be provided for lots along the fuel modification as indicated on the Fuel Modification Plan. Tempered glass shall be treated to minimize bird strikes. Final design and location shall be provided by the Landscape Architect.

RADIANT HEAT ZONE CONSTRUCTION REQUIREMENTS:
All structures shall comply with all portions of the 2013 California Building Code Chapter 7A per the El Toro - West Alton Fire Protection Plan

Source: KTGY 2016

Conceptual Fuel Modification Plan

Exhibit 3-14

West Alton Parcel Development Plan EIR

Map Not to Scale

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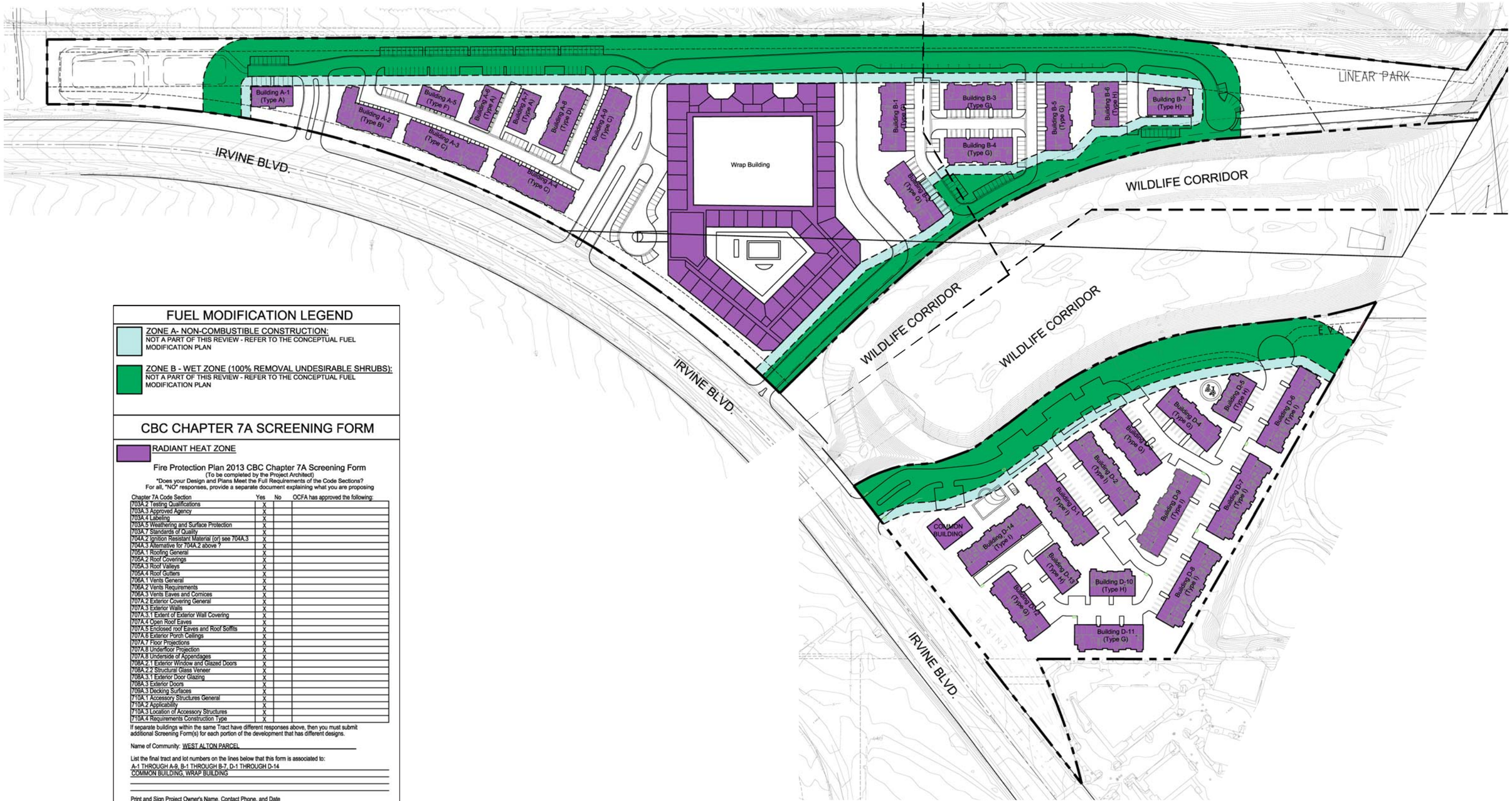

FUEL MODIFICATION LEGEND

ZONE A- NON-COMBUSTIBLE CONSTRUCTION:
NOT A PART OF THIS REVIEW - REFER TO THE CONCEPTUAL FUEL MODIFICATION PLAN

ZONE B - WET ZONE (100% REMOVAL UNDESIRABLE SHRUBS):
NOT A PART OF THIS REVIEW - REFER TO THE CONCEPTUAL FUEL MODIFICATION PLAN

CBC CHAPTER 7A SCREENING FORM

RADIANT HEAT ZONE

Fire Protection Plan 2013 CBC Chapter 7A Screening Form

(To be completed by the Project Architect)

*Does your Design and Plans Meet the Full Requirements of the Code Sections?
For all, "NO" responses, provide a separate document explaining what you are proposing

Chapter 7A Code Section	Yes	No	OCFA has approved the following:
703A.2 Testing Qualifications	X		
703A.3 Approved Agency	X		
703A.4 Labeling	X		
703A.5 Weathering and Surface Protection	X		
703A.7 Standards of Quality	X		
704A.2 Ignition Resistant Material (or) see 704A.3	X		
704A.3 Alternative for 704A.2 above ?	X		
705A.1 Roofing General	X		
705A.2 Roof Coverings	X		
705A.3 Roof Valleys	X		
705A.4 Roof Gutters	X		
706A.1 Vents General	X		
706A.2 Vents Requirements	X		
706A.3 Vents Eaves and Cornices	X		
707A.2 Exterior Covering General	X		
707A.3 Exterior Walls	X		
707A.3.1 Extent of Exterior Wall Covering	X		
707A.4 Open Roof Eaves	X		
707A.5 Enclosed roof Eaves and Roof Soffits	X		
707A.6 Exterior Porch Ceilings	X		
707A.7 Floor Projections	X		
707A.8 Underfloor Projection	X		
707A.8 Underside of Appendages	X		
708A.2.1 Exterior Window and Glazed Doors	X		
708A.2.2 Structural Glass Veneer	X		
708A.3.1 Exterior Door Glazing	X		
708A.3 Exterior Doors	X		
709A.3 Decking Surfaces	X		
710A.1 Accessory Structures General	X		
710A.2 Applicability	X		
710A.3 Location of Accessory Structures	X		
710A.4 Requirements Construction Type	X		

If separate buildings within the same Tract have different responses above, then you must submit additional Screening Form(s) for each portion of the development that has different designs.

Name of Community: WEST ALTON PARCEL

List the final tract and lot numbers on the lines below that this form is associated to:
A-1 THROUGH A-9, B-1 THROUGH B-7, D-1 THROUGH D-14
COMMON BUILDING, WRAP BUILDING

Print and Sign Project Owner's Name, Contact Phone, and Date

David Oatis, as agent for Lowe Enterprise 949-240-5911, 06/27/2016

Source: KTGY 2016

Conceptual Fire Protection Plan

Exhibit 3-15

West Alton Parcel Development Plan EIR

Map Not to Scale

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decorations; and flags would be exempt from any sign permit requirements; however, they would be required to comply with the applicable regulations of the Development Plan.

Walls

Walls would be used throughout the Project site to delineate public and private property; provide retention along steeply sloped planting areas, such as the area bordering the Reserve area along the northeastern boundary; and serve as a protective element as required by the Project's fuel modification plan.

Retaining walls would be screened or blend in with the existing topography. The concept plan proposes walls in a number of locations, along the southeastern boundary of Planning Area 1 and adjacent to Neighborhood C; between Neighborhoods A and B; and along the southern boundary of Planning Area 2. The retaining wall at the southern boundary of Planning Area 2 between the Project site and Allred Centre would vary in height from a minimum of 2 feet to a maximum of 5 feet. The same height variation would apply to the wall between the Project site and the IRWD property. The wall along the southeastern portion of Planning Area 1 interfacing the Reserve would vary from a minimum height of 6 feet to a maximum height of 13 feet, and the wall between Neighborhoods A and B would vary in height from a minimum of 5 feet to a maximum of 7 feet.

An important component of the plan would be radiant heat walls within the fuel modification zones. These walls are planned along the northeastern/eastern boundary of Planning Area 1 interfacing with the Reserve and along the southern boundary of Planning Area 1 interfacing with the Wildlife Movement Corridor. Additionally, radiant heat walls are proposed along the northern boundary of Planning Area 2 interfacing with the Wildlife Movement Corridor. Radiant heat walls would be either block or tempered glass over block with a maximum height of 6 feet.

Wireless Facility Standards

Section 3.13, Wireless Facility Standards, of the Development Plan provides detailed provisions that would guide the location, number, size, and design of the wireless technology components, as they would significantly influence the visual environment of the Project. Commercial wireless facilities would be visually compatible with their surroundings and would serve the communication needs of the community. All wireless communication facilities, satellite dish antennae, and other forms of antennae would comply with the development standards of the Development Plan, which are prepared pursuant to the Communications Act of 1934, as amended by the Telecommunications Act of 1996; applicable regulations of the Federal Communications Commission; and State law. Section 3, Development Standards of the Development Plan includes provisions for satellite dish antennae and commercial wireless facilities, which includes building-mounted facilities; monopole facilities; and antennae co-locations.

Interim and Temporary Land Uses

Recognizing that the Planning Areas 1 and 2 could be developed separately, in a phased approach, the Development Plan provides for interim uses that are permitted in all portions of the Project site where no building construction has occurred (except for repair of existing facilities). Interim uses may include:

- Parking of vehicles, including recreational vehicles
- Green power generation
- Above-grade agriculture
- Temporary commercial coaches or modular trailers
- Any accessory or related uses to support or complement the uses listed above
- Any other interim use approved by the Manager, CEO Real Estate/Land Development

All temporary structures and uses would comply with all applicable OCFA standards.

Temporary uses may include (1) buildings, structures, and uses permitted during construction and initial residential unit sales and/or leasing (e.g., developer's/contractor's offices and/or storage; temporary recycling of construction materials; temporary tract sales/leasing offices; model homes; and any other temporary use approved by the Manager, CEO Real Estate/Land Development) with the location of such use subject to the approval of the Manager, CEO Real Estate/Land Development and (2) facilities to accommodate holiday sales (e.g., Christmas tree and pumpkin sales) and open air festivals (e.g., farmer's markets). Holiday sales and open air festivals could occur throughout the life of the development.

3.5.7 CITY GENERAL PLAN AMENDMENT AND ZONE CHANGE

Upon Project approval and consistent with the Pre-Annexation Agreement, the Orange County Board of Supervisors may recommend changes to the City General Plan and Zoning Ordinance consistent with that approval. In accordance with the Pre-Annexation Agreement, the City Council would then consider the requested amendments to the City General Plan and Zoning Ordinance. The following identifies the anticipated modifications to the City General Plan and Zoning Ordinance. No amendments to the County General Plan and Zoning Ordinance are required to implement the Project.

City of Irvine General Plan Amendment

Although not required to implement the Project, the General Plan Amendment would include revisions to Table A-1, Maximum Intensity Standards by Planning Area, in the *City of Irvine General Plan*'s Land Use Element (Supplement 9, August 2015) to reflect the Project. In addition, minor revisions to other sections of the City of Irvine General Plan could be made for consistency purposes.

Please note, the proposed revisions to the text of the General Plan (Table A-1 and Table A-2 footnotes) are shown below in "track changes" (underlined for new text to be added and ~~strike through~~ for the text to be deleted).

18. In order to develop at the maximum intensities for the Heritage Fields project within Planning Area 51, the property owner for the Heritage Fields project has entered into a development agreement, (recorded on July 12, 2005), which requires the dedication of land and the development or funding of infrastructure improvements in excess of the City's standard requirements, and the commitment to long-term maintenance of public facilities. This agreement was amended by the Amended and Restated Development Agreement adopted pursuant to City Council Ordinance 09-09.

26. On July 12, 2005, the City and Heritage Fields LLC executed the Great Park Development Agreement that vested Heritage Fields' right to develop 3,625 base units in Planning Areas 30 and 51 (now referred to as Planning Area 51 with the 2012 General Plan Amendment and Zone Change). The November 6, 2008 Planning Commission approval of the Master Affordable Housing Plan and the Density Bonus Application granted the right to develop 1,269 density bonus units in Planning Areas 30 and 51 (now referred to as Planning Area 51 with the 2012 General Plan Amendment and Zone Change). The City Council later approved the Density Bonus Agreement on August 9, 2009 regarding the implementation of the 1,269 density bonus units. The 2012 General Plan Amendment and Zone Change increase the maximum number of base units to 7,037 (3,625 plus 3,412) and the maximum number of density bonus units to 2,463 (1,269 plus 1,194) for a maximum of 9,500 units for the Heritage Fields project.

The revisions to Table A-1 are shown on the following page.

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City of Irvine General Plan Land Use Element
Table A-1
Existing Maximum Intensity Standards by Planning Area

Planning Area Number	RESIDENTIAL						MULTI-USE[2][15]		INSTITUTIONAL[3]			INDUSTRIAL			COMMERCIAL						Maximum Square Feet	ADDITIVE		Maximum With Additive Units	Maximum With Additive Sq. Ft.	Planning Area Number
	Estate 0-1 D.U.	Low 0-5 D.U.	Med 0-10 D.U.	Med-High 0-25 D.U.	High 0-40 D.U.	Unallocated Residential D.U.[25]	0-40 D.U.	Square Feet	0-40 D.U.	Public Facility Sq. Ft.	Educational Facility	Urban/Industrial[4][21] 30 D.U./acre min.	Urban/Industrial[4][21] Square Feet	Research/ Industrial Sq. Ft.	Community Commercial Sq. Ft.	Neighborhood Commercial Sq. Ft.	Regional[5] Commercial Sq. Ft.	Regional Commercial D.U.	Commercial Recreation Sq. Ft.	**Maximum D.U.[6][11]**		D.U.	Sq. Ft.			
51[16][17][18][26][27]	0	0	0	0	0	0	~~7,037~~ 7,840	1,318,200	0	1,233,000	0	0	0	3,364,000	220,000	0	0	0	0	**7,037**	**6,135,200**	2,463	0	~~9,500~~ 10,303	6,135,200	51[16][17][18][26][27]
TOTAL	***400***	***10,528***	***44,512***	***33,298***	***3,074***	***5,382***	***~~8,851~~ 9,654***	***5,859,973***	***10,305***	***4,502,708***	***13,012,758***	***10,875***	***48,787,662***	***47,728,616***	***9,213,550***	***1,307,370***	***8,820,682***	***4,477***	***225,980***	***131,702***	***140,309,449***	***4,912***	***1,461,824***	***~~136,613~~ 137,416***	***141,771,273***	

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Table A-2, Maximum Intensity Standards: Land Use Acreage by Planning Area – General Plan Footnotes

8. In order to develop at the maximum intensities for the Great Park Neighborhoods project within Planning Area 51, the property owner for Great Park Neighborhoods has entered into a development agreement (recorded on July 12, 2005), which requires the dedication of land and the development or funding of infrastructure improvements in excess of the City's standard requirements, and the long-term maintenance of public facilities. This agreement was amended by the Amended and Restated Development Agreement adopted pursuant to City Council Ordinance 09-09.

City of Irvine Zoning Ordinance Amendment

Although not required to implement the Project, the Project proposes changes to the City Zoning Code to reflect the densities and character of the Project ultimately approved by the County Board of Supervisors. Exhibit 3-16 depicts the Existing Zoning Districts in PA 51. This would be replaced with Exhibit 3-17, which shows the Proposed Zoning Districts in PA 51. Though no changes are proposed, Exhibit 3-18 depicts the Great Park Neighborhood Development Districts. Changes to Section 3-37-39, 8.1, TTOD of the City Zoning that the City could make in response to a request from the Board of Supervisors could include:

Sec. 3-37-39. - 8.1 Trails and Transit Oriented Development.

A. *Intent.*

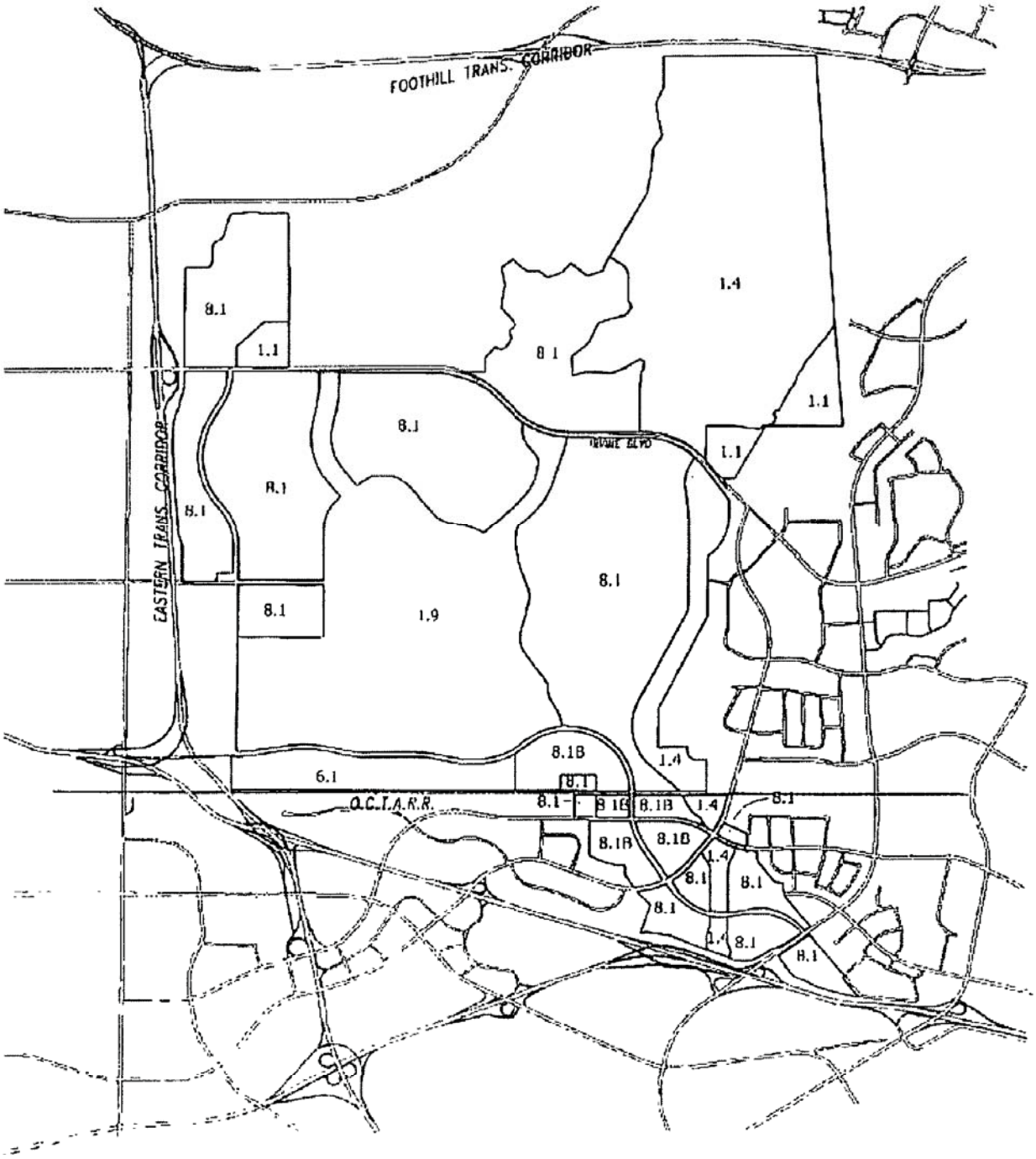
8.1B TTOC (Reserved)

8.1D TTOD County of Orange West Alton Parcel (Planning Area 51)

B. Intensity standard.

2. Excluding the 8.1D zoning district, ~~T~~total maximum development intensity shall not exceed the building intensities described in Section 9-51-6(C) and shall not cause the total maximum Average Daily Trips (ADT) in PA 51 to exceed 148,910 ADT, based on the socio-economic-based trip generation (ADT) rates used to analyze the Orange County Great Park traffic impacts, not including the ADT associated with the 1,269 density bonus units granted pursuant to state law, Section 2-3, and Planning Commission Resolution No. 08-2926, and 1,194 density bonus units subsequently granted pursuant to state law.

4. Total maximum development intensity for 8.1D shall not exceed the building intensities described in Section 9-51-6(C) and shall not cause the total maximum Average Daily Trips (ADT) to exceed 4,963 ADT, based on the socio-economic-based trip generation (ADT) rates used to analyze the West Alton Parcel traffic impacts.



ZONE #	ZONING DISTRICT	ZONE #	ZONING DISTRICT
1.1	Exclusive Agriculture	6.1	Institutional
1.4	Preservation	8.1/8.1B	Trails and Transit Oriented Dev. (TTOD)
1.9	Orange County Great Park		

Source: *City of Irvine*

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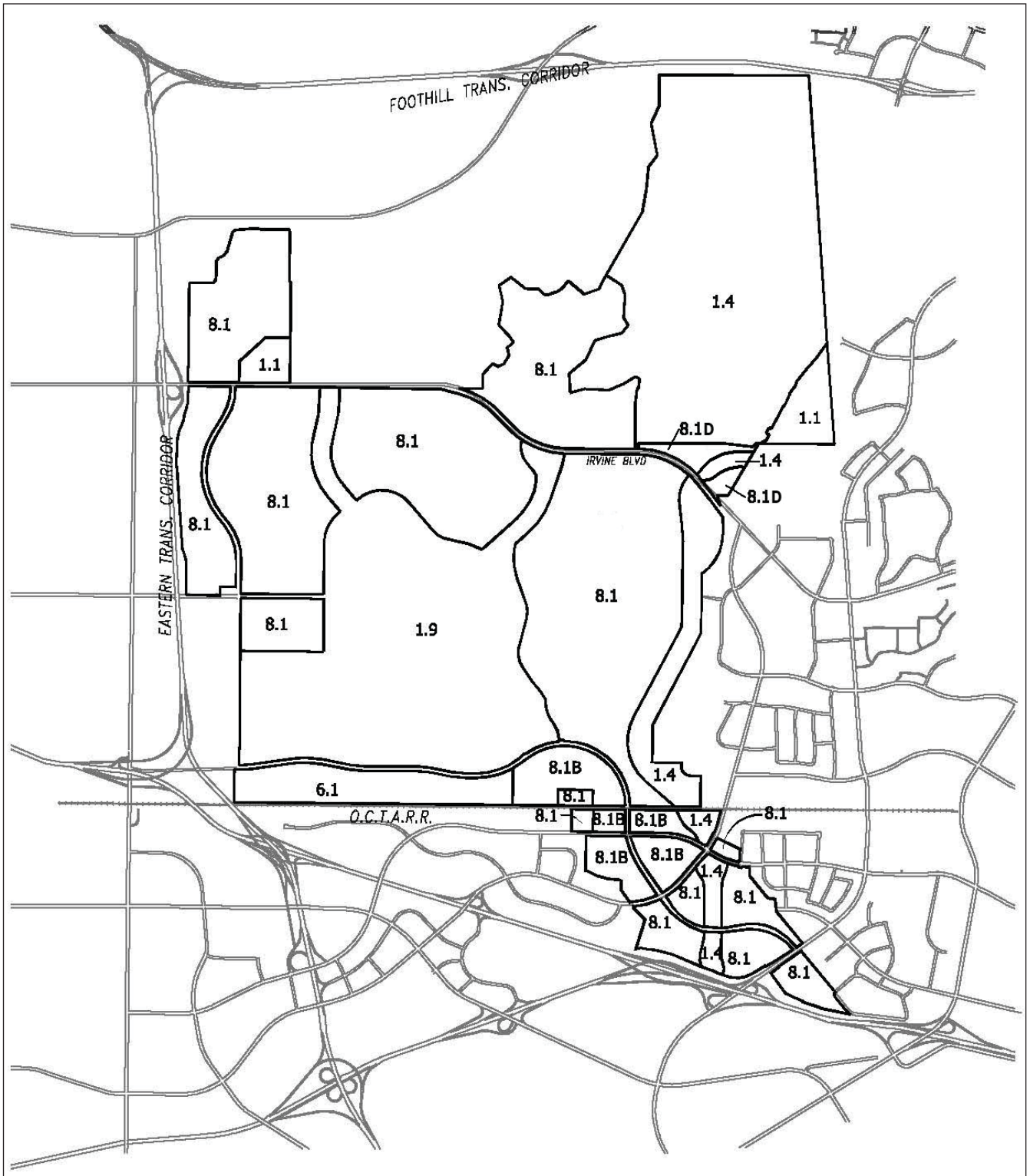
Existing Zoning Districts in PA 51

Exhibit 3–16

West Alton Parcel Development Plan EIR



ZONE #	ZONING DISTRICT	ZONE #	ZONING DISTRICT
1.1	Exclusive Agriculture	6.1	Institutional
1.4	Preservation	8.1/8.1B	Trails and Transit Oriented Dev. (TTOD)
1.9	Orange County Great Park	8.1D	

Source: *City of Irvine*

Proposed Zoning Districts in PA 51

Exhibit 3-17

West Alton Parcel Development Plan EIR

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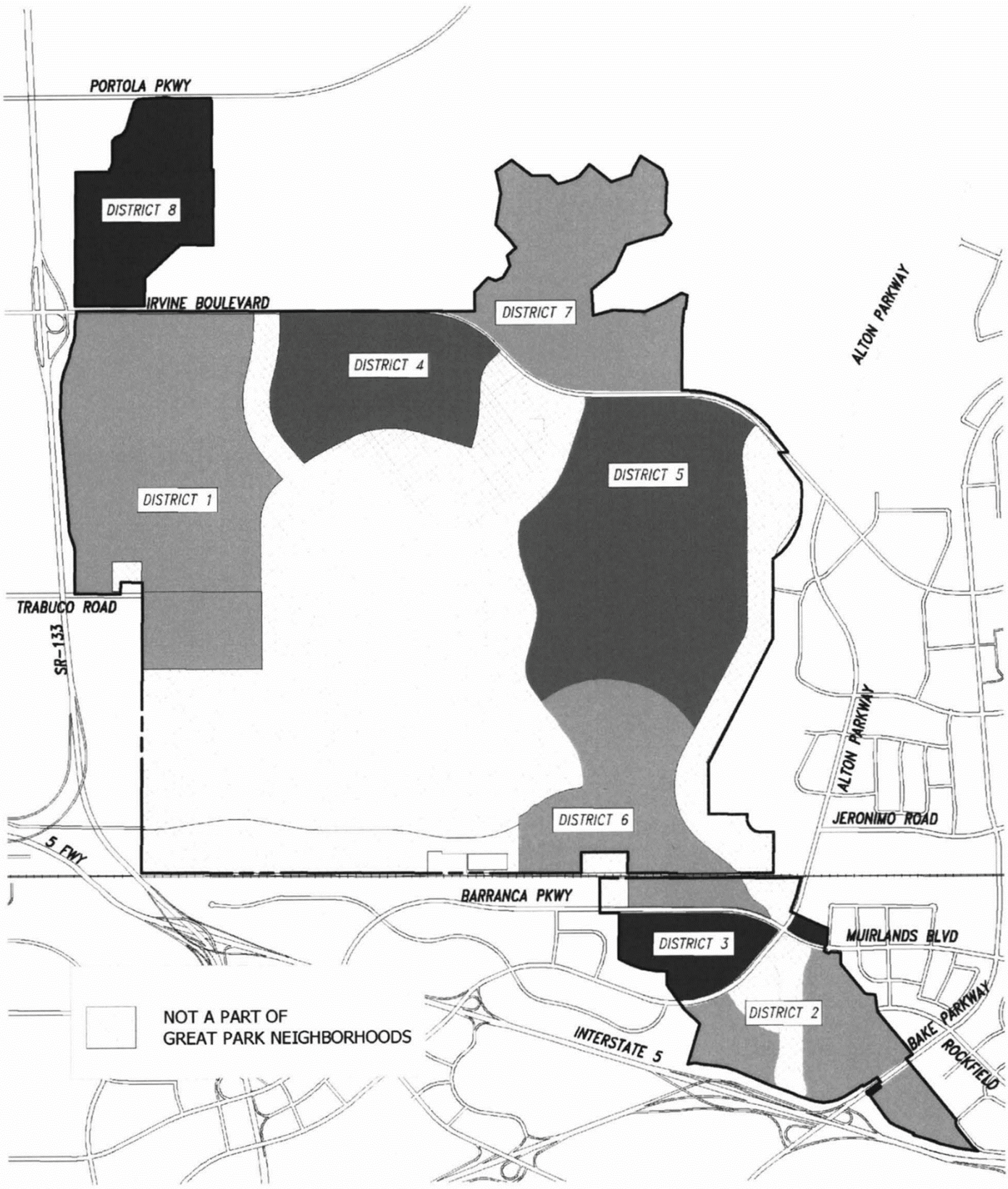

Source: *City of Irvine*

Great Park Neighborhoods Development Districts — Exhibit 3-18

West Alton Parcel Development Plan EIR

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Chapter 9-51. Planning Area 51 (Orange County Great Park)

Sec. 9-51-2. - Introduction.

B. *Development.* Of utmost importance to the City of Irvine is the development of the Orange County Great Park at the former MCAS El Toro site in Planning Area 51. The site will serve as a countywide asset consistent with the intent of the citizens of Orange County, who adopted Measure W, the "Orange County Central Park and Nature Preserve Initiative", in March 2002. The City also wishes to assure a financially viable development consistent with the intent of Measure W with the orderly development of public infrastructure and public open space amenities at no cost to the local taxpayer. Within Planning Area 51, the Orange County Great Park plan includes habitat preservation, wildlife corridor, education, open space, recreation, institutional and other public-oriented land uses as well as opportunities for the private development of medical and science, community commercial, residential, and mixed-use development. In order to develop the uses and at the intensities of the development shown in Section 9-51-3 Statistical Summary, the M~~m~~aster D~~d~~eveloper of Great Park Neighborhoods has entered into an Amended and Restated Development Agreement which requires the dedication of land and the development of infrastructure improvements in excess of the City's standard requirements, and the commitment to long-term maintenance of public facilities. Interim activities will occur on the site by private parties and prior to the complete development of the land. These activities may include agricultural and nursery operations, open storage, and reuse of aviation hangars located in the southern portion of Planning Area 51 which could be appropriate for reuse as warehousing, manufacturing, or motion picture production studios. Close proximity to the permanent open space areas may also facilitate reuse of the hangars as museum, sports, cultural facilities, or other uses consistent with the zoning of the site. Interim activities other than agriculture will be allowed for a maximum period of five years through approval of an interim use permit. Extensions of up to three years may be approved by the Director of Community Development. Existing interim uses in Planning Area 51 approved prior to January 1, 2010 and new interim uses within the Orange County Great Park will be allowed for a 5 year term with up to three year extensions granted by the Director of Community Development. Extensive materials reclamation activities related to the removal of the runways, aprons, and taxiways, as well as the stockpiling and recycling of concrete and other materials will also occur. Demolition of buildings will also occur as they become obsolete, uneconomic to repair, or conflict with approved development plans.

An efficient street system and a system of bikeways and pedestrian paths are provided. Roadways are designed with sufficient capacity for the projected traffic volumes at full development of the planning area.

Sec. 9-51-3. - Statistical analysis.

PLANNING AREA 51:

Zoning Number	Zoning	OCGP Sub Land-Use Categories	Acres in Category	Maximum Square Feet	Maximum Dwelling Units
Orange County Great Park					
1.4	Preservation	Wildlife Corridor	179		
1.9	OC Great Park	Open Space/Park	367		
		Sports Park	170	26,000	
		Drainage Corridor	229		
		Exposition Center	156	468,000	
Great Park Neighborhoods					
8.1/8.1B	Trails and Transit Oriented Development	Community Commercial	(1)	220,000	0
		Residential	(1)		9,500(2)
		Medical and Science	(1)	3,364,000	0
		Multi-Use	(1)	1,318,200(5)	0
Miscellaneous					
1.1	Exclusive Agriculture	Agriculture	87(3)		
1.4	Preservation	Habitat Preservation Wildlife Movement Corridor	960 12		
6.1	Institutional	Institutional	135	685,500(4)	
8.1	Trails and Transit Oriented Development	Transit Oriented Development	35	53,500	0
8.1	Trails and Transit Oriented Development	ARDA Transfer	131(6)		
8.1D	Trails and Transit Oriented Development	Residential	32		803
-	-	Major Roadways	185		
TOTALS			4,704	6,135,200(5)	~~9,500~~ 10,303(2)

Notes on Maximum Intensities: In order to develop the permitted uses and intensities for Planning Area 51, the M~~m~~aster D~~d~~eveloper of Great Park Neighborhoods has entered into the Amended and Restated Development Agreement pursuant to City Council Ordinance No. 09-09, which requires the dedication of land and the development of infrastructure improvements in excess of the City's standard requirements, and the commitment to long-term maintenance of public facilities (Section 9-51-2).

Sec. 9-51-6. - Special development requirements.

A. *Affordable housing.* With the exception of the 8.1D zoning district, ~~S~~see Chapter 2-3 Affordable Housing Implementation Procedures.

8.1 Trails and Transit Oriented Development Zoning District Intensity.

With the exception of the 8.1D zoning district, ~~T~~the maximum residential intensity shall not exceed 9,500 dwelling units. The maximum non-residential intensity in the Great Park Neighborhoods OCGP sub land use category of the Trails and Transit Oriented Development-zoning district shall not exceed: 220,000 square feet of Community Commercial, 3,364,000 square feet of Research and Development/Medical and Science, and 1,318,200 square feet of Multi Use.

The maximum residential intensity within the 8.1D zoning district shall not exceed 803 dwelling units.

Development intensity in the Great Park Neighborhoods OCGP sub land use category shall be recorded in a Trails and Transit Oriented Development District Development Intensity Database and monitored administratively by the Director of Community Development following the master plan approval by the Planning Commission (E below). The following planning standards shall apply throughout the 8.1 Trails and Transit Oriented Development zoning district:

9. Total Average Daily Trips (ADT) shall not exceed the trip budget established for the development within the Orange County Great Park (C below). With the exception of projects within the 8.1D zoning district, ~~T~~the developer shall provide additional traffic analysis for the review and approval of the Director of Community Development to support the consideration of trip reduction design standards and integration with transit systems.

10. With the exception of the 8.1D zoning district, ~~N~~neighborhood parks shall be provided in accordance with City of Irvine Park Code. Community Park requirements shall be met through participation in the original dedication in the Development Agreement adopted by the City in July 2005, as amended by the Amended and Restated Development Agreement adopted pursuant to City Council Ordinance 09-09. Neighborhood parks within the 8.1D zoning district shall be provided in accordance with the West Alton Parcel Development Plan.

11. With the exception of the 8.1D zoning district, ~~T~~the introduction of land uses that are not specified in the permitted and conditionally permitted uses but fit within the intent of the Trails and Transit Oriented Development zoning district (Section 3-37-39) shall be encouraged subject to an initial determination by the Director of Community Development and subsequently, subject to a conditional use permit approved by the Planning Commission. Permitted and conditionally permitted uses within the 8.1D zoning district and interpretation of these uses shall be governed by the West Alton Parcel Development Plan.

12. With the exception of the 8.1D zoning district, ~~P~~prior to approval of a master plan for development of areas within the Trails and Transit Oriented Development zoning district site (E below), the Planning Commission shall make a specific finding that the master plan meets the intent of the Trails and Transit Oriented Development zoning district planning standards.

C. Trip budget. Based on the socioeconomic-based trip generation average daily trip (ADT) rates used to analyze the Orange County Great Park traffic impacts, the total trips for the entire Orange County Great Park and Great Park Neighborhoods project areas are not to exceed 148,910 ADT, not including the ADT associated with the 1,269 density bonus units granted pursuant to state law, Section 2-3, and Planning Commission Resolution No. 08-2926, and 1,194 density bonus units subsequently granted pursuant to state law.

D. Great Park Development Monitoring Database. The purpose of the Database is to monitor the development intensity and trips in Planning Area 51 and update the allocated intensity for all parcels as they develop.

a. The development in Planning Area 51 is subject to specific limits as follows:

1. Maximum square footage - see Section 9-51-3 Statistical Analysis

2. Maximum residential units - see Section 9-51-3 Statistical Analysis

3. Maximum daily vehicle trips - For all properties outside of the 8.1D zoning district: 148,910 ADT, not including the ADT associated with any density bonus units granted from time to time pursuant to state law and Section 2-3 of the Zoning Ordinance (Affordable Housing Implementation Procedure), including Planning Commission Resolution No. 08-2926 (Density Bonus Agreement). Properties within the 8.1D zoning district shall have a maximum of 4,963 ADT.

b. In conjunction with the submittal of any of the following development applications that allocates (or reallocates) development intensity: 1) subdivision map, 2) lot merger, or 3) lot line adjustment or in conjunction with the submittal of a building permit for properties located in ~~Planning Area 51~~the Great Park Neighborhoods, the M~~m~~aster D~~d~~eveloper of Great Park Neighborhoods shall submit documentation to the Director of Community Development identifying the following:

E. Review process. Prior to the commencement of any private development in the 1.9 Orange County Great Park, 8.1 Trails and Transit Oriented Development (excluding the 8.1D zoning district) or 6.1 Institutional zoning districts within Planning Area 51, the City shall review and approve a master plan for the specific project, containing the following information for the specific development proposed:

G. *Reuse of existing facilities.*

Prior to the issuance of occupancy permits for any existing structure, a fire life-safety evaluation of the structure, including recommendations for improvements required for compliance with current Building Codes adopted by the City (or County for properties within the 8.1D zoning district) for the use of existing structures, and plans for any

required improvements shall be submitted to the Chief Building Official (or County's Chief Building Official for properties within the 8.1D zoning district) for review and approval.

H. *Recycling operations.*

The runways will be removed in a sequential manner. The removal of most-of the runway paving is anticipated. Some portion of runway may be preserved for use as playing surfaces and parking areas or for historic purposes. Demolition of the runways is to occur in accordance conjunction with the phasing program adopted by the City and Master D~~d~~eveloper of Great Park Neighborhoods pursuant to the Amended and Restated Master Implementation Agreement. Stockpiled material will be placed in designated areas and distributed as required to provide aggregate for development projects. Once the material has been used, the land will become available for development. Concrete recycling facilities and stockpiling of demolished or recycled material are considered an appropriate interim land use, subject to the approval of a minor conditional use permit.

I. *Trails plan.* In conjunction with the submittal of the master tract map the applicant for all zoning districts (except for the 8.1D zoning district) shall submit a conceptual master landscape and trails plan or a detailed exhibit depicting potential trail connections on site to the City's existing or planned regional trail network.

In addition, in conjunction with subsequent tract maps, master plans or building permit submittals, whichever comes first, ~~the~~ said applicant shall provide a specific and detailed trails plan depicting the exact location, alignment and connectivity of on-site trails to the City's existing or planned regional trail network.

L. *Transit.* Prior to the recordation of the first residential tract map in any Development District (except Development District 8) in the Great Park Neighborhoods development, the applicant shall prepare, fund, and work in cooperation with the City to develop a transit study, consistent with the City's 30-year Transit Vision Plan approved by the City Council in April 2009, ensuring that a route for the iShuttle is identified. At a minimum, the route should circulate along "O" Street, Irvine Boulevard, and Marine Way (or similar) and the study should contemplate a route circulating along "LQ" Street and "B" Street as well. The M~~m~~aster D~~d~~eveloper of Great Park Neighborhoods shall identify strategic shuttle stop locations based upon developer's approved Master Plans. The M~~m~~aster D~~d~~eveloper of Great Park Neighborhoods will continue to work cooperatively with the City, the Irvine Company, and other agencies to help identify and secure funding for the new iShuttle route identified in the transit study.

O. *Reciprocal Use of Recreational Amenities.* Prior to the issuance of the first building permit for any dwelling unit other than model homes, in a particular Development District (i.e. District 1 North, 1 South, 4, 7, or 8) in the Great Park Neighborhoods development, the applicant shall provide evidence to the Director of Community Development of a framework for a reciprocal use agreement or CC&R's for private recreational amenities to be available for use by homeowners within the applicable Development Districts. If the M~~m~~aster D~~d~~eveloper of Great Park Neighborhoods elects to allow reciprocal use among homeowners in other Development Districts of certain amenities, the use agreement or CC&R's shall be finalized and executed to incorporate each subsequent District prior to

the issuance of the first building permit for any dwelling unit other than model homes in that subsequent District.

P. *Orange Bike Program.* The Master Developer of Great Park Neighborhoods ~~developer~~ shall incorporate a bike share program into their development program that takes advantage of, and expands upon, the "Orange Bike Program" being implemented by the Great Park Corporation with an emphasis on connecting the Great Park Neighborhoods to the Great Park. The bike share program shall tap into marketing opportunities for other existing programs that exist regionally, such as the one that currently exist at the University of California, Irvine. In addition, the program shall be promoted through the developer's home sales program.

Q. *District Character.* Each Great Park ~~n~~Neighborhood within Planning Area 51 has a distinct character:

R. *Alternative setback standards.* Except for projects within the 8.1D zoning district, ~~A~~alternative setback standards for setbacks internal to the planning area may be approved in conjunction with any subsequent Planning Commission approval. A description of the proposed setbacks and how they differ shall be submitted. The Planning Commission will consider the following criteria and make appropriate findings, if necessary.

S. *Non-Residential Land Use Conversions.* The "Heritage Fields Project 2012 General Plan Amendment and Zone Change Traffic Impact Analysis, approved (insert approval date) 2013" or subsequent traffic analysis approvals amending these assumptions analyzed 1,318,200 square feet of Multi-Use (Office) in the ~~Planning Area 51~~8.1/8.1B TTOD zoning district. If any other non-residential land uses within the 8.1/8.1B TTOD zoning district are proposed in lieu of Multi-Use (Office), the square footage may be adjusted accordingly within the Zoning Statistical Table without the need for a Zone Change.

V. *Special Development Standards and Discretionary and Ministerial Permit Processing within 8.1D Zoning District.* All properties within the 8.1D zoning district shall be subject to the guidelines, development standards and requirements found within the West Alton Parcel Development Plan, as adopted and implemented by the County of Orange. Furthermore, all discretionary and ministerial permits (including grading and building permits) for properties within the 8.1D zoning district shall be issued by the County of Orange through processing procedures described within the West Alton Parcel Development Plan and/or County of Orange established procedures (Portions of developments that occur outside of the 8.1D zoning district including, but not limited to encroachment permits, shall be processed per the City of Irvine Municipal Code). Under some circumstances, the City of Irvine might be the agency responsible for issuing discretionary and ministerial permits (including grading and building permits) for a property within the 8.1D zoning district not owned, possessed or otherwise controlled by the County of Orange.

3.5.8 PHASING

Implementation of the Development Plan is anticipated to take place in a single or multiple phases, dependent on market conditions.

Roads, parks, and other infrastructure improvements would be constructed in phases as development proceeds and as required by the applicable agency or service provider to support individual development within each phase in each planning area. Some of these improvements may require installation of off-site infrastructure improvements beyond the limit of the phase. During construction/implementation of the Project, including development of backbone and phase roadways, access to the FBI property will not be restricted and access will be maintained at all times.

3.6 INTENDED USES OF THE ENVIRONMENTAL IMPACT REPORT

Pursuant to Section 15121 of the State CEQA Guidelines, an EIR is primarily an informational document intended to inform the public agency decision makers and the general public of the potentially significant environmental effects of a project. Prior to taking action on the proposed Project, the County, as the lead agency, must consider the information in this EIR and certify the Final EIR.

Section 15367 of the State CEQA Guidelines defines Lead Agency as follows:

> "Lead Agency" means the public agency which has the principal responsibility for carrying out or approving a project. The Lead Agency will decide whether an EIR or Negative Declaration will be required for the project and will cause the document to be prepared.

Responsible Agencies are public agencies that have a level of discretionary approval over some component of the Project. Section 15381 of the State CEQA Guidelines defines Responsible Agency as follows:

> "Responsible Agency" means a public agency which proposes to carry out or approve a project, for which a Lead Agency is preparing or has prepared an EIR or Negative Declaration. For the purposes of CEQA, 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 Section 15386 of the State CEQA Guidelines 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." For this Project, the California Department of Fish and Wildlife would be a trustee agency.

Responsible agencies may rely upon the EIR prepared by the Lead Agency (See Section 15096 of the State CEQA Guidelines). Permits and other approvals required to implement the Project are identified. As noted above, it is the intent that this EIR be used by agencies in their consideration of approval of required subsequent permits and approvals. The anticipated approvals associated with the Project are listed further below.

3.6.1 COUNTY OF ORANGE

The County, as the Lead Agency, is responsible for the actions, listed below, as a part of Project approval and implementation. The anticipated approvals would occur after certification of the Final EIR.

- Approval of the Development Plan
- Recommendation to the City on appropriate General Plan Amendment and Zone Change, pursuant to the Pre-Annexation Agreement.
- Runoff Management Plan
- Water Quality Management Plan
- Planning level reviews of implementing components of Development Plan (Level I, II, and /or III Reviews)
- Subsequent development construction plans
- Grading Permits
- Permits for temporary leasing office
- Storm Drainage, Sewer, Water, and Dry Utility Plans
- Landscaping and Park Plans
- Building Permits
- Acquisition of rights of entry easements for off-site Project improvements, as necessary
- Real property and license agreements such as ground leases and easements.

3.6.2 RESPONSIBLE AND TRUSTEE AGENCIES

The Final EIR would also provide environmental information to responsible agencies, trustee agencies, and other public agencies that may be required to grant approvals and permits or to coordinate with the County as a part of Project implementation. These agencies include, but are not limited to, those listed below. The anticipated order of permits and approvals is also noted.

- **California Department of Fish and Wildlife.** Evaluation and permitting pursuant to Section 1600 (et. seq.) of the *California Fish and Game Code*.
- **City of Irvine.** If requested by the Board of Supervisors, consideration of a General Plan Amendment and Zone Change to reflect land use conversion and development consistent with the Development Plan (see Section 3.5.7, above).
- **City of Irvine.** Issuance of Encroachment Permits and possible easements for connections within the Irvine Boulevard public right-of-way and issuance of business licenses for future uses associated with the Project.
- **Irvine Ranch Water District.** Approval of future water and sewer line connections.
- **Orange County Fire Authority.** Fire Master Plan and Precise Fuel Modification Plan.

- **Orange County Flood Control District.** Approval of discharges and connections to Borrego Canyon Channel.
- **Regional Water Quality Control Board.** Issuance of a National Pollutant Discharge Elimination System permit and, if necessary, a 401 Certification.
- **South Coast Air Quality Management Agency.** Issuance of permits to install equipment with potential to emit air pollutants, including toxic and hazardous air pollutants.

3.7 REFERENCES

Irvine, City of. 2015a (August, current through). *City of Irvine General Plan.* Irvine, CA: the City. http://www.cityofirvine.org/community-development/general-plan.

———. 2015b (January 26, current through). *Irvine, California – Zoning.* Tallahassee, FL: Municode Corporation for the City. https://www.municode.com/library/ca/irvine/codes/zoning.

Irvine, City of, Irvine Redevelopment Agency, and County of Orange (Irvine et al.). 2003 (March 4). Property Tax Transfer and Pre-Annexation Agreement among the City of Irvine, the Irvine Redevelopment Agency, and the County of Orange, Regarding the Annexation and Reuse of Former MCAS El Toro.

KTGY. 2016 (November). *West Alton Parcel Development Plan.* Irvine, CA: KTGY.

Orange, County of. 2015 (August, current through). *Orange County, California – Code of Ordinances.* Tallahassee, FL: Municode Corporation for the County. https://www.municode.com/library/ca/orange_county/codes/code_of_ordinances?nodeId=11378.

4.0 IMPACT ANALYSIS INTRODUCTION

In accordance with Sections 15125 and 15126(a) to (c) of the California Environmental Quality Act (CEQA) Guidelines, this Section of the Program Environmental Impact Report (EIR) analyzes those environmental topics where the Project could result in "potentially significant impacts", as identified in the Notice of Preparation (NOP)/Initial Study (IS) included in Appendix B. The County identified the following specific topics as requiring detailed EIR analysis:

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

Each topical section includes the following information: description of applicable regulations; information on the existing setting; identification of methodology used for the analysis presented in the section; identification of thresholds of significance; analysis of potential Project effects and identification of significant impacts; cumulative impacts; identification of mitigation measures, if required, to reduce the impacts; level of significance after mitigation; and a list of references used to complete the analysis.

As discussed in Section 1.7, Section 2.3.1, and the Initial Study (Appendix B), it has been determined that the Project would not result in potentially significant impacts to any environmental resource area concerning mineral resources, and thus, this area does not require, and the EIR will not set forth, any further analysis as to this area. Section 15064.7 of the State CEQA Guidelines addresses thresholds of significance and encourages each public agency to develop thresholds of significance through a public review process. The County of Orange (County) has not formally adopted thresholds of significance. In accordance with CEQA and the CEQA Guidelines, the analysis and significance thresholds used in this EIR have been derived from several sources, including without limitation the General Plan standards identified by agencies with applicable technical expertise, applicable regulatory standards, and the County's Environmental Checklist contained in the Orange County Local CEQA Procedures Manual (which is comparable to Appendix G of the State CEQA Guidelines).

In evaluating the potential impacts associated with the Project using the proposed Conceptual Site Plan as one potential development scenario, the EIR, in addition to the Mitigation Program in the EIR, identifies a number of Project components in the Development Plan that will serve to avoid or minimize impacts. These components include the Design Guidelines (Section 2), Development Standards (Section 3), and the Development Requirements (Appendix C). Based on the nature of the development requirements, these measures have been incorporated into the Mitigation Program presented in this EIR and will be tracked in the Mitigation Monitoring and Reporting Program (MMRP) that would be adopted in conjunction with the Project approval.[1]

Where a potentially significant environmental effect has been identified, applicable Project-specific mitigation measures have been included where feasible. Any development requirement or mitigation measure, and timing thereof, is subject to the approval of the County. The two components of the Mitigation Program are described below.

- **Development Requirements.** These conditions and development requirements are based on local, State, or federal regulations or laws that are frequently required independently of CEQA review and also serve to offset or prevent specific impacts. Typical conditions and requirements include compliance with the provisions of the California Building Code, South Coast Air Quality Management District Rules, local agency fees, etc. The County intends to implement the development requirements as part of the Project and has included the development requirements in the Development Plan for that purpose. Additional requirements may be imposed on the Project by government agencies during the approval process, as appropriate. Adherence to these requirements, as applicable, will be verified or applied during the development review and/or ministerial permit processes (e.g., building permit). The development requirements are incorporated in the Development Plan as Appendix C.

- **Mitigation Measures.** Where a potentially significant environmental effect has been identified and is not reduced to a level considered less than significant despite the application of development requirements, Project-specific mitigation measures have been identified.

[1] The California Public Resources Code Section 21081.6 (AB 3180) requires that a lead or responsible agency adopt a MMRP when approving or carrying out a project where an environmental document, either an EIR or a mitigated negative declaration, has identified measures to reduce potential adverse environmental impacts. The MMRP identifies the mitigation measure; the method by which the adopted measure will be implemented; the responsible party for verifying the measure has been satisfactorily completed; the method of verification; and the appropriate time or phase for the implementation of each mitigation measure. The MMRP is formally adopted by the Board of Supervisors in conjunction with the certification of the EIR.

4.0.1 CUMULATIVE IMPACT ASSUMPTIONS

Discussion of the cumulative impacts of the proposed Project is provided in Sections 4.1 through 4.16, relative to each CEQA topical issue evaluated herein. The following is an overview and introduction to the cumulative analysis per the State CEQA Guidelines. This avoids the undue repetition of CEQA requirements relative to cumulative analysis within individual sections.

In requiring the State Office of Planning and Research to develop guidelines for the implementation of CEQA, Section 21083(b) of the PRC requires that the guidelines shall specifically include criteria for public agencies to follow in determining whether or not a proposed project may have a "significant effect on the environment." The criteria shall require a finding that a project may have a "significant effect on the environment" if one or more of the following conditions exist:

> (1) A proposed project has the potential to degrade the quality of the environment, curtail the range of the environment, or to achieve short-term, to the disadvantage of long-term, environmental goals.
>
> (2) The possible effects of a project are individually limited but cumulatively considerable. As used in this paragraph, "cumulatively considerable" means that 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.
>
> (3) The environmental effects of a project will cause substantial adverse effects on human beings, either directly or indirectly.

This directive has been carried forth in Section 15064 of the State CEQA Guidelines, which establishes the criteria for determining the significance of environmental effects caused by a project. Subsection 15064(h)(1) directs the preparation of an EIR in the following circumstance:

> [I]f the cumulative impact may be significant and the project's incremental effect, though individually limited, is cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.

Section 15355 of the State CEQA Guidelines defines cumulative impacts as:

> Two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.
>
> (a) The individual effects may be changes resulting from a single project or a number of separate projects.

(b) The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

Pursuant to Section 15130(b) of the State CEQA Guidelines:

> The discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. The discussion should be guided by standards of practicality and reasonableness, and should focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact.

Methodology

A project's cumulative impact is "an impact to which that project contributes and to which other projects contribute as well. The project must make some contribution to the impact; otherwise, it cannot be characterized as a cumulative impact of that project."

Section 15130(b) of the State CEQA Guidelines indicates:

> The following elements are necessary to an adequate discussion of significant cumulative impacts:
>
> (1) Either:
>
> (A) A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency, or
>
> (B) A summary of projections contained in an adopted local, regional or statewide plan, or related planning document, that describes or evaluates conditions contributing to the cumulative effect. Such plans may include: a general plan, regional transportation plan, or plans for the reduction of greenhouse gas emissions. A summary of projections may also be contained in an adopted or certified prior environmental document for such a plan. Such projections may be supplemented with additional information such as a regional modeling program. Any such document shall be referenced and made available to the public at a location specified by the lead agency.

To provide an evaluation of the potential cumulative impacts for the proposed Project, both the list approach (Section 15130(b)(A)) and the growth projections approach (Section 15130(b)(B)) to the analysis have been used. In keeping with the CEQA Guidelines, this cumulative evaluation: (1) includes specific projects that, because of their size or proximity to the Project site, have the potential to cause cumulative impacts ("related projects"); (2) considers the adopted general plans for the affected local jurisdictions; and (3) includes

regional development projections. The following sections provide an overview of how the regional projections have been incorporated from adopted plans into the cumulative evaluation and a summary of the related projects that have been identified as potentially cumulative.

Regional Growth Projections

For the evaluation in this EIR, one component of the cumulative impacts analysis is the consideration of the approach specified in State CEQA Guidelines Section 15130(b)(B) of using growth projections to evaluate conditions contributing to the cumulative effect. In Orange County, the growth projections known as the Orange County Projections (OCP), developed by the Center for Demographic Research at California State University at Fullerton, are used as the demographic projections in planning studies to ensure consistency with local and regional planning efforts. The OCP dataset provides countywide growth and development forecasts based on input from the County of Orange and the cities located in the County. These projections reflect adopted land uses and future growth scenarios based on local land use policies and larger demographic conditions. The purpose of establishing countywide projections is to establish a consistent database for jurisdictions to use for planning efforts.

The OCP dataset provides forecasts that take into account the projected growth of Orange County in its entirety. This is particularly useful in evaluating the cumulative impacts because they provide growth assumptions consistent with the local general plans that have been developed with a long-range horizon year. As discussed below, the Irvine Transportation Analysis Model (ITAM) incorporates the OCP dataset to assess the traffic generated outside of the City limits, though within the jurisdictional limits. The model uses data based on project approvals. A supplemental list of pending projects and projects that have been approved since the last update of the version of ITAM was used for the analysis in this EIR. The version of ITAM used for the analysis in this EIR (Version 12.4) was released in February 2015, which was the most recent version at the time of the proposed Project's NOP and at the time of the coordination with the City of Irvine on the content of the Transportation Impact Analysis. .

To ensure that the adopted socioeconomic data reflects the current conditions in Orange County, the OCP dataset are updated approximately every four to five years. By having an iterative process, the agencies that use this data (the Southern California Association of Governments [SCAG], the County, and local jurisdictions) are able to factor in variables (e.g., changes in employment patterns, economic considerations, and migration patterns) that occur over time.

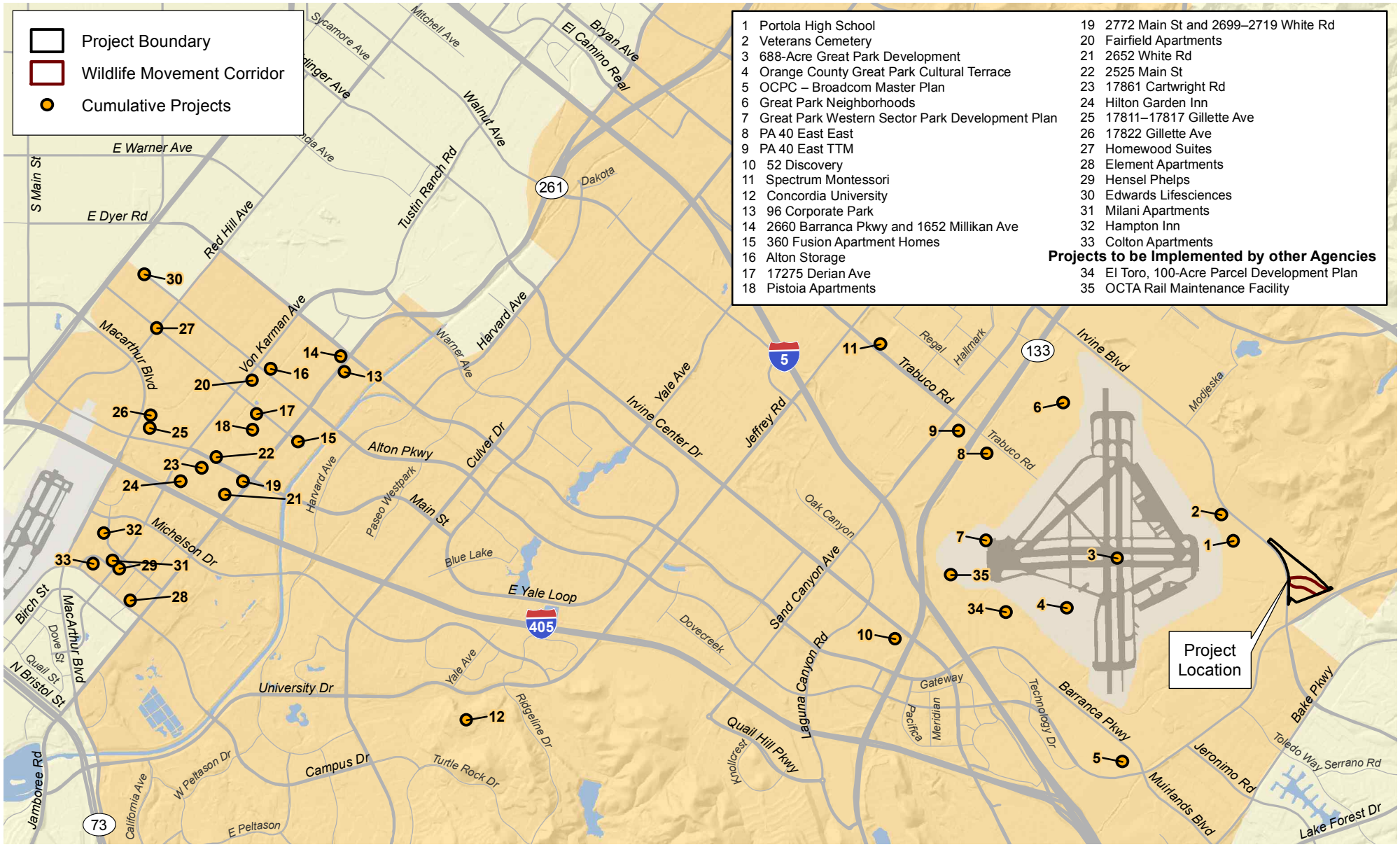
The OCP projections are also integrated into regional planning programs, such as the Air Quality Management Plan (AQMP), the Regional Transportation Plan Sustainable Communities Strategy (RTP/SCS), and the Regional Growth Management Element. Consistency between local and regional forecasts is imperative because the regional planning programs have been developed to ensure that the region achieves national and State air quality standards. The control strategies that have been identified in these regional planning programs assume the effects of long-range growth. The regional emissions analysis has demonstrated that, even with the projected growth, the region would be consistent with the State Implementation Plan for achieving the National Ambient Air Quality Standards as long as AQMP control measures are implemented.

Reasonably Foreseeable Probable Future Projects

To ensure that the cumulative impact analysis is as comprehensive as possible, pending projects in surrounding cities were researched using the jurisdictions' websites, the State Clearinghouse's ceqanet site (a website that posts notices associated with CEQA documents), and discussion with staff, particularly as it relates to traffic modeling. For those projects outside of the City of Irvine, the development levels associated with potential cumulative projects were evaluated to determine if they were consistent with the OCP dataset, which as stated above has been used to address regional growth in the ITAM. All but one project outside of the City of Irvine—the John Wayne Airport Settlement Agreement Amendment Project[2]—were found to be within the OCP dataset for the 2035 and Post-2035 timeframes. The traffic analysis included the increase in the number of passengers served at John Wayne Airport as part of the analysis of 2035 Plus Project Plus Pending and the Post-2035 Plus Project Plus Pending Project. It should be noted, the John Wayne Airport Settlement Agreement Project is reflected in the 2016-2040 RTP/SCS. Additionally, the El Toro, 100-Acre Parcel Development Plan located in the City (approximately 1.7 miles west of the Project, adjacent and to the west of OCGP Spork Park) is not in the OCP dataset. As discussed above, there are projects within the City of Irvine that are not included as part of the baseline assumption for the traffic model. These projects are identified as pending and recently approved projects.

Table 4-1 lists the pending and approved projects identified by the City of Irvine, which have been used in the cumulative impact analysis for the traffic, air quality, greenhouse gas emission (GHG), and noise analyses. These projects, together with the OCP growth projections, are assumed in the cumulative scenarios. The locations of the projects listed in Table 4-1 are shown on Exhibit 4-1.

[2] The John Wayne Airport (JWA) Settlement Agreement Amendment provided for the modification to the terms of an agreement between the Orange County Board of Supervisors, City of Newport Beach, and two community groups pertaining to the operations at JWA. The amendment extended the term of the agreement through 2030 and allowed an incremental increase in the number of regulated flights and passengers at the Airport. The amendment will allow an increase from 10.8 million annual passengers (MAP) up to 12.5 MAP in 2026.



Approved and Pending Projects in the City of Irvine

Exhibit 4-1

West Alton Parcel Development Plan EIR

N W E S

1 0.5 0 1 Mile

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TABLE 4-1
APPROVED AND PENDING PROJECTS IN THE CITY OF IRVINE

Project	Proposed Land Uses	Location and Approximate Distance from Project Site	Determination/Status
City of Irvine			
Portola High School	Development of a high school on a 40.3-acre site with a maximum enrollment capacity of 2,600 students	Southeast corner of Irvine Blvd and future "B" St, east of Sand Canyon Ave and SR-133, west of Alton Pkwy; approximately 0.26 mile to the northwest of the site	Under construction.
Veterans Cemetery	Development of a 125-acre cemetery	West of Irvine Blvd, adjacent and to the south of the District 4 of the Great Park Neighborhoods; 0.40 mile northwest of the site	Project approved.
688-Acre Great Park Development	Development of a sports park; a golf course; Bosque; upper Bee Canyon, and a wildlife corridor	Located northeast of the I-5 and I-405 freeway junction, bordered on the north by Irvine Blvd, on the south by Marine Way, on the west by future "LY" St, and on the east by the future daylighted Agua Chinon wash. The wildlife corridor portion is bordered on the north by Irvine Blvd, to the south by I-5, and to the east by the 688-Acre Great Park boundary; approximately 1.13 miles west of the site	Project approved; a number of grading permits have been approved; project has commenced grading.
Orange County Great Park Cultural Terrace	Development of a 260-acre portion of the OCGP that will include a variety of culturally oriented amenities, located near the Irvine Station	Located in the southeastern portion of the OCGP; approximately 1.57 miles west of the site	No activity.
Great Park Neighborhoods - Broadcom Master Plan	Development of a 2-million-sf corporate campus, including 8 office buildings on 78 acres	At the terminus of Barranca Pkwy and Alton Pkwy; approximately 1.70 miles southwest of the site	Project approved and is under construction.
Great Park Neighborhoods	Development of multiple districts consisting of residential, mixed-use, office, commercial, retail, and cultural/institutional uses.	Generally bordered by the Eastern Transportation Corridor to the west, Portola Pkwy or Irvine Blvd to the north, I-5 to the south; approximately 1.37 miles (average distance to mid-point inclusive of all districts)	Project approved and is currently in various stages of construction. One district has been built out and a second is partially opened.

TABLE 4-1
APPROVED AND PENDING PROJECTS IN THE CITY OF IRVINE

Project	Proposed Land Uses	Location and Approximate Distance from Project Site	Determination/Status
Great Park Western Sector Park Development Plan	Development of an artist in residence facility; a community ice facility; a nature education center; and other amenities	Southwestern corner of the OCGP, bordered on the north by the Lifelong Learning District; on the south by Marine Way; and to the west by future "O" St; approximately 2.09 miles to the west of the site	Project developed, with the exception of the Community Ice Facility.
PA 40 East East	Four tract maps for a total of 870 dwelling units (Note: the traffic model assumes 288 condominiums and 636 Apartments)	"O" St; approximately 2.15 miles west/northwest of the site	Project was approved on November 5, 2015.
PA 40 East TTM	Development of 485 apartments and 54,987 square feet of office use.	Sand Canyon Avenue and Trabuco Road; approximately 2.44 miles west/northwest of the site	Project complete.
52 Discovery	Conversion of a 213.8-sf Warehouse to Research and Development	52 Discovery; approximately 2.86 miles southwest of the site	Project was approved on January 12, 2016.
Spectrum Montessori	Development of a 10,500-sf childcare facility	5725 Trabuco Rd; approximately 3.23 miles to the northwest of the site	Project completed and operational.
Concordia University	CUP modification and Zoning Ordinance amendment for demolition of existing buildings and construction of new buildings resulting in an overall increase of 77,649 sf of institutional use compared to existing conditions but within the 321,221 sf of institutional use allowed under the currently approved Campus Master Build-Out Plan.	1530 Concordia; approximately 6.10 miles southwest of the site	Environmental documentation is being prepared.
96 Corporate Park	Development of a 37,587-sf medical office	96 Corporate Park; approximately 6.98 miles northwest of the site	This project is included in the City traffic model as a pending project; however, subsequent to the scoping for the traffic study, the application was withdrawn.
2660 Barranca Pkwy and 1652 Millikan Ave	Development of a 180-unit townhouse project, including a Park Plan, a TTM, and a CUP	2660 Barranca Pkwy and 1652 Millikan Ave; approximately 7.03 miles northwest of the site	Currently on hold.
360 Fusion Apartment Homes	Development of 280 multi-family residential units	2852 McGaw Ave; approximately 7.25 miles west of the site	Project approved; currently under construction.

TABLE 4-1
APPROVED AND PENDING PROJECTS IN THE CITY OF IRVINE

Project	Proposed Land Uses	Location and Approximate Distance from Project Site	Determination/Status
Alton Storage	Development of 216,000 sf of mini-warehouse	2215 Alton Pkwy; approximately 7.52 miles northwest of the site	Project approved.
17275 Derian Ave	Development of 80 affordable, multi-family residential units	17275 Derian Ave; approximately 7.58 miles northwest of the site	Project approved.
Pistoia Apartments	Development of a 371-unit apartment project, including a Park Plan, a VTTM, and a CUP	17420 and 17422 Derian Ave; approximately 7.59 miles northwest of the site	Project approved in July 2015.
2772 Main St and 2699–2719 White Rd	Development of 388 multi-family residential units	2772 Main St and 2699–2719 White Rd; approximately 7.63 miles west of the site	Project approved.
Fairfield Apartments	Development of 469 multi-family residential units	17150 Von Karman Ave; approximately 7.64 miles northwest of the site	Project approved.
2652 White Rd	Development of 63 residential units	2652 White Rd; approximately 7.76 miles southwest of the site	This project is included in the City traffic model as a pending project; however, the current status is unknown.
2525 Main St	Development of a 272-unit apartment project, including a Park Plan, a TTM, and a CUP	2525 Main St; approximately 7.84 miles west of the site	Environmental documentation is being prepared.
17861 Cartwright Rd	Development of a 54-unit townhouse project, including a Park Plan, a TTM, and a CUP	17861 Cartwright Rd; approximately 7.94 miles west of the site	Currently on hold.
Hilton Garden Inn	Development of a 170-room extended stay hotel	2381 Morse; approximately 8.09 miles west of the site	Project approved.
17811–17817 Gillette Ave	Development of a 72-unit townhouse project, including a Park Plan and a CUP	17811–17817 Gillette Ave; approximately 8.35 miles west of the site	Currently on hold.
17822 Gillette Ave	Development of a 137-unit townhouse project, including a Park Plan, a VTTM, and a CUP	17822 Gillette Ave; approximately 8.36 miles west of the site	Environmental documentation is being prepared.
Homewood Suites	Development of a 162-room extended stay hotel and a 2,500-sf fast-food restaurant	17330 Red Hill Ave; approximately 8.41 miles northwest of the site	Project approved.
Element Apartments	Development of 1,600 residential units on 23 acres	2525–2747 Campus, 18872–18902 Bardeen, 18842–18900, 18871 Teller; approximately 8.47 miles southwest of the site	Project approved.

TABLE 4-1
APPROVED AND PENDING PROJECTS IN THE CITY OF IRVINE

Project	Proposed Land Uses	Location and Approximate Distance from Project Site	Determination/Status
Hensel Phelps	Development of 3,500 sf of office space	18831 Von Karman Ave; approximately 8.54 miles west of the site	Project approved.
Edwards Lifesciences	Development of 20,256 sf of office space	Campus Dr/Martin Ct/Von Karman Ave; approximately 8.58 miles west of the site	Project approved.
Milani Apartments	Development of 287 multi-family residential units	2182 and 2192 Dupont Dr; approximately 8.59 miles west of the site	Project approved.
Hampton Inn	Development of a 164-room Extended Stay Hotel	Alton Pkwy/Daimler St; approximately 8.65 miles northwest of the site	Project approved. Not under construction yet.
Colton Apartments	Development of a 876-unit apartment project, including a Park Plan, a development agreement, a VTTM, and a CUP	18831 Von Karman Ave; approximately 8.73 miles west of the site	This project is included in the City traffic model as a pending project; however, the current status is unknown.
El Toro, 100-Acre Parcel Development Plan	Construction of 2,103 dwelling units; 220,000 sf of retail space; 1,876,000-sf of office space; and a 242-room hotel	East of the I-5 and SR-133 junction, along the southern perimeter of former MCAS El Toro; approximately 2.2 miles west/southwest of the site	Environmental documentation is being prepared. This project would be implemented by the County of Orange.
OCTA Rail Maintenance Facility	Development of a future rail maintenance facility	South of Marine Way and Ridge Valley intersection; approximately 2.37 miles west of the site	Not known. This project will be implemented by OCTA.

Sf: square feet; TTM: tentative tract map; CUP: Conditional Use Permit; OCGP: Orange County Great Park; I: Interstate; MND: Mitigated Negative Declaration; du: dwelling unit; OSA: Opportunity Study Area; IRWD: Irvine Ranch Water District; SR: State Route.

Source: Fehr & Peers with follow-up coordination on project status by BonTerra Psomas, 2015.

As part of the scoping process for the traffic study and coordination with the City of Irvine, Fehr & Peers, the traffic consultants for the Project, were directed to include the above listed projects in their traffic analysis to supplement the projects already considered in ITAM. The addition of the above to ITAM ensures a comprehensive traffic model, which serves as the basis for the cumulative traffic, air quality, noise, and GHG evaluation. The impacts of the known cumulative projects are also considered for the assessment of all the other topical areas addressed in this EIR.

4.0.2 REFERENCES

Center for Demographic Research (CDR). 2014 (September, final approval). OCP-2014 Report Data (City and RSA tabs) (an excel spreadsheet). Fullerton, CA: CDR.

KTGY. 2016 (November). *West Alton Parcel Development Plan.* Irvine, CA: KTGY.

Orange, County of. 2014a (October). *County of Orange Local CEQA Procedures Manual.* Santa Ana, CA: the County.

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4.1 AESTHETICS

This section describes the existing aesthetic character of the Project site and visual resources in the vicinity of the Project site. The potential visibility of the Project site and proposed development has been determined, and the potential visual changes resulting from Project implementation are addressed.

4.1.1 METHODOLOGY

The aesthetics analysis in this section is based on field reconnaissance; review of aerial and Project site photographs; and evaluation of the proposed Development Plan in the context of surrounding existing and planned land uses.

Those areas that would have direct views of the Project improvements were considered in defining the study area. The Project site topography gently slopes up towards the southeastern portion of the Project, and Project views are mostly limited to those uses adjacent to the Project site. This also defines the viewer groups (those with views of the Project site) that would be exposed to the changes in the visual character of the Project site. They are currently limited to the users at the adjacent Allred Centre business park, staff at the IRWD site, and motorists primarily on Irvine Boulevard; to a limited extent, on Alton Parkway; and occasionally on Magazine Road (i.e., users of the FBI property accessing the FBI property to the east/northeast).

The Project site was divided into visual units, which are often called landscape units. A landscape unit is defined as an area having a visually homogeneous character. Four landscape units were identified for the Project site. The landscape units are further discussed under Existing Conditions.

Visual impacts are determined by defining the visual quality of the area, the expected change as a result of the Project, and the sensitivity of the users to those changes. The sensitivity of users is associated with the length of exposure to the changed views and the context of the views. For example, residential viewers would be more sensitive to changes in the visual quality than workers in nearby offices because residents have a greater connection with the visual character of their neighborhood than people who are passing through or employed in an area.

The CEQA thresholds of significance require an evaluation of whether the Project will substantially degrade the existing visual character or quality of the Project site and its surroundings. The determination of whether the changes in the visual quality of a site would degrade an area or its surroundings, to result in a significant impact, is highly subjective and dependent on the viewer's perspective. In determining whether the Project would degrade the visual character factors such as the viewer groups of the Project site, the extent to which the Project would disrupt natural visual resources, and the extent to which the Project would create a visually cohesive environment were evaluated.

Additionally, it is important to recognize that the Project site is located in a larger planned urban context. The Project site is located within an area that is undergoing substantial visual changes as the Orange County Great Park (OCGP) and adjoining Great Park Neighborhoods (i.e., Districts 5 and 7) are developing. As discussed in Section 2.3.1, there are no officially designated scenic

highways or scenic vistas within the Project study area that would be considered highly sensitive to visual change.

4.1.2 EXISTING CONDITIONS

The Project site topography gently slopes up towards the southeastern portion of the Project. Ground elevations range from approximately 428 feet above mean sea level (msl) at the northwestern corner to approximately 510 feet above msl at the southeastern corner. The length of the site is approximately 0.6 mile measured from the northwestern corner to the northeastern corner. Views from different vantage points are generally limited to elements that are directly in front of the viewer.

Visual Character of the Site and Surrounding Areas

The Project site consists of two separate development areas, separated by the Wildlife Movement Corridor, which traverses the site in an east-west direction. The northern development area, or Planning Area 1, located to the north of the Wildlife Movement Corridor, is approximately 21.98 acres and is roughly triangular in shape. The southern development area, or Planning Area 2, located to the south of the Wildlife Movement Corridor, is approximately 10.34 acres in area.

The Wildlife Movement Corridor is approximately 11.84 acres in area and has a slightly depressed topography with edges that slope downward to a central portion that has been planted with native vegetation. A 72-inch culvert beneath Irvine Boulevard links the Wildlife Movement Corridor with the area west of Irvine Boulevard. The perimeter of the Wildlife Movement Corridor is lined with a chain-link fence. Magazine Road, which runs adjacent to the northern boundary of the Wildlife Movement Corridor, provides access to the Federal Bureau of Investigation (FBI) property through the Project site.

Planning Area 1 is located north of Magazine Road and west of open space owned by the FBI, which is identified as a component of the Reserve area for the Central-Coastal Subregion Natural Communities Conservation Plan/Habitat Conservation Plan (NCCP/HCP). Planning Area 1 consists of disturbed land and is currently under an encroachment permit with R&S Soil Products Inc. with green waste and nursery operations in Planning Area 1.

Planning Area 2 is located north of an existing business park and IRWD facilities and south of the Wildlife Movement Corridor. Although the perimeter of the business park is lined by trees, individuals at windows and doors at the rear facades of the northernmost structures and from the drive aisles and parking areas can see portions of Planning Area 2. Planning Area 2 also consists of relatively flat, disturbed land. A private road, which was the former Magazine Road prior to construction of the Wildlife Movement Corridor, bisects Planning Area 2. Vehicle storage currently occurs in Planning Area 2 as part of the same encroachment permit with R&S Soil Products Inc.

Located to the west of the Project site and across Irvine Boulevard is undeveloped and disturbed land slated for development as part of the Great Park Neighborhoods District 5. The site for the future Portola High School, which is being constructed by the Irvine United School District and is anticipated to open in fall 2016, is located to the northwest of the Project site. Views from west of the Project site are obscured by trees and fencing lined with windscreen.

Located adjacent to the southeast of the Project site are the Allred Centre business park and IRWD facility. Beyond these properties and partially adjacent to the east of the Project site is Borrego Canyon Wash. The Borrego Canyon Wash flows from the hills north of the Project site and is channelized in a box culvert that crosses under Irvine Boulevard. To the east, across Alton Parkway, is the James A. Musick Jail Facility.

Landscape Units

As identified under Methodology, the Project site was divided into four landscape units because these areas have a visually homogeneous character. The landscape units are defined below:

- The most northern portion of the Project site (i.e., Planning Area 1) is utilized pursuant to an encroachment permit with the R&S Soil Products Inc. for commercial nursery operations. The site is heavily vegetated because of the placement of container plants consisting predominately of trees. Fencing, with windscreening is located along the western perimeter of the site separating it from Irvine Boulevard. This landscape unit provides a moderate visual quality because of the vegetation; however, this does not constitute a natural setting because of the commercial nature of the operations (i.e., the trees are in above-ground containers that are closely packed in rows). Given the transitory nature of the commercial operations, the views of the site will vary dependent on the number of trees on site.[1] Views of this area would be predominately from motorists traveling along Irvine Boulevard. Currently, there is no development to the west that have views of the site. Ultimately, there will likely be views of the Project site from the residential uses in the Great Park Neighborhoods (i.e., District 5); however, at this time the precise configuration of that development is not known. Additionally, Portola High School, which opened in August 2016, to the northwest of this landscape unit, will have views of the Project site.
- South of the commercial nursery, but still north of Magazine Road in Planning Area 1, the area is characterized by an ongoing green waste operation (composting), as part of the same encroachment permit with R&S Soil Products Inc. This portion of the site contains mounds of soil and composting materials. The fencing, with windscreening continues along the western perimeter of the site separating it from Irvine Boulevard. There is also a row of smaller trees located between the fencing and the composting operations. This landscape unit provides low visual quality because of the nature of the operations. The viewer group would be predominately motorists on Irvine Boulevard. As noted above, ultimately, there will likely be views of the site from the residential uses in the Great Park Neighborhoods (i.e., District 5).
- The Wildlife Movement Corridor represents a distinct landscape unit. As further discussed in Section 2.5, Environmental Setting, the Wildlife Movement Corridor is a habitat restoration site. The landscape unit is distinct from the surrounding area because of the vegetation type.[2] A chain link fence surrounds the site. The Wildlife Movement Corridor is slightly below the grade of the rest of the Project site. This landscape unit

[1] Prior to July 2012, this portion of the site was barren with no vegetation except minor ruderal vegetation.

[2] A variety of native vegetation types have been created on the Wildlife Movement Corridor and associated buffer areas, including riparian habitats (e.g., mule fat scrub, southern willow scrub) in the created channel, and upland habitats (e.g., coastal sage scrub, southern cactus scrub, native herb/grassland) on the adjacent slopes and terraces. In addition, native coast live oaks and blue elderberry trees have been planted in portions of the upland area.

provides moderate visual quality because of the presences of the natural vegetation. The Wildlife Movement Corridor is visible from Irvine Boulevard and Magazine Road.

- The final landscape unit is the portion of the site south of the Wildlife Movement Corridor in Planning Area 2. This area is highly disturbed and has low visual quality. Vegetation has been removed from the site, which is currently being used for vehicle storage associated with the R&S Soils operations. Viewer groups would include motorist on Irvine Boulevard and Alton Parkway and users at the adjacent Allred Centre business park and the Irvine Ranch Water District (IRWD) facility.

Project Site Photographs

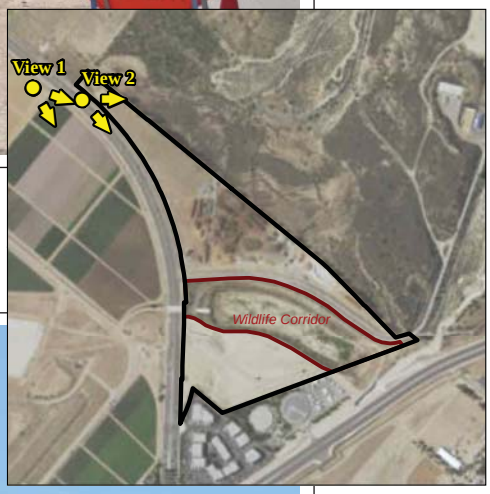
Project site photographs from various vantage points show the existing visual quality and character of the Project site, as viewed from surrounding areas, starting from the northwestern portion of Planning Area 1 along Irvine Boulevard and ending at the southern/southeaster portion of the Project site, as viewed from Alton Parkway. Exhibits 4.1-1 through 4.1-4 consist of the Project site photographs.

View 1 – This photograph is taken from the edge of Irvine Boulevard along the northbound lanes, looking east and southeast toward the Project site. It shows the northwestern portion of Planning Area 1 as seen from Irvine Boulevard. The edge of Irvine Boulevard and the current improvements can be seen in the foreground of the photograph. A chain-link fence and potted trees located along the north side of Irvine Boulevard separate the road from the Project site. The hills in the background, to the north and northeast of Planning Area 1, although somewhat visible, are obscured by the trees/plants of the commercial nursery.

View 2 – This photograph shows a somewhat similar view depicted in View 1; however, this photograph is taken from the location of future Portola High School to the northwest of the Project site (Planning Area 1), across Irvine Boulevard, looking east and southeast toward the Project as seen from the future high school. The construction site and southbound lanes of Irvine Boulevard are visible in the foreground of the photograph. The north half of Planning Area 1 in the middle ground of the photograph is dominated by the potted plants and shrubbery of the commercial nursery. The FBI property abutting the Project site along the northern/northeastern edge is in the background. The existing green waste operations in the second half of the Planning Area 1 are hidden from view by the nursery. The views across the Project site are also obscured by the potted plants/trees.

View 3 – This photograph is taken from the edge of Irvine Boulevard, along the northbound lanes, looking northeast across the Project site (Planning Area 1). It shows the western edge of Planning Area 1, as seen from Irvine Boulevard. This photograph depicts the central portion of Planning Area 1 where the some of the green waste operations currently occur. A mound of soil is visible in the middle ground behind the fence. The Irvine Boulevard right-of-way is visible in the foreground of the photograph. The chain link fence and windscreening separate the Project site from Irvine Boulevard. The FBI property along north/northeast/eastern edge of planning area and mountains beyond are visible in the background.

View 4 – This photograph is taken from the southbound lanes of Irvine Boulevard, across from the Project site, looking east and southeast. The photograph depicts the northwestern portion of Planning Area 2 and the southern edge of the adjacent Wildlife Movement Corridor, both



View 1 - Looking East and Southeast from the Edge of Irvine Boulevard, along the Northbound Lanes.

View 2 – Looking East and Southeast from the Location of Future Portola High School.

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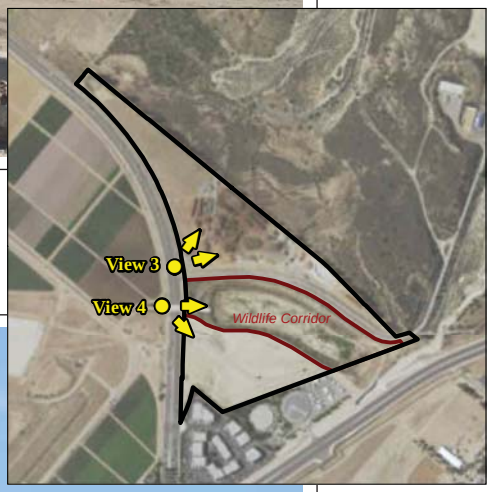
Site Photographs

Exhibit 4.1-1

West Alton Parcel Development Plan EIR

View 3 – Looking Northeast from the Edge of Irvine Boulevard, along the Northbound Lanes.



View 4 – Looking East and Southeast from the Edge of Irvine Boulevard, along the Southbound Lanes.

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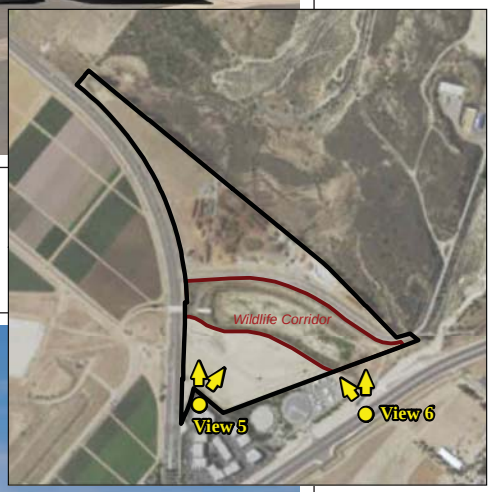
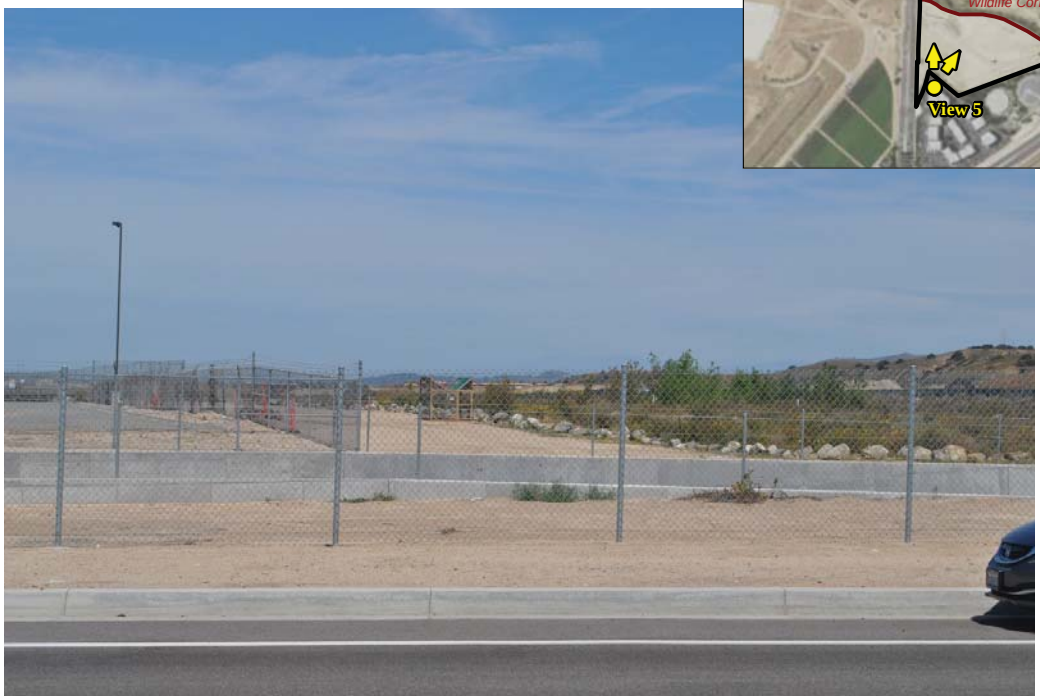
Site Photographs

Exhibit 4.1-2

West Alton Parcel Development Plan EIR



View 5 – Looking North/Northeast from the Surface Parking Lot at the Northernmost Corner of Allred Center.



View 6 – Looking North/Northeast from the Median of Alton Parkway, along the Southbound Lanes.

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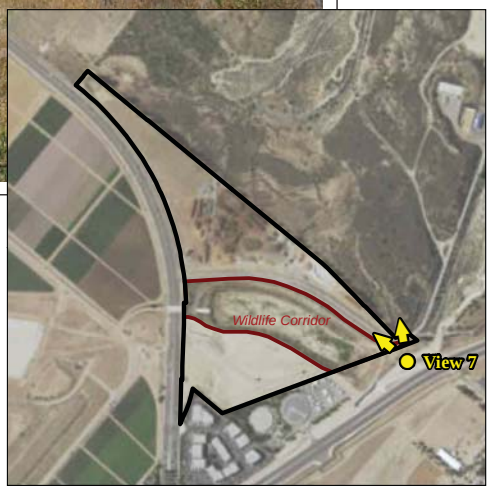
Site Photographs

Exhibit 4.1-3

West Alton Parcel Development Plan EIR

View 7 – Looking North/Northwest from the Alton Parkway right-of-way, adjacent to Southbound Lanes.



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Site Photographs

Exhibit 4.1-4

West Alton Parcel Development Plan EIR

separated from Irvine Boulevard with a chain-link fence with windscreening, which obscures the southern portion of Planning Area 2. Irvine Boulevard is in the foreground, while Planning Area 2 and the Wildlife Movement Corridor are in the middle ground of the photograph. The trucks stored on the Project site and trees located on the Allred Centre business park and IRWD facility are in the background.

View 5 – This photograph is taken from the private vantage point of the surface parking lot at the northernmost corner of the Allred Centre business park, looking north toward the Project site (Planning Area 2). It shows the surface parking spaces, parked cars, and a picnic table in the foreground, which are located on the Allred Centre property. The southern portion of Planning Area 2 and the trucks that are currently being stored on the Project site are also visible and in the middle ground of the photograph. The photograph also shows the fencing that separates Allred Centre from the Project site, the trees, and the hedge that provide a buffer between the business park and Planning Area 2. The FBI property to the north/northeast/east of Planning Area 1 and the hills are visible in the background of the photograph.

View 6 – This photograph is taken from the median of Alton Parkway, looking north/northeast across the eastern most edge of, the Wildlife Movement Corridor, and beyond. The southbound Alton Parkway lanes and the right-of-way are visible in the foreground of the photograph. Beyond the right-of-way is the channelized box culvert for the Borrego Canyon Wash. Chain-link fences separate the IRWD property to the southeast of Planning Area 2 from the Wildlife Movement Corridor; and Borrego Canyon Wash from Wildlife Movement Corridor and Alton Parkway right-of-way. The FBI property is visible in the background as are some mountains in the far distance.

View 7 – This photograph is taken from the Alton Parkway right-of-way adjacent to southbound lanes of the Parkway, looking northwest toward the Project site in the background of the photograph. The chain-link fence separates the Borrego Canyon Wash and the FBI property from the Alton Parkway right-of-way, which is in the foreground of the photograph. The Project site and the IRWD facility are visible in the background. Also, visible in far background is the Great Park Balloon.

4.1.3 THRESHOLDS OF SIGNIFICANCE

In accordance with the County's Environmental Analysis Checklist and Appendix G of the State CEQA Guidelines, the Project would result in a significant impact to aesthetics if it would:

Threshold 4.1-1 **Substantially degrade the existing visual character or quality of the site and its surroundings.**

Threshold 4.1-2 **Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area.**

4.1.4 IMPACT ANALYSIS

As discussed in Section 4.0, Impact Analysis Introduction, the Development Plan identifies a number of development requirements which serve to minimize potential impacts (the development requirements are in Appendix C of the Development Plan). The inclusion of these requirements as appropriate, will be verified during the development review and/or ministerial

permit process (e.g., building permit). The development requirements also include others measures that will reduce or avoid potentially significant Project impacts. The County intends to implement the development requirements as part of the Project and has included the development requirements in the Development Plan for that purpose. These measures are listed in Section 4.1.6, Mitigation Program because these measures will be tracked as part of the Mitigation Monitoring and Reporting Program (MMRP).

Threshold 4.1-1

Would the Project substantially degrade the existing visual character or quality of the site and its surroundings?

Future development under the Development Plan would result in visual changes on the Project site. Undeveloped land would be replaced with new residential development that would include private recreation and open space, including parks and trails. As part of the impact assessment to determine if the Project would substantially degrade the visual character of the Project site, consideration was given to the viewer groups and the extent that the Project would disrupt natural visual resources and create a visually cohesive environment.

The following analyses include a discussion of short-term construction impacts; an evaluation of the Project characteristics on visual character internally to the Project site; and an evaluation of impacts associated with off-site views of the Project site.

Construction Impacts

The sequence of work would involve mass grading and demolition of the existing on-site roads (Magazine Road and the private road that traverses Planning Area 2). For purposes of the aesthetics evaluation, conducting the crushing onsite and stockpiling it for later use in construction of the Project would be the worst-case scenario (as discussed in Section 1.8, Areas of Controversy/Issues to be Resolved, an option would be to export the materials for recycle offsite) Roads, parks, and infill service mains would be constructed in phases as development proceeds and as required by the applicable agency to support individual phases of development. The cut and fill volumes for the overall Project are projected to be generally balanced on the Project site. However, to accomplish this balance on site Planning Area 2 would need to serve as a borrow site to provide approximately 10,000 to 20,000 cubic yards of cut material to Planning Area 1. From an aesthetics evaluation, this would be a worst-case scenario. Dependent on the phasing of the development, this could result in an interim condition where Planning Area 2 is disturbed by construction activities prior to the implementation of improvements. Conversely, if Planning Area 2 is developed first, there would be stockpiling of material in Planning Area 1. However, both planning areas have been previously disturbed and graded due to past activities. Additionally, a portion of Planning Area 1 is currently being used for green waste operations, which includes a component of stockpiling. Planning Area 2 is currently being used for vehicle storage.

Construction activities during build out of the Project would present views of graded areas, dirt and debris stockpiles, construction equipment, delivery and haul trucks, construction crews, building materials, staging areas, trailer offices, and building activities that would be visible to people near the construction sites or with direct views of the Project site, as select portions of the Project site are developed over time. Currently, there are no surrounding uses that would be

considered highly sensitive, as there are no residential developments or scenic vista locations in the vicinity of the proposed Project. As discussed earlier, there is an existing business park, Allred Centre, adjacent to Planning Area 2 but the orientation of the buildings in the business park is facing away from the Project site. However, there would be workers, especially those located in the northernmost building that would have views of the Project site and the construction activities. The change in visual character due to construction activities would not be considered significant because of the relatively short-term duration of the construction activities. Additionally, the existing container nursery and green waste storage operations on the Project site have a similar character to a construction site.

Currently, there are no residential uses with direct views of the Project site. However, there are approved residential, mixed-use, and school land uses to the north and west of the Project site in Districts 5 and 7 of the Great Park Neighborhoods that are expected to be constructed in a similar time frame as the Project. These uses may have views of the construction activities, which are considered temporary in nature. At this time, the orientation of the future adjacent development and design features, such as perimeter walls, are not known; therefore, it is not possible to know the extent of the visual impact on the future land uses. Though views of construction may be less than optimal by some viewers, the visual impact would be considered less than significant because construction activities are common in the vicinity of the Project site and generally recognized as a necessary element associated with improving the visual character of the Project site from its current character to the cohesive visual quality envisioned by the Development Plan. Additionally, future occupants of the approved residential uses would have moved in with full knowledge of the construction activities anticipated with the Project.

The developed portion of the OCGP would not have views of the Project site, due to distance of the facilities from the Project site; intervening construction/building activities, including construction/building of Irvine Boulevard. Users of the Great Park Balloon may have aerial views of construction activities. Additionally, the construction activities would only be visible in the distance from the Great Park Balloon because the gondolas are located over two miles west of the Project site. Furthermore, these views would only be temporary due to the short duration of the views. It should also be considered that the Project site would be developed in a similar time frame as the various districts of the Great Park Neighborhoods; therefore, construction activities, whether from the Project site or surrounding area, would be a temporary component of the larger visual landscape.

Security fencing that would be provided around each construction site is expected to limit street-level views. While future multi-level development may have views of construction activities due to the height, unless they abut Irvine Boulevard, construction activities may not be visible due to the distance and intervening Irvine Boulevard. These construction-related views would also be temporary and would change as the different portions of the Project site are developed. Construction of the infrastructure improvements (e.g., roads, utility infrastructure extensions and connections) that would occur at various locations on site or off site would also be temporary.

The construction phase of the Project would not result in disruption of natural visual resources because no natural visual resources exist within either planning area identified for development. To the north/northeast/east, the Project site abuts the FBI property, which is identified as part of the Reserve Area for the Central-Coastal NCCP/HCP, and the Wildlife Movement Corridor bisects the two Project site planning areas. Construction activities

associated with grading would be similar in visual character to the existing composting operation located on a portion of Planning Area 1. The building construction phase may interrupt the views of the open space area when looking across the Project site, but those impacts would be no different than the ones disclosed below with respect to Project operations. In summary, the construction activities would not significantly degrade the existing visual character or quality of the Project site and its surroundings. Therefore, visual impacts associated with construction activities are considered less than significant and no mitigation is required.

On-Site Visual Character

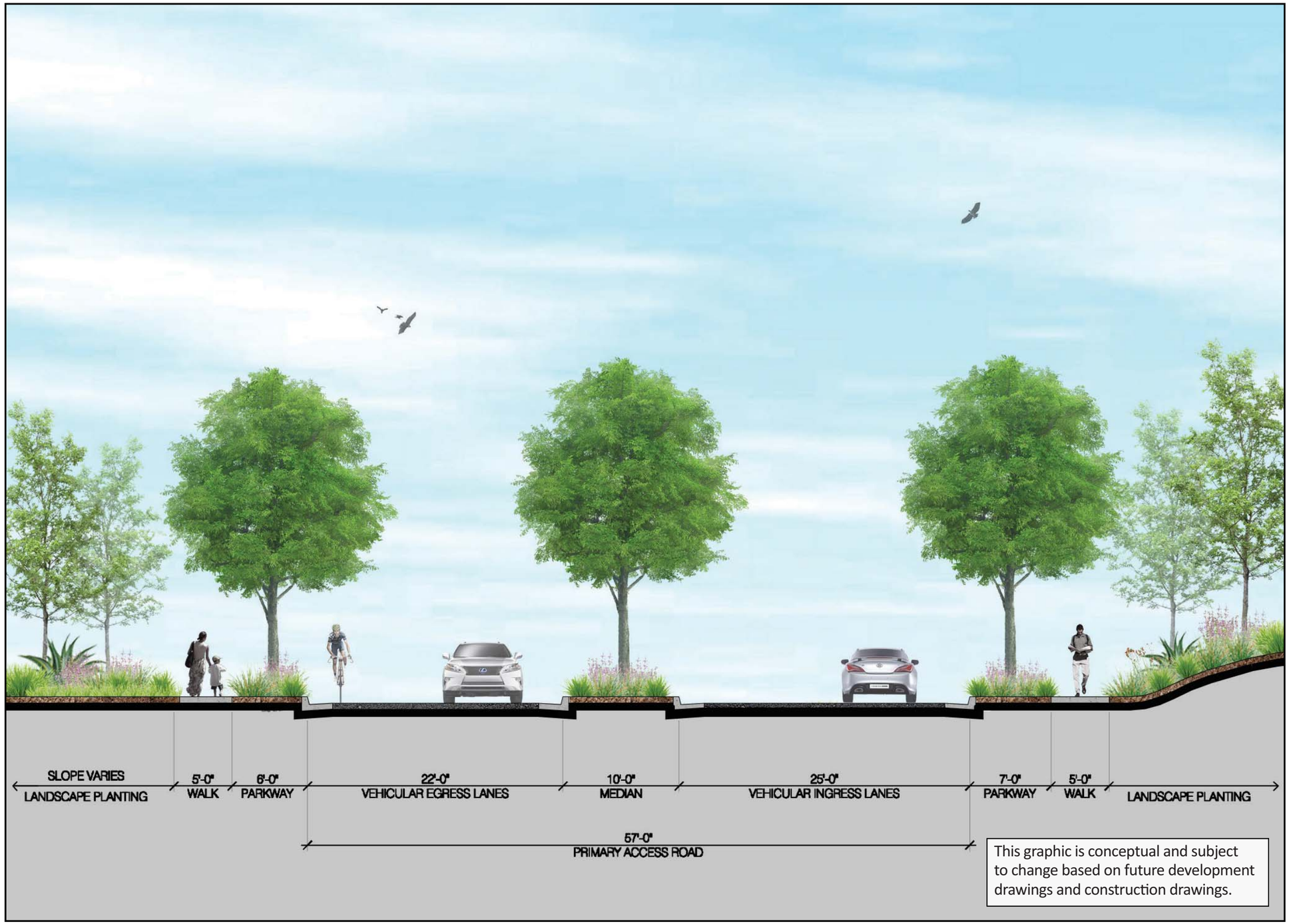
As development occurs, the visual character of the Project site would change from that of previously disturbed land with a container nursery and green waste operation to medium-high-density residential development. See Exhibit 3-4, Conceptual Site Plan in Section 3.0, Project Description.

The Development Plan provides for the development of up to 803 residential units. The Conceptual Site Plan, which is being used as a representative example of what the Development Plan authorizes for purposes of analyzing the potential aesthetic impacts, identifies 573 units in Planning Area 1 and 230 units in Planning Area 2. Approximately 4.11 acres of park land (2.58 acres in Planning Area 1 and 1.53 acres in Planning Area 2) consisting of 3 neighborhood parks and 8 pocket parks would be included in the Project site. Planning Area 2 would include a four-foot concrete walkway that would connect its neighborhood to the pocket parks. Additionally, the Project site would include two private recreational spaces, internal roads, and open space, as conceptually depicted on Exhibits 3-7 and 3-14, Conceptual Open Space and Recreation Plan in Section 3.0, Project Description. Exhibits 4.1-5 through 4.1-9 depict some of the potential components of the visual character and quality of the Project site, including the Primary Entry Drive, Irvine Boulevard Edge, in Planning Area 1, Basins in Planning Area 1 and Planning Area 2, and Landscape Interface at North Boundary.

As discussed in the Project Description, the Development Plan has incorporated design guidelines (Section 2 of the Development Plan) and Development Standards (Section 3 of the Development Plan). The design guidelines have been prepared to ensure that the vision for the Project is maintained as the Project is developed over time. These design guidelines and development standards are intended to be flexible while establishing basic evaluation criteria for the review of future developments as part of the development review process. The development standards regulate design and development within the Development Plan area and establish the minimum standards and requirements that would guide developers, contractors, architects, and engineers in designing and developing the Project's buildings and environment. Together, these two components of the Development Plan would ensure that future plans substantially conform to the vision, look, feel, and character envisioned for the Project. All of these components contribute to a visually cohesive development.

Key components of the Development Plan that would serve to enhance the visual characteristics of the Project site include the following:

- Community landscaping that reinforces Project design themes while emphasizing community continuity.



Source: West Alton Parcel Development Plan, 2015

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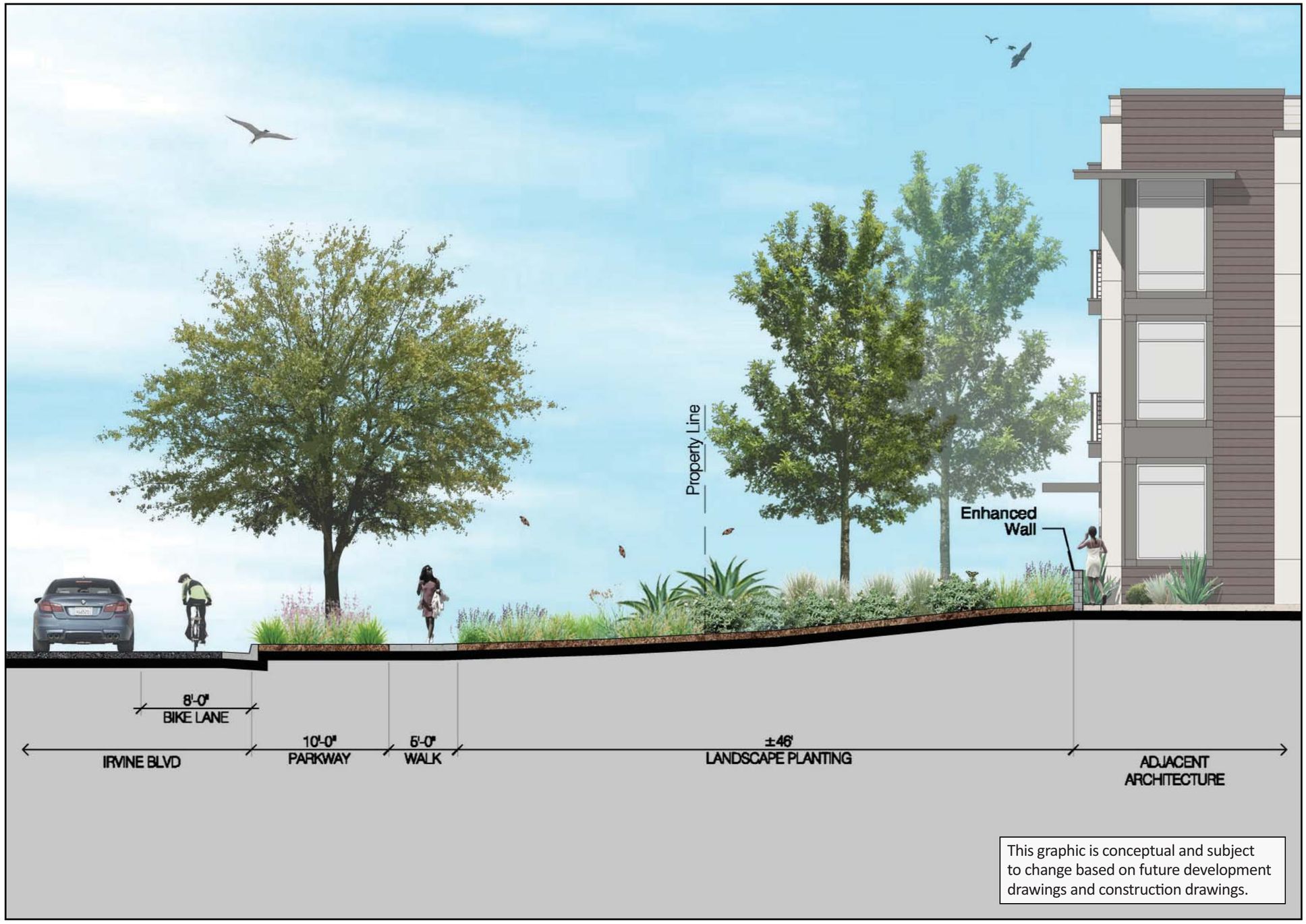
Primary Entry Drive

Exhibit 4.1-5

West Alton Parcel Development Plan EIR



Source: West Alton Parcel Development Plan, 2015

Irvine Boulevard Edge, Planning Area 1

Exhibit 4.1-6

West Alton Parcel Development Plan EIR

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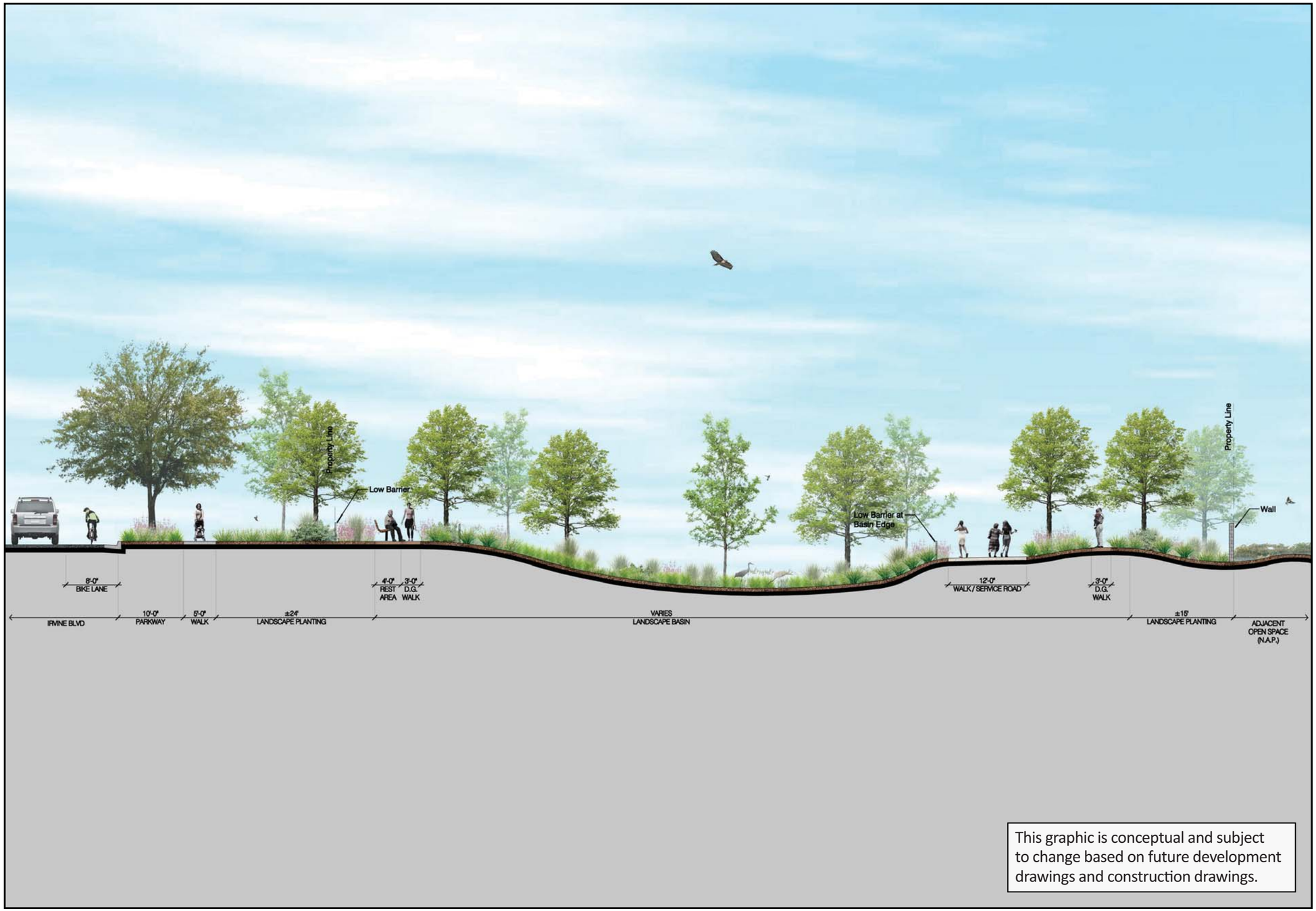

Source: West Alton Parcel Development Plan, 2015

Section – Basin in Planning Area 1

Exhibit 4.1–7

West Alton Parcel Development Plan EIR

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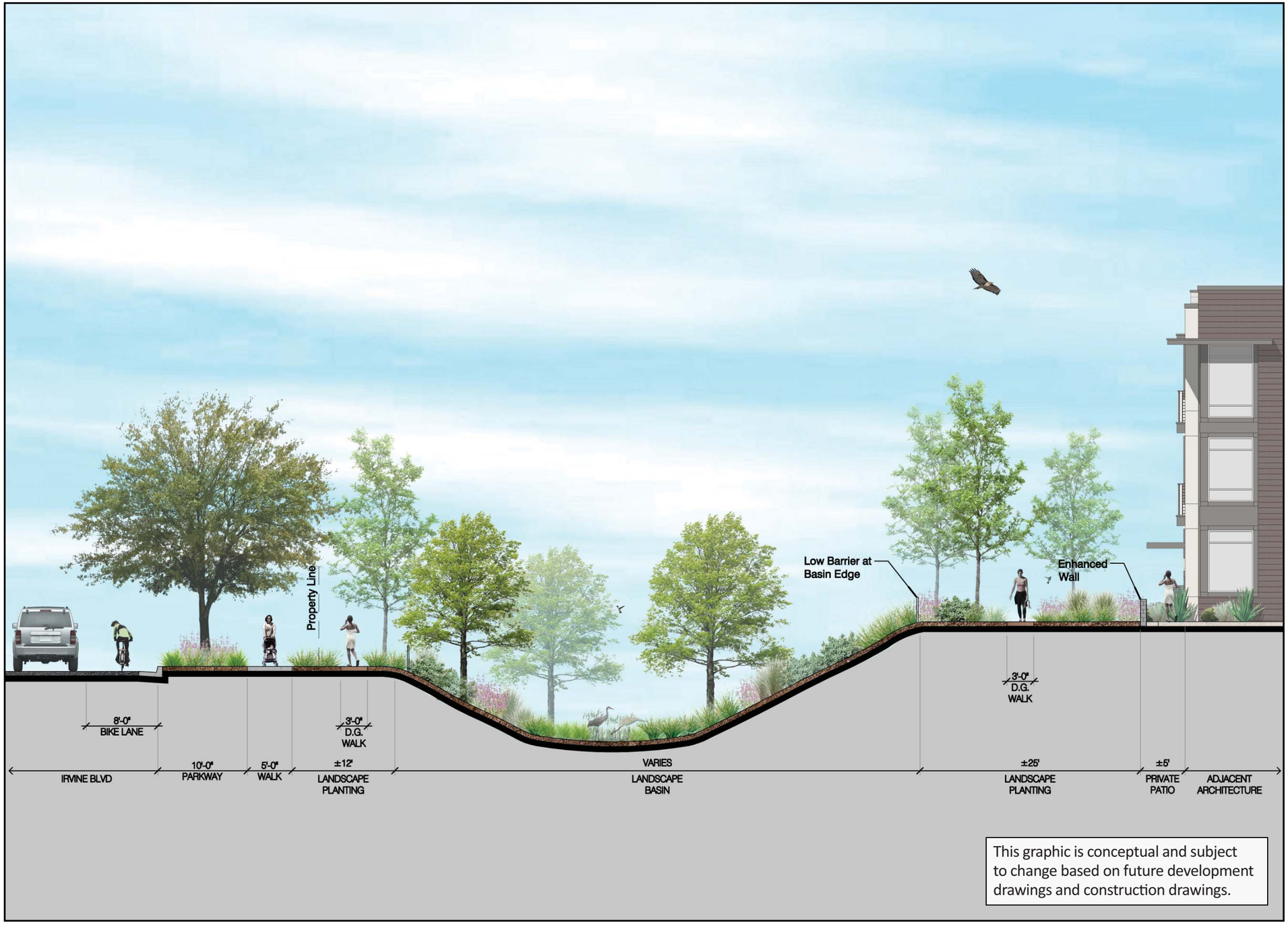

Source: West Alton Parcel Development Plan, 2015

Section – Basin in Planning Area 2

Exhibit 4.1–8

West Alton Parcel Development Plan EIR

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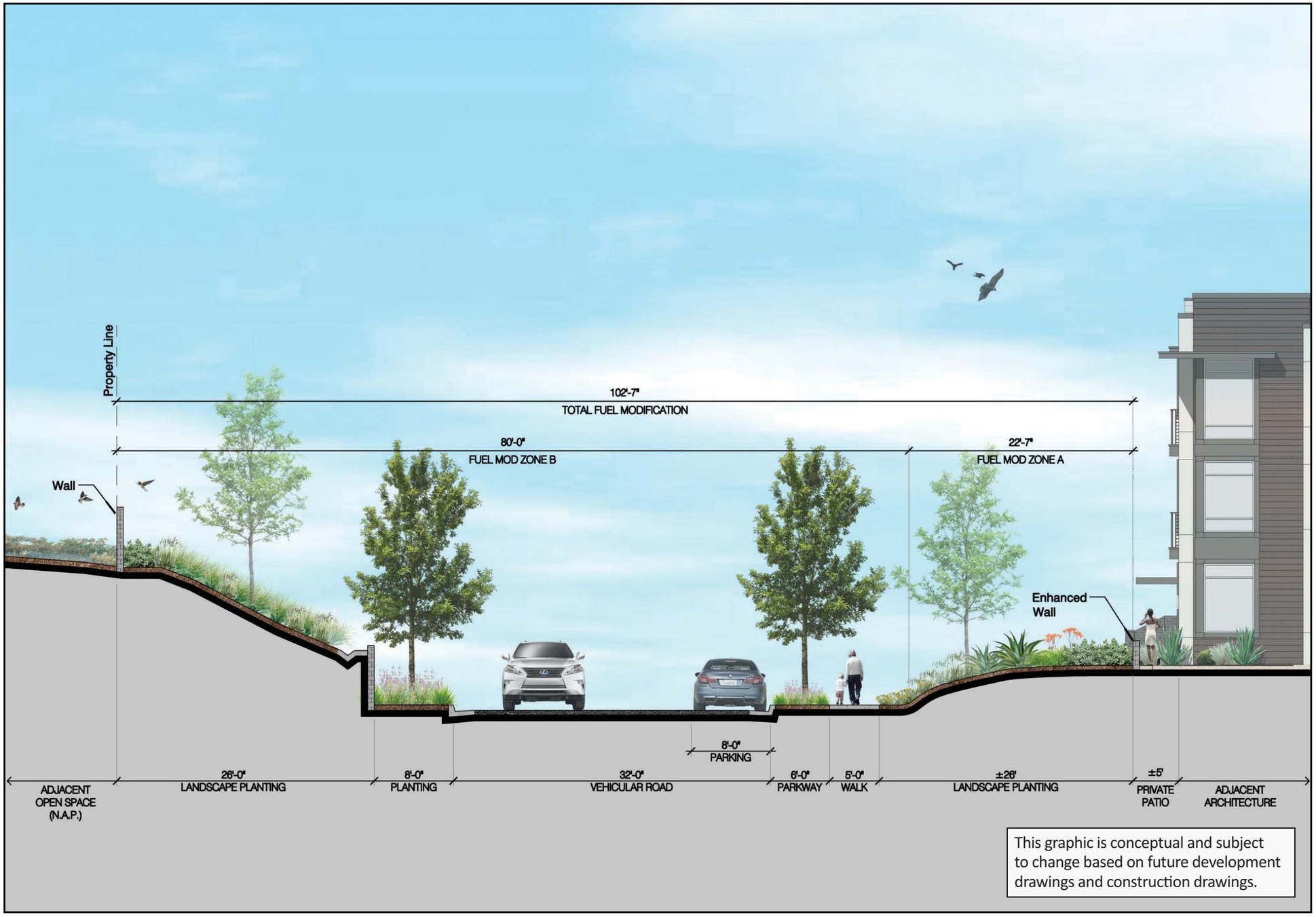

Source: West Alton Parcel Development Plan, 2015

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Landscape Interface at North Boundary

Exhibit 4.1–9

West Alton Parcel Development Plan EIR

- Open space areas throughout the Project site that include a variety of program amenities that foster public health and well-being. The types of open space include activity spots, small gardens, children's play zones, seating areas with scenic views, turf areas for open recreation, and public gathering hubs.
- Passive recreation elements, including, but not limited to, paved pedestrian park walks, outdoor dining areas with overhead shade structures, barbecues, game tables, bench seating, and lookout points.
- Private recreational spaces consisting of amenities such as swimming pools and spas.
- Private passive recreational elements, including, but not limited to, communal dining areas, outdoor kitchens, barbecues, rest/seating areas, fireside lounges, and shade structures.
- Hundred-foot setbacks from the FBI property to the north of the Project and along the southerly boundary of the Wildlife Movement Corridor; 48-foot setback from the northerly boundary of the Wildlife Movement Corridor; 45-foot setback from Irvine Boulevard; and 5-foot setback from the adjacent business park would create an inviting residential neighborhood while protecting the Project from the potential risk of wildfires and providing a buffer from natural open space areas.
- Gateway monuments that mark the main entrances into the Project site along Irvine Boulevard.
- Sign standards that would prevent visual clutter.
- Interpretive signage that connects the proposed Project's community identity to its surrounding environment while promoting a spirit of exploration and an appreciation for nature.
- Site furnishings to help add to the individuality and quality of each planning area.
- Use of architectural features, colors, and textures to generate pedestrian scaling and visual interest along the streetscape.

Given the current visual quality of the Project site, implementation of the development standards and design guidelines would promote a cohesive community identity and enhance, not degrade, the visual quality of the Project site. Therefore, the impacts are considered less than significant and no mitigation is required.

Off-Site Views of the Project

Views from public roadways and areas adjacent to the Project site would change as new structures and site improvements are constructed and as landscaping is provided in Planning Areas 1 and 2. Existing views of disturbed land with the container nursery and green waste operations would be replaced by development characterized by new structures and new landscaping. The Project site would take on an urban or suburban character.

The discussion below provides an assessment of the visual changes from locations in the vicinity of the Project site.

Views from Irvine Boulevard and Alton Parkway

Currently the views by motorists from Irvine Boulevard are partially obstructed by fencing lined with windscreen, container trees, and the other existing on site operations; therefore, travelers along Irvine Boulevard would have limited views of the Project site. Users of Irvine Boulevard have mid-range and distant views of the natural hillsides and Santa Ana Mountains. Views of the Project site would transition from the current nursery operation (container plants and green waste) on Planning Area 1 and the associated vehicle/equipment storage uses in Planning Area 2 to a residential neighborhood. Only the views of the Wildlife Movement Corridor would remain unchanged.

Irvine Boulevard is not designated a scenic highway, and the route does not offer a high-quality visual experience. The Project would not alter the hillsides and mountains that provide the mid-range and distant views but the Project would obstruct mid-range views with the introduction of buildings to the visual landscape. Additionally, the length of exposure to the views of the Project site from those using Irvine Boulevard is very short in duration. Given the existing condition of the Project site, the proposed development with landscaping and a 45-foot setback from Irvine Boulevard would be an improvement over the current visual characteristics of the Project site. Overall these changes would be less than significant because the Project will be occurring in an urban/suburban landscape and will be consistent with the context to the surrounding community. Therefore, the Project would not degrade the existing visual character or quality of the Project site and its surroundings for users of Irvine Boulevard.

Those using Alton Parkway, which is also not designated a scenic highway, would have a limited view of the proposed Project. In the eastbound direction, views are oriented to the Santa Ana Mountains, which provide a distant visual backdrop. The Project would not obstruct or impact these views because of the orientation of the road to the location of the Project. For westbound users of Alton Parkway, the views would consist of the edge of the Wildlife Movement Corridor across Borrego Canyon Wash and obscured views of the vehicle storage facilities associated with R&S Soils. Views of the proposed development in Planning Area 2 would be screened by the existing uses along Alton Parkway and future landscaping along the southern boundary of Planning Area 2. Thus, given the temporary visual exposure, the intervening uses, and the improvement of the visual characteristics of the Project site compared to the existing conditions, the Project would not degrade the existing visual character or quality of the Project site and its surroundings users of Alton Parkway. Thus, any potentially significant adverse impact of the Project site's development and operation would be considered less than significant and no mitigation is required.

Views from the Existing Development to the South of Planning Area 2

Immediately south of the Project site are a business park (Allred Centre) and IRWD Zone 3 facility, which includes two large water reservoirs and other facilities. There is existing off-site, mature landscaping along the perimeter of these uses interfacing Planning Area 2. Within the business park, parking spaces are located along the boundaries of the Project site, which create a buffer with the proposed Project. In addition to a five-foot prescribed setback, the Project includes substantial landscaping along the southern boundary of Planning Area 2 interfacing the business park and the IRWD facility.

None of these surrounding facilities is considered a sensitive use. The IRWD facility does not operate as uses that would generate full time employment and would not include permanent staff on the premises, on a daily basis. Therefore, while abutting Planning Area 2 of the proposed Project, the views of the proposed development would not impact the IRWD facility.

The Allred Centre also abuts the southern boundary of Planning Area 2. While there are multiple office buildings within the business park, two buildings are located closest to the boundary of the Project. However, in addition to the existing landscaping along the perimeter of the business park abutting the Project site and proposed Project landscaping, there is a row of surface parking and additional buffer around the buildings interfacing the Project site. As discussed above, the visual sensitivity of users is also correlated with the context of the views. Workers in the Allred Centre would not have the same sensitivity as residents would. Moreover, the Project would change the existing disturbed condition of the Project site with the container nursery and R&S Soil operations to a high-quality residential development with landscaping and open space/park amenities. The proposed development will be an improvement over the existing conditions of the Project site. Therefore, given the visual exposure of the workers to the Project site and the potential improvement to the existing condition, the Project would not degrade the existing visual character or quality of the Project site and its surroundings in this location. Thus, any potentially significant adverse impact of the Project site's development and operation would be considered less than significant and no mitigation is required.

Views from Great Park Neighborhoods District 5

District 5 of the Great Park Neighborhoods, which includes the recently-opened Portola High School would be the closest development to the Project site. Future uses within this District would be adjacent to the western boundary of Planning Area 1 of the Project, across Irvine Boulevard. This district has a TTOD (Trails and Transit Oriented Development) zoning designation and is envisioned as a residential neighborhood that would include single-family detached homes, single-family attached homes, and neighborhood-serving commercial uses. The properties for both developments (the proposed Project and Great Park Neighborhoods District 5) are on previously disturbed areas, and both developments are anticipated to be constructed in a similar time frame. While future developments within District 5 and the Portola High School would have direct views of the Project site, the views would be of a compatible and similar type of development that would include multistory residential buildings with ample landscaping and recreation/open space uses. Additionally, there would be a 45-foot setback from Irvine Boulevard, which would help create a visual buffer to the Project site. Therefore, given the similarity of uses, the intervening Irvine Boulevard, and the setback proposed along Irvine Boulevard, the Project would not degrade the existing visual character or quality of the Project site and its surroundings for the future users of District 5 and the Portola High School. Thus, any potentially significant adverse impact of the Project site's development and operation would be considered less than significant and no mitigation is required.

Views from the Great Park Neighborhoods Districts 7

District 7 of the Great Park Neighborhoods is separated from the rest of the Great Park Neighborhoods by Irvine Boulevard. District 7 lies immediately adjacent and to the northwest of the Project site and shares the shortest boundary of the Project site with a length of less than 250 feet. Similar to District 5, this District has a zoning designation of TTOD and is envisioned as a residential development that would include single-family detached and single-family attached

homes, which would be compatible to the proposed Project uses. The Project would have a neighborhood park and open space within the portion of the Project site adjacent to District 7. Therefore, direct views of the Project by future users of District 7 would be of an improved Project site with landscaping and open space. Given the similarity of uses and the intervening open space and neighborhood park, the Project would not degrade the existing visual character or quality of the Project site and its surroundings for the future users of District 7 of the Great Park Neighborhoods. Thus, any potentially significant adverse impact of the Project site's development and operation would be considered less than significant and no mitigation is required.

Views from the Orange County Great Park Improvement Area

The Great Park Improvement Area (i.e., 688-Acre site consisting of the Sports Park, Golf Course, Bosque, Agriculture, Upper Been, and Wildlife Corridor) is separated from the proposed Project site by the Great Park Neighborhood's District 5 and by Irvine Boulevard. The Golf Course, the easternmost component of this area, is less than 1.5 miles from the Project site. However, due to future intervening development in District 5 and the Irvine Boulevard between the two properties, the Golf Course would not have direct views of the Project site. Should the Project and the Golf Course be developed prior to construction of District 5, the Golf Course may have distant views of the Project site across the undeveloped District 5 site and the Irvine Boulevard as a buffer between the two properties. Under such circumstances, given the distance that separates the properties, the Project would not degrade the existing visual character or quality of the Project site and its surroundings from the Golf Course.

Users of the Great Park Balloon would have aerial views of the Project site. On-site development would not block balloon riders' panoramic views of the City of Irvine and beyond or the Santa Ana Mountains to the north. The Project site will be developed in a similar timeframe as portions of the Great Park Neighborhoods; therefore, balloon riders would see the overall change in the larger visual landscape. Though the character of the Project site would be changing, the nature of the improvement would not substantially contrast with the surrounding area and would create a seamless viewshed such that the Project would not degrade the existing visual character or quality of the Project site and its surroundings from the Great Park Balloon. Thus, any potentially significant adverse impact of the Project site's development and operation as it relates to the Orange County Great Park would be considered less than significant and no mitigation is required.

Impact Conclusion: *Short-term construction activities and infrastructure improvements would have less than significant impacts on visual quality and views of the* Project *site from surrounding areas. Proposed development under the Development Plan would change the visual quality of the Project site, but compliance with the design guidelines and development standards in the Development Plan would improve the visual quality of the Project site and the surrounding area compared to existing conditions and prevent the substantial degradation of the visual character of the Project site and its surrounding areas. Impacts on visual quality pursuant to Threshold 4.1-1 would be less than significant and no mitigation is required.*

Threshold 4.1-2

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

Future development under the Development Plan would lead to the introduction of new light sources in the form of streetlights, exterior security lighting, pedestrian-scaled fixtures, lower-scale pedestrian fixtures, accent and decorative lighting, signage lighting, handrail lighting, pavement lighting, overhead string lights, parking lot lighting, interior lighting visible through doors and windows, and headlights from vehicles coming to and from the Project site that would increase ambient lighting levels on the Project site. Even though adequate exterior lighting would be provided for general illumination, safety, and security, pursuant to the design guidelines of the Development Plan, lighting would be indirect, diffused, shielded, and low intensity to avoid glare and spilling over onto adjacent properties from the Project site; to avoid glare to pedestrians and motorists; and to preserve nighttime sky and minimize light pollution. Development Requirements (DRs) AES-1 and AES-2 are also proposed to address potential lighting spillover impacts.

These new light sources, mostly emanating from the multistory residential buildings, would be visible from adjacent off-site roadways and the surrounding areas. The NCCP/HCP Reserve area adjacent to the Project site to the north and northeast is considered a light-sensitive use because of its function of providing natural habitat for sensitive species. The new light sources from the Project site (i.e., residential units, parking structures, surface parking, and security lighting) have the potential to impact the Reserve area and any sensitive species. This potential impact to biological resources is addressed in Section 4.4, Biological Resources, of this EIR. As disclosed in that section, Project impacts would be less than significant. In that regard, compliance with DRs AES-1 and AES-2 incorporate measures to minimize the potential for lighting impacts. Lighting would be diffused, shielded, and low intensity to avoid glare and spilling over onto adjacent uses from the Project development area. Additionally, DR AES-2 requires preparation of a photometric study prior to approval of final inspection, which would reduce the potential impacts to less than significant levels, as the photometric study must demonstrate that lighting levels will not increase over 0.25-foot-candle over ambient conditions at the Project border with the NCCP/HCP Reserve and Wildlife Movement Corridor.

The nearest developed uses include the existing business park, Allred Centre, to the south of Planning Area 2, which is not considered a light-sensitive use. Two of the multiple office buildings within Allred Centre interface with Planning Area 2 across a surface parking lot and landscaping. The activities at this center are conducted largely indoors and during the day, such that increases in lighting levels on Project site and near the office buildings would not adversely affect their operations. Additional uses to the south of Planning Area 2 include the IRWD Zone 3 facility. These uses do not have full-time staff on site and are not considered light-sensitive.

The nearest developments that would include residential uses, which may be considered sensitive to nighttime lighting levels, would be located to the west across Irvine Boulevard and to the northwest in Districts 5 and 7 of the Great Park Neighborhoods, respectively. These residences may see light sources on the upper stories of on-site residential buildings during the evening and nighttime periods, where they have direct lines of sight. However, given the intervening Irvine Boulevard, the setback along Irvine Boulevard, and the neighborhood park and open space in the northwestern portion of the Project site, the potential lighting impacts

would be less than significant. Additionally, these uses would be similar and compatible to the proposed uses of the Project.

The proposed Project fronts onto the Wildlife Movement Corridor from both Planning Areas 1 and 2. The Wildlife Movement Corridor, which was created as a mitigation measure for biological impacts associated with the Alton Parkway extension, has become a viable habitat for native vegetation and associated sensitive species. The design and planning of the proposed Project has been cognizant of the sensitivity of this feature and, as such, has strategically planned parks/open space features along the boundaries with the Wildlife Movement Corridor. Additionally, a fuel modification zone[3] has been planned adjacent to the Wildlife Movement Corridor, which, in addition to protecting the Project from potential wildland fires, would serve as a buffer between the Wildlife Movement Corridor and proposed development and its associated potential lighting impacts. Moreover, proposed lighting adjacent to the Wildlife Movement Corridor will be appropriately shielded or screened to minimize light spillage onto the Corridor as required by DR AES-2. Therefore, with the features in place and compliance with lighting standards noted above, impacts would be less than significant.

Users of the Great Park Balloon would see lighting levels at the Project site, but this would be in context of lighting levels throughout their 360-degree views of the surrounding area. They would also be in the balloon for short periods of time during the daytime and nighttime. Therefore, lighting emanating from the proposed development would be similar to the surrounding lighting landscape and would have minimal impacts on balloon riders.

As indicated above, the Development Plan includes design guidelines for lighting that recommends a hierarchy of lighting be applied throughout the development that would address the type and intensity of lighting based on the specific development and neighborhood in order to avoid light pollution and adverse impacts in the development. For example, dependent on location in proximity to sensitive uses (such as the Wildlife Movement Corridor and NCCP/HCP Reserve Area), lighting may be pedestrian-scaled fixtures (12 to 14 feet in height) to lower-scale fixtures such as bollards or handrail lighting. Compliance with the Development Plan and DRs AES-1 and AES-2 by individual developments on the Project site would prevent new source of substantial light or glare, which would adversely affect daytime and nighttime views in the area. Thus, Project impacts would be less than significant and no mitigation is required.

Impact Conclusion: *Proposed development would introduce new sources of light and glare that would increase lighting levels on the Project site. Distance from light-sensitive uses provided by streets and setbacks, existing developments, and landscaping to the south of the Project site; compliance with the design guidelines on lighting, as contained in the Development Plan; and DR AES-1 and DR AES-2 would prevent substantial light and glare spillover and changes in the lighting levels that would have a significant and adverse effect on daytime and nighttime views in the area including the adjacent wildlife areas. Pursuant to Threshold 4.1-2, impacts related to new sources*

[3] The Fuel Modification Zone consists of: Zone A (Non-Combustible Construction) - a 20-foot setback zone for non-combustible construction only; and Zone B (Wet Zone-100 percent Removal Undesirable Shrubs) - 28- to 80-foot from Zone A, to be permanently irrigated, fully landscaped with approved drought tolerant, deep rooted, moisture retentive materials.

of substantial light and glare would be less than significant and no mitigation is required.

4.1.5 CUMULATIVE IMPACTS

When evaluating cumulative aesthetic impacts, a number of factors must be considered. In order for a cumulative aesthetic impact to occur, the proposed elements of the cumulative projects would need to be seen together or in proximity to each other. If the projects were not in proximity to each other, the viewer would not perceive them in the same scene. The context in which a project is being viewed will also influence the significance of the aesthetic impact. The contrast the Project has with its surrounding environment may actually be reduced by the presence of other cumulative projects. If most of an area becomes urbanized, the contrast of the Project with the natural surrounding may be reduced since it would not stand out as much. The key cumulative projects as it pertains to aesthetic impacts would be the OCGP (potentially including the Golf Course component of the 688-acre Great Park Development); the Great Park Neighborhoods (Districts 5 and 7); and Portola High School. These cumulative projects are all in close proximity to the Project site; will be implemented over the same general time frame (though some require a shorter duration to complete); and will all contribute to the transition of visual character of the area to a suburban community. The development proposals associated with each of these cumulative projects is identified in Section 4.0.

The Project site is located in an area that is slated for urbanization and has already undergone and continues to undergo rapid change resulting in the redevelopment of previously developed areas to a mix of land uses, including residential, commercial, office, and retail uses. This conversion includes existing and future development in the OCGP Great Park Neighborhoods adjacent to the Project site. The redevelopment of developed land and development of vacant land, largely to more intense and urban/suburban uses, is foreseen in the *City of Irvine General Plan*, the Pre-Annexation Agreement, and various CEQA documents referenced in this section and elsewhere.

Existing development has already resulted in changes to the visual character of the general area. These include development and redevelopment within the 1,300-acre OCGP area (200 acres are already developed and 688 acres are in the planning and design stage). The existing and future cumulative projects and overall regional growth have changed and will continue to change the visual character of the area. For future projects, each development must also evaluate potential aesthetic impacts and demonstrate, to the extent feasible, that it will avoid or substantially lessen potentially significant aesthetic impacts through features such as building design, lighting, and landscaping.

The proposed Development Plan would not result in significant aesthetic impacts. As discussed in this Section, while the Project proposes to develop the Project site with residential and recreation/open space uses, it may be perceived as an improvement over the existing condition of the Project site, which includes chain link fencing, green waste operations, a commercial nursery, and a vehicle storage area. The Project includes design guidelines and development standards intended to avoid adverse aesthetic impacts as defined by CEQA. With these measures, the Project will not substantially degrade the existing visual character or quality of the Project site or the surroundings. The Project would also not substantially alter the physical topography of the area and would not degrade any scenic vistas, highways, or areas considered to be scenic

resources. Therefore, the aesthetic impacts associated with the proposed Project would be less than significant.

While the Project would contribute to an alteration of the visual character of the area, the overall cumulative effect would be less than significant, as the existing and planned development in the area has been anticipated in the respective planning and environmental documents. In the overall context, the Project will be consistent in visual character with the cumulative projects and would not contribute to a substantial degradation of the existing visual character or quality of the Project site and its surroundings.

The proposed Project, in conjunction with other cumulative developments, could result in an increase in area-wide light and glare. Given the planned developments in the area, higher levels of light and potential for glare would be expected. However, like the Project, each development would be subject to lighting requirements that would reduce the amount of lighting emitted from proposed uses and avoid significant adverse impacts due to substantial light and glare spillover to adjacent uses by confining light spill to the respective premises. The light and glare associated with the Project, when combined with the cumulative projects, though increased over current levels, would be consistent with the lighting associated with an urban setting.

Based on the Development Plan design guidelines and development standards for the Project, as well as the light generally associated with the type of uses identified for key cumulative projects, the most intense source of night lighting associated with the cumulative projects in the area would be the lighting for the existing sports fields located in the OCGP (located two miles to the west of the Project) and lighting for sports fields at the new high school. However, the high-intensity lighting associated with sports fields is consistent with this type of use and has been designed consistent with the City of Irvine Park Standards Manual for recreational athletic fields. Though the level of lighting with the sports fields may be significant, the Project would not contribute similar intensity lighting; therefore, it would not contribute to a significant cumulative light and glare impact. With implementation of the Development Plan, including proposed DR AES-1 and DR AES-2, the Project's contribution to cumulative impacts related to substantial light and glare would be less than significant.

4.1.6 MITIGATION PROGRAM

As previously indicated, the development requirements, design guidelines, and development standards included in the Development Plan would regulate future development and promote a cohesive community identity and aesthetically pleasing environment. The development requirements, design guidelines, and development standards establish requirements and standards the Project will implement and that would be verified through the development review process.

Development Requirements

DR AES-1 Prior to issuance of any building permit, the County or its designee shall demonstrate that exterior lighting has been designed to be diffused, shielded, and low intensity and located so that direct rays are confined to the Project site in a manner meeting the approval of the Manager of Building & Safety or designee.

DR AES-2 Prior to the approval of final inspection, the County or its designee shall provide a letter from the electrical engineer, licensed landscape architect, or licensed professional designer that a field test has been performed after dark and the light rays are consistent with the Development Plan. Specifically, the County or its designee shall submit a photometric study that demonstrates that lighting levels will not increase over 0.25 foot-candle over ambient conditions at the Project border with the NCCP/HCP Reserve and Wildlife Movement Corridor. The letter shall be submitted to the Manager of Inspection for review and approval. (Note: High voltage lighting requires a licensed electrical engineer stamp.)

Mitigation Measures

No mitigation measures for aesthetics (visual and light and glare) are required.

4.1.7 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Project-specific and cumulative impacts to aesthetics associated with the Project would be less than significant. Potential Project-specific impacts related to light and glare would be less than significant with implementation of DRs AES-1 and AES-2. Cumulative light and glare impacts would be less than significant. No significant unavoidable impacts would occur.

4.1.8 REFERENCES

Irvine, City of. 2015a (current through). *City of Irvine General Plan.* Irvine, CA: the City. http://www.cityofirvine.org/community-development/current-general-plan.

———. 2015b (August 15). Memo: General Plan Supplement No. 9. Irvine, CA the City. https://alfresco.cityofirvine.org/alfresco/guestDownload/direct?path=/Company%20Home/Shared/CD/Planning%20and%20Development/General%20Plan/Supplement%209%20package.pdf.

KTGY. 2016 (November). *West Alton Parcel Development Plan.* Irvine, CA: KTGY.

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4.2 AGRICULTURAL RESOURCES

This section addresses potential impacts to agricultural resources that would result from implementation of the proposed Project.

4.2.1 REGULATORY SETTING

State

California Land Conservation Act

The California Land Conservation Act of 1965 (Williamson Act) enables local governments to enter into contracts with private landowners for preserving agricultural land or related open space uses. In return, landowners receive a lower property tax assessment based on farming and open space uses, as opposed to full market value. Local governments receive an annual subvention of forgone property tax revenues from the State via the Open Space Subvention Act of 1971, but these payments were suspended in 2009 as part of the State budget cuts. In turn, the contract prevents the development of the land for urban uses for ten years. Either a filing for non-renewal is needed or cancellation of the contract with payment of fees would be required to put a property to a use not authorized by the Williamson Act contract.

Farmland Mapping and Monitoring Program

The California Department of Conservation through the Farmland Mapping and Monitoring Program (FMMP) of the Division of Land Resources Protection defines classification of agricultural lands as follows:

- **Prime Farmland.** Land that has the best combination of physical and chemical features able to sustain long-term production of agricultural crops. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for production of irrigated crops at some time during the four years prior to the mapping date.
- **Farmland of Statewide Importance.** Similar to Prime Farmland, this land has a good combination of physical and chemical features able to sustain long-term production of agricultural crops. This land has minor shortcomings, such as greater slopes or less ability to store soil moisture than Prime Farmland. Land must have been used for production of irrigated crops at some time during the four years prior to the mapping date.
- **Unique Farmland.** 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. This land is used for the production of specific high economic value crops such as oranges, olives, avocadoes, rice, grapes, or cut flowers. Land must have been used for production of crops 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.

The Orange County Board of Supervisors has not designated any farmland as being of "Local Importance".

- **Grazing Land.** 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 10.0-acre parcel. Common examples include residential, industrial, commercial, institutional facilities, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, and water control structures.
- **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 40 acres. Vacant and nonagricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land.
- **Water.** Perennial water bodies with an extent of at least 40 acres.
- **Land Committed to Nonagricultural Use.** This optional designation is an overlay to the standard farmland categories described above and represents existing farmland and grazing land and vacant areas, which have a permanent commitment for development. Examples of Land Committed to Nonagricultural Use would include an area undergoing permanent infrastructure installation or for which bonds or assessments have been issued for public utilities. Such lands represent planning areas where there are commitments for future nonagricultural development that are not reversible by a simple majority vote by a city council or board of supervisors.

4.2.2 METHODOLOGY

The Development Plan would allow improvements on the entire Project site, with the exception of the Wildlife Movement Corridor. To evaluate potential Project impacts, information from the FMMP 2014 California Important Farmland Map was overlaid on the Project site. The 2014 California Important Farmland Map, which became available in July 2016, is the most recent year data is available for Orange County.

4.2.3 EXISTING CONDITIONS

Historically, the Project site has been leased for agricultural uses. However, since 2009 the site has not been used for agricultural cultivation.[1] Currently, the Project site, which is disturbed by existing and prior uses, is being used by R&S Soils for their nursery operations. This includes container plants, green waste operations (composting), and vehicle storage. These operations are done under an encroachment permit from the County of Orange.

The California Department of Conservation (DoC) Office of Land Conservation publishes a Farmland Conversion Report every two years as part of its Farmland Mapping and Monitoring Program (FMMP); these reports document land use conversion by acreage for each county in California. The most recent FMMP data available for Orange County is identified as the 2014 mapping. As shown on Exhibit 4.2-1, the 2014 mapping data designates the Project site as mostly Other Land, with a small portion of the Project site adjacent to the Allred Business Park designated as Urban and Built-Up Land. These designations are not considered Important Farmland (i.e., Prime Farmland, Unique Farmland, or Farmland of Statewide Importance). The Project site is surrounded by Other Land to the north and east. Across Irvine Boulevard, there is a parcel designated as Prime Farmland. To the south is Urban and Built-Up Land. No lands subject to a Williamson Act contract are present on the Project site.

4.2.4 THRESHOLDS OF SIGNIFICANCE

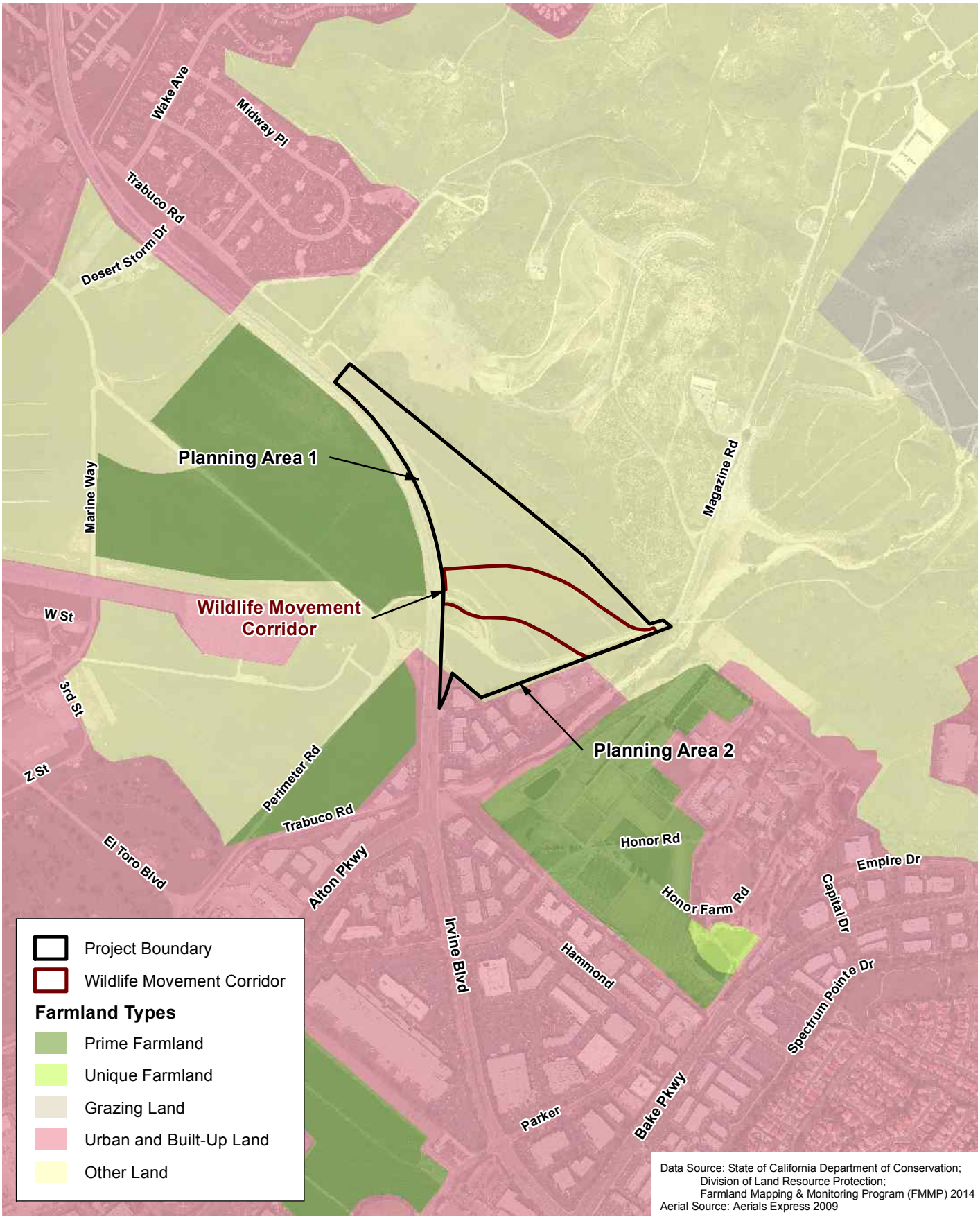
In accordance with the County's Environmental Analysis Checklist and Appendix G of the State CEQA Guidelines, the Project would result in a significant impact if it would:

Threshold 4.2-1 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.

Threshold 4.2-2 Conflict with existing zoning for agricultural use, or a Williamson Act contract.

Threshold 4.2-3 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 forest land to non-forest use.

[1] FEIR 564, which evaluated the James A. Musick Facility (JAMF) expansion plans, identified the Project site for potential agricultural purposes to offset the loss of agricultural land on JAMF due to the planned expansion of the jail facility. It was identified that the Project site would either be acquired or leased for agricultural purposes; however, FEIR 564 did not take credit for use of the Project site as mitigation because implementation was outside of the control of the Board of Supervisors. In 2012, a Supplement to Final Environmental Impact Report (FEIR) 564, prepared to evaluate proposed changes to the JAMF Master Plan from what was originally analyzed in FEIR 564, addressed changes to jail operations and related impacts to agriculture. The Supplement to FEIR 564 disclosed agricultural operations on the JAMF property had been phased out because the rising cost of oversight and the cost savings associated with the agricultural operations that had previously been achieved had diminished. Additionally, the Supplement to FEIR 564 identified that potential future agricultural operations on the Project site may be precluded by County decisions to utilize the Project site for more economically viable purposes. Thus, as part of the Supplement to FEIR 564, the County analyzed the complete cessation of agricultural activities on all available lands on the JAMF property and lands adjacent to JAMF including the Project site (County of Orange, 2012).



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Farmland Mapping

Exhibit 4.2-1

West Alton Parcel Development Plan EIR

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4.2.5 IMPACT ANALYSIS

Threshold 4.2-1

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?

Exhibit 4.2-1, Farmland Mapping, shows no portion of the Project site is designated farmlands as identified on the FMMP 2014 California Important Farmland Map. As a result, the Project would not convert Important Farmland to non-agricultural uses. The 2014 mapping data designates the Project site as mostly Other Land, with a small portion of the Project site adjacent to the Allred Business Park designated as Urban and Built-Up Land.

Impact Conclusion: *The proposed Project would not result in the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use. Therefore, there would be no impact pursuant to Threshold 4.2-1.*

Threshold 4.2-2

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

As discussed in Section 3.4, Sections 53090–53091 of the California Government Code, counties and cities are exempt from zoning regulations when one entity owns territory within the jurisdiction of another entity. Additionally, the Pre-Annexation Agreement, provides that the "County shall retain exclusive land use control over [its parcels within the Former MCAS El Toro], and shall be entitled to place any development upon said parcels that County shall determine to be desirable for County's needs, as though said property remained unincorporated…". Thus, the City's zoning designation is not an applicable code as it relates to the Project and the CEQA analysis.

Notwithstanding the above, in the interest of informed decision making, the following analyzes the Project for consistency with the City of Irvine's Zoning Map designation of a portion of the Project site as 1.1, Exclusive Agriculture. Though the zoning requirements do not apply to the Project, the development of the Project would be inconsistent with the City Zoning Code's designation of a portion of the Project site as agricultural. Given the County's rights and obligations provided for in the Pre-Annexation Agreement and otherwise, the land use plans, policies, and regulation of the City of Irvine are not applicable to the Project site. Therefore, the Project would not result in a significant adverse impact due to an inconsistency with the City's agricultural zoning designation. Further, if the City implements the General Plan Amendment and zone change the County may request, the Project would be consistent with the City of Irvine General Plan and Zoning Ordinance.

No portion of the Project site is subject to a Williamson Act contract. Therefore, no impacts related to this issue would occur with implementation of the proposed Project and no mitigation is required.

Impact Conclusion: *A portion of the Project site is designated 1.1, Exclusive Agriculture under the City's zoning ordinance. Though the development of the Project would be inconsistent with the City of Irvine Zoning Ordinance, the zoning requirements do not apply to the Project and thus the Project will not have a significant impact in that regard. No portion of the Project site is covered by a Williamson Act contract. Therefore, pursuant to Threshold 4.2-2, there would be no Williamson Act impact.*

Threshold 4.2-3

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?

Conversion of agricultural land to urban uses is a long and continuing trend in Orange County. The Project site has not been cultivated since 2009. Additionally, the Project would not convert mapped Important Farmland to non-agricultural uses.

To evaluate the potential for the Project to result in the conversion of Farmland to non-agricultural uses, nearby agricultural uses, areas designated as Important Farmland by the DoC, or parcels zoned for agricultural use, were identified. In addition to the Project site, the County's parcel south of Alton Parkway and immediately east of the JAMF (known as the East Alton Parcel) is designated 1.1, Exclusive Agriculture, as is the Marshburn Basin. However, neither of these two sites are used for agricultural purposes. There is other land in the area that is used for agricultural uses but not zoned for agriculture. The following provides a discussion of the likelihood that the Project would result in the conversion of that land to non-agricultural uses:

- **East Alton Parcel.** This parcel is not currently used for agricultural purposes. The 2014 mapping data designates the East Alton Parcel site as mostly Other Land, with a small portion of the site adjacent to the JAMF designated as Urban and Built-Up Land. The loss of the potential use of this parcel for agricultural uses was identified in the Supplement to FEIR 567 and was included in the CEQA Findings and Statement of Overriding Considerations adopted by the Board of Supervisors in conjunction with the approval of the JAMF Master Plan. Additionally, it should be noted, that the majority of this parcel is identified for inclusion in the Reserve Area for the Central-Coastal Natural Communities Conservation Plan (NCCP)/Habitat Conservation Plan (HCP) and it contains sensitive habitat (coastal sage scrub); therefore, the potential for use of the site for agricultural uses would be, at most, limited with or without the Project.
- **Marshburn Basin.** The Marshburn Basin site, located approximately 1.75 miles west of the Project site, is zoned 1.1, Exclusive Agriculture but is not currently used for agricultural purposes. This facility is a natural treatment systems basin owned and operated by the Orange County Flood Control District and the City of Irvine. Therefore, the Project will not result in the conversion of the Marshburn Basin site to

nonagricultural uses because the property does not provide agricultural value and is an important component of the flood control network.

- **OCGP District 5.** A portion of District 5 of the Great Park Neighborhoods west of Irvine Boulevard is designated as Prime Farmland (see Exhibit 4.2-1); however, the site is zoned 8.1 TTOD and 1.4, Preservation and is slated for urban development and the extension of the Wildlife Movement Corridor, respectively. Because this area is already slated for urban development, the Project would not influence the conversion to non-agricultural uses. The area designated for the extension of the existing Wildlife Movement Corridor, which will not change as a result of the Project, would be restored to function as biological habitat.
- **OCGP Farmland.** Though not designated as Important Farmland by the DoC, the development plan for the OCGP has identified a 71-acres agricultural component. This use is identified as being in the center of a public park surrounded by the proposed golf course and is approximately 1.5 miles from the Project site. Due to the distance from the Project site, planned intervening suburban development, and the identification of the creation of the farmland as an integral component of the OCGP concept, the Project would not result in the conversion of this proposed farmland area to non-agricultural uses.
- **University of California South Coast Research and Extension Center.** This facility, established in 1956 is located at 7601 Irvine Boulevard. The approximately 200 acre site is dedicated to agricultural and horticultural research. The site is zoned as 1.3, Conservation and Open Space Reservoir. The Research and Extension Center site is slightly more than a mile from the Project site. Given the public ownership and its long-standing use as a research center the Project would not result in the conversion of the University of California South Coast Research and Extension Center site from Farmland to non-agricultural uses.
- **Agricultural Legacy Program.** Concurrent with the Northern Sphere approvals[2], the City adopted the Agricultural Legacy Program, which is intended to promote the development of new, limited scale agricultural operations on public land in the City of Irvine. The Agricultural Legacy Program has been incorporated into the City of Irvine General Plan, Open Space and Conservation Element as Objective L-10. Approximately 800 acres have been identified for potential inclusion in the City's Agricultural Legacy Program. Various parcels throughout the City have been identified. These parcels range from opportunities below high-voltage transmission lines and along pipeline easements, to parcels identified in connection with large scale developments. The Project would not result in the conversion of the Agricultural Legacy Program sites from Farmland to non-agricultural uses because none of the sites are located in the immediate vicinity of the Project site and the sites are either not suitable for other uses (those along transmission lines or pipeline easements) or have been specifically set aside for limited scale agricultural operations.

[2] The Northern Sphere Project area is approximately 3,500 acres bound by Portola Parkway, the Foothill Transportation Corridor (SR-241), the former El Toro Corp Air Station (MCAS), Trabuco Road, and Jeffrey Road. The project, originally approved in 2002 provides for a mix of uses, including medium and medium-high density residential uses, multi-use, community commercial, and research and industrial uses.

As discussed above, based on factors such as the fact that the Project site is not designated as FMMP Important Farmland, the distances of the properties from the Project site, the nature of the existing and proposed uses on the Project site and the changes to the environment resulting from the same, the developed and developing nature of the surrounding land uses (i.e., approved development of the Great Park Neighborhood) or long-term protection of the land, the Project would not result in the conversion of Farmland uses to nonagricultural uses. Therefore, impacts would be less than significant impact related to this issue and no mitigation is required.

Impact Conclusion: *Pursuant to Threshold 4.2-3, the Project would not involve changes in the environment, which due to their location or nature, could result in the conversion of Farmland to non-agricultural use because the surrounding area is either developed or slated for urban development or the agricultural areas are enrolled in the City agricultural mitigation program (Agricultural Legacy Program). Therefore, the potential Project impacts associated with conversion of other Farmland to non-agricultural uses is less than significant.*

4.2.6 CUMULATIVE IMPACTS

Cumulative impacts of past, present, and future urban development, including the proposed Project, on agricultural resources have been examined at both the State and County levels. The encroachment of urban areas on agricultural lands is a long and continued trend within Orange County. Though it is difficult to quantify the amount of agricultural land that is under development pressure within the County, it is evident that such pressure does and would continue to exist with or without implementation of the Project. The rising cost of irrigation, increased land values, and labor costs have made it difficult to maintain a successful large-scale agricultural operation in Orange County. Past projects in surrounding Orange County cities and unincorporated areas have converted undeveloped and agricultural land to urban uses. The Project site has not been under agricultural cultivation since 2009 and the Project site is not designated as Important Farmland. Therefore, the Project would not contribute to a cumulative loss of agricultural lands.

4.2.7 MITIGATION PROGRAM

Development Requirements

No applicable development requirements have been identified for the proposed Project.

Mitigation Measures

No mitigation measures are required because no impact has been identified.

4.2.8 LEVEL OF SIGNIFICANCE AFTER MITIGATION

The Project would not result in the loss of the agricultural land or conversion of the Important Farmland. Therefore, there would be no direct or cumulative significant impact on agricultural resources in Orange County.

The development of the Project would be inconsistent with the Exclusive Agriculture zoning on the Project site. However, the City zoning requirements do not apply to the Project; therefore, the Project would not result in a significant adverse impact due to a conflict with the City's zoning designation.

The Project would not result in an impact related to Williamson Act contract, as no portion of the Project site is covered by a Williamson Act contract. Additionally, the Project would not result in conversion of Farmland to non-agricultural uses beyond the Project limits.

4.2.9 REFERENCES

California Department of Conservation, Farmland Mapping and Monitoring Program (FMMP). 2016. Farmland Mapping and Monitoring Program (FMMP) Farmland Map: Orange County, California. Sacramento, CA: CDC.

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4.3 AIR QUALITY

This section identifies and evaluates the proposed Project's potential to have adverse effects related to air quality during construction and operation. Information presented in this section includes data from the *West Alton Draft Transportation Impact Analysis* ("Transportation Impact Analysis") prepared by Fehr & Peers in December 2015 (the Project Traffic Study), which is included in Appendix L of this Environmental Impact Report (EIR). Emission calculations associated with this Project can be found in Appendix C of this EIR. Impacts from greenhouse gas (GHG) emissions are addressed in Section 4.7 of this EIR.

4.3.1 BACKGROUND

Air Pollutants

Criteria Pollutants

Air quality is defined by ambient air concentrations of seven "criteria air pollutants" (CAPs), which are a group of common air pollutants identified by the U.S. Environmental Protection Agency (USEPA) to be of concern with respect to the health and welfare of the general public. Federal and State governments regulate CAPs by using ambient standards based on criteria regarding the health and/or environmental effects of each pollutant. These pollutants include nitrogen dioxide (NO_2); ozone (O_3); particulate matter, including both particles equal to or smaller than 10 microns in size (PM10) and particles equal to or smaller than 2.5 microns in size (PM2.5); carbon monoxide (CO); sulfur dioxide (SO_2); and lead. Particulate matter size refers to the aerodynamic diameter of the particle. A description of each CAP, including source types and health effects, is provided below.

Nitrogen Dioxide

Nitrogen gas, normally relatively inert (i.e., nonreactive), comprises about 80 percent of the air. At high temperatures (e.g., in combustion processes) and under certain other conditions, nitrogen can combine with oxygen to form several different gaseous compounds collectively called nitrogen oxides (NOx). Nitric oxide (NO), NO_2, and nitrous oxide (N_2O) are important constituents of NOx. NO is converted to NO_2 in the atmosphere. Motor vehicle emissions are the main source of NOx in urban areas.

NO_2 is a red-brown pungent gas and is toxic to various animals and to humans because of its ability to form nitric acid with water in the eyes, lungs, mucus membranes, and skin. In animals, long-term exposure to NOx increases susceptibility to respiratory infections, lowering resistance to such diseases as pneumonia and influenza. Laboratory studies show that susceptible humans, such as asthmatics, who are exposed to high concentrations of NO_2 can suffer lung irritation and, potentially, lung damage. Epidemiological studies have also shown associations between NO_2 concentrations and daily mortality from respiratory and cardiovascular causes and with hospital admissions for respiratory conditions.

While the National Ambient Air Quality Standards (NAAQS) only address NO_2, NO and NO_2 are both precursors in the formation of O_3 and PM2.5, as discussed below. Because of this and the

fact that NO emissions largely convert to NO_2, NOx emissions are typically examined when assessing potential air quality impacts.

Ozone

Ozone is a secondary pollutant, meaning that it is not directly emitted. It is a gas that is formed when volatile organic compounds (VOCs) (also referred to as reactive organic gases) and NOx undergo photochemical reactions that occur only in the presence of sunlight. The primary source of VOC emissions is unburned hydrocarbons in motor vehicle and other internal combustion engine exhaust. NOx also form as a result of the combustion process, most notably due to the operation of motor vehicles. Sunlight and hot weather cause ground-level O_3 to form; as a result, ozone is known as a summertime air pollutant. (Ground-level O_3 is not to be confused with atmospheric O_3 or the "ozone layer", which occurs very high in the atmosphere and shields the planet from some ultraviolet rays.) Ground-level O_3 is the primary constituent of smog. Because O_3 formation occurs over extended periods of time, both O_3 and its precursors are transported by wind, and high O_3 concentrations can occur in areas well away from sources of its constituent pollutants.

People with lung disease, children, older adults, and people who are active can be affected when ozone levels exceed ambient air quality standards. Numerous scientific studies have linked ground-level ozone exposure to a variety of problems, including the following:

- Lung irritation that can cause inflammation much like a sunburn;
- Wheezing, coughing, pain when taking a deep breath, and breathing difficulties during exercise or outdoor activities;
- Permanent lung damage to those with repeated exposure to ozone pollution; and
- Aggravated asthma, reduced lung capacity, and increased susceptibility to respiratory illnesses like pneumonia and bronchitis.

Particulate Matter

Particulate matter includes both aerosols and solid particles of a wide range of size and composition. Of particular concern are PM10 and PM2.5. Particulate matter tends to occur primarily in the form of fugitive dust. This dust appears to be generated by both local sources and by region-wide dust during moderate to high wind episodes. These regional episodes tend to be multi-district and sometimes interstate in scope. The principal sources of dust in urban areas are from grading, construction, disturbed areas of soil, and dust entrained by vehicles on roadways.

PM10 is generally emitted directly as a result of mechanical processes that crush or grind larger particles or from the re-suspension of dusts, most typically through construction activities and vehicular travels. PM10 generally settles out of the atmosphere rapidly and is not readily transported over large distances.

PM2.5 is directly emitted in combustion exhaust and is formed in atmospheric reactions between various gaseous pollutants, including NOx, sulfur oxides (SOx), and VOCs. PM2.5 can remain suspended in the atmosphere for days and/or weeks and can be transported long distances—as many as several hundred miles.

The principal health effects of airborne particulate matter are on the respiratory system. Short-term exposure, lasting several days or weeks, to high PM2.5 and PM10 levels is associated with premature mortality and increased hospital admissions and emergency room visits; increased respiratory symptoms are also associated with short-term exposure to high PM10 levels. Long-term exposure, lasting years to decades, to high PM2.5 levels is associated with premature mortality and development of chronic respiratory disease. According to the USEPA, some people are much more sensitive than others to breathing PM10 and PM2.5 (USEPA 2016b). People with influenza and chronic respiratory and cardiovascular diseases and the elderly may suffer worse illnesses; people with bronchitis can expect aggravated symptoms; and children may experience a decline in lung function due to breathing in PM10 and PM2.5. Other groups considered sensitive include smokers and people who cannot breathe well through their noses. Exercising athletes are also considered sensitive because many breathe through their mouths.

Carbon Monoxide

CO is a colorless and odorless gas which, in the urban environment, is associated primarily with the incomplete combustion of fossil fuels in motor vehicles. CO combines with hemoglobin in the bloodstream and reduces the amount of oxygen that can be circulated through the body. High CO concentrations can cause headaches, aggravate cardiovascular disease, and impair central nervous system functions.

CO concentrations can vary greatly over comparatively short distances. Relatively high concentrations are typically found near crowded intersections, along heavily used roadways carrying slow-moving traffic, and at or near ground level. Even under the most severe meteorological and traffic conditions, high concentrations of CO are limited to locations within a relatively short distance (i.e., up to 600 feet or 185 meters) of heavily traveled roadways.

Sulfur Dioxide

SOx constitute a class of compounds of which SO_2 and sulfur trioxide (SO_3) are of greatest importance. Ninety-five percent of pollution-related SOx emissions are in the form of SO_2. SOx emissions are typically examined when assessing potential air quality impacts of SO_2. The primary contributor of SOx emissions is fossil fuel combustion for generating electric power. Industrial processes, such as nonferrous metal smelting, also contribute to SOx emissions. SOx is also formed during combustion of motor fuels; however, most of the sulfur has been removed from fuels, greatly reducing SOx emissions from vehicles.

SO_2 combines easily with water vapor, forming aerosols of sulfurous acid (H_2SO_3), a colorless, mildly corrosive liquid. This liquid may then combine with oxygen in the air, forming the even more irritating and corrosive sulfuric acid (H_2SO_4). Peak levels of SO_2 in the air can cause temporary breathing difficulty for people with asthma who are active outdoors. Longer-term exposures, lasting years to decades, to high levels of SO_2 gas and particles cause respiratory illness and aggravate existing heart disease. SO_2 reacts with other chemicals in the air to form tiny sulfate particles that are measured as PM2.5.

Lead

Lead is a stable compound that persists and accumulates both in the environment and in animals. In humans, it affects the body's blood-forming (or hematopoietic), nervous, and renal systems.

In addition, lead has been shown to affect the normal functions of the reproductive, endocrine, hepatic, cardiovascular, immunological, and gastrointestinal systems, although there is significant individual variability in response to lead exposure. In general, an analysis of lead is limited to projects that emit significant quantities of the pollutant (e.g., lead smelters) and are not applied to residential development projects.

Toxic Air Contaminants

Toxic air contaminants (TACs) are a diverse group of air pollutants that may cause or contribute to an increase in deaths or in serious illness or that may pose a present or potential hazard to human health. TACs may be emitted from a variety of common sources, including motor vehicles, gasoline stations, dry cleaners, industrial operations, painting operations, and research and teaching facilities. The USEPA uses the term "hazardous air pollutants" (HAPs) for TACs.

TACs are different than the CAPs previously discussed in that ambient air quality standards have not been established for them. TACs occurring at extremely low levels may still cause health effects, and it is typically difficult to identify levels of exposure that do not produce adverse health effects. TAC impacts are described by carcinogenic (i.e., cancer) risk and chronic (i.e., of long duration) and acute (i.e., severe but of short duration) adverse effects on human health. Diesel particulate matter (diesel PM) is a TAC and is responsible for the majority of California's known cancer risk from outdoor air pollutants.

4.3.2 REGULATORY SETTING

The Project site is located in the South Coast Air Basin (SoCAB). The SoCAB is composed of all of Orange County and parts of San Bernardino, Los Angeles, and Riverside Counties. Air quality in the SoCAB is regulated by the USEPA, the California Air Resources Board (CARB), and the South Coast Air Quality Management District (SCAQMD). Each of these agencies develops rules, regulations, policies, and/or goals to comply with applicable legislation. Although USEPA regulations may not be superseded, both State and local regulations may be more stringent. The Southern California Association of Governments (SCAG) is an important partner to the SCAQMD and produces estimates of anticipated future growth and vehicular travel in the basin that are used for air quality planning. The federal, State, regional, and local regulations for CAPs and TACs are discussed below.

<u>Federal</u>

The federal Clean Air Act (CAA) requires the adoption of NAAQS, which are periodically updated to protect the public health and welfare from the effects of air pollution. The USEPA is responsible for setting and enforcing the NAAQS for criteria pollutants. Primary standards set limits to protect public health, including the health of at-risk populations such as people with pre-existing heart or lung disease (such as asthmatics), children, and older adults. Secondary standards set limits to protect public welfare, including protection against visibility impairment as well as damage to animals, crops, vegetation, and buildings. Current federal standards are set for SO_2, CO, NO_2, O_3, PM10, PM2.5, and lead. NAAQS are shown in Table 4.3-1.

The USEPA regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain locomotives.

Specific geographic areas are classified as either "attainment" or "nonattainment" areas for each pollutant based upon the comparison of measured data with the NAAQS. Attainment areas have concentrations of the criteria pollutant that are below the NAAQS, and a Nonattainment classification indicates the criteria pollutant concentrations have exceeded the NAAQS. When an area has been reclassified from a nonattainment to an attainment area for a federal standard, the status is identified as "maintenance", and there must be a plan and measures that will keep the region in attainment for the following ten years. Areas designated as nonattainment are required to prepare regional air quality plans, which set forth a strategy for bringing an area into compliance with the standards. These regional air quality plans, which are developed to meet federal requirements, are included in an overall program referred to as the State Implementation Plan (SIP). The SoCAB SIP status and Orange County's attainment status are described in Tables 4.3-1 and 4.3-2 below, respectively.

TABLE 4.3-1
CALIFORNIA AND NATIONAL AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	California [a] Standards	Federal Standards	
			Primary [b]	Secondary [c]
O_3	1 Hour	0.09 ppm (180 μg/m³)	–	–
	8 Hour	0.070 ppm (137 μg/m³)	0.070 ppm (137 μg/m³)	Same as Primary
PM10	24 Hour	50 μg/m³	150 μg/m³	Same as Primary
	AAM	20 μg/m³	–	–
PM2.5	24 Hour	–	35 μg/m³	Same as Primary
	AAM	12 μg/m³	12.0 μg/m³	15.0 μg/m³
CO	1 Hour	20 ppm (23 mg/m³)	35 ppm (40 mg/m³)	–
	8 Hour	9.0 ppm (10 mg/m³)	9 ppm (10 mg/m³)	–
NO_2	AAM	0.030 ppm (57 μg/m³)	0.053 ppm (100 μg/m³)	Same as Primary
	1 Hour	0.18 ppm (339 μg/m³)	0.100 ppm (188 μg/m³)	–
SO_2	24 Hour	0.04 ppm (105 μg/m³)	–	–
	3 Hour	–	–	0.5 ppm (1,300 μg/m³)
	1 Hour	0.25 ppm (655 μg/m³)	0.075 ppm (196 μg/m³)	–
Lead	30-Day Avg.	1.5 μg/m³	–	–
	Calendar Quarter	–	1.5 μg/m³	Same as Primary
	Rolling 3-Month Avg.	–	0.15 μg/m³	
Visibility Reducing Particles	8 Hour	Extinction coefficient of 0.23 per km – visibility ≥ 10 miles	**No Federal Standards**	
Sulfates	24 Hour	25 μg/m³		
Hydrogen Sulfide	1 Hour	0.03 ppm (42 μg/m³)		
Vinyl Chloride	24 Hour	0.01 ppm (26 μg/m³)		

TABLE 4.3-1
CALIFORNIA AND NATIONAL AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	California [a] Standards	Federal Standards	
			Primary [b]	Secondary [c]

O_3: ozone, ppm: parts per million, µg/m^3: micrograms per cubic meter, –: No Standard; PM10: respirable particulate matter with a diameter of 10 microns or less, AAM: Annual Arithmetic Mean, PM2.5: fine particulate matter with a diameter of 2.5 microns or less, CO: carbon monoxide, mg/m^3: milligrams per cubic meter, NO_2: nitrogen dioxide, SO_2: sulfur dioxide, km: kilometer.

[a] *California Air Quality Standards:* California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles) are values that are not to be exceeded. All others are not to be equaled or exceeded.

[b] *National Primary Standards:* The levels of air quality necessary, within an adequate margin of safety, to protect the public health.

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

Note: More detailed information in the data presented in this table can be found at the CARB website (www.arb.ca.gov).

Source: CARB 2015a.

TABLE 4.3-2
ATTAINMENT STATUS OF CRITERIA POLLUTANTS IN THE SOUTH COAST AIR BASIN

Pollutant	State	Federal
O_3 (1 hour)	Nonattainment	No Standard
O_3 (8 hour)		Extreme Nonattainment
PM10	Nonattainment	Attainment/Maintenance
PM2.5	Nonattainment	Moderate Nonattainment
CO	Attainment	Attainment/Maintenance
NO_2	Attainment	Attainment/Maintenance
SO_2	Attainment	Attainment
Lead	Attainment	Attainment/Nonattainment*
All Others	Attainment/Unclassified	No Standard

O_3: ozone; PM10: particulate matter 10 microns or less in diameter; PM2.5: particulate matter 2.5 microns or less in diameter; CO: carbon monoxide; NO_2: nitrogen dioxide; SO_2: sulfur dioxide.

* The Los Angeles County portion of the SoCAB is designated nonattainment for lead; the remainder of the SoCAB is designated attainment.

Source: CARB 2015d, 2014; USEPA 2015.

State

CARB has also established the California Ambient Air Quality Standards (CAAQS) shown in Table 4.3-1, which are generally more restrictive than the NAAQS. CARB conducts research; compiles emissions inventories; develops suggested control measures; provides oversight of local programs; and prepares the SIP. For regions that do not attain the CAAQS, CARB requires the air districts to prepare plans for attaining the standards. CARB establishes emissions standards for motor vehicles sold in California, consumer products (e.g., hair spray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions.

Mobile Source Reductions

Assembly Bill (AB) 1493 ("the Pavley Standard" or "AB 1493") required CARB to adopt regulations by January 1, 2005, to reduce GHG emissions from non-commercial passenger vehicles and light-duty trucks for model years 2009 through 2016. While AB 1493 focuses on the reduction of GHG emissions, this regulation contributes to the reduction of some CAPs.

CARB's approach to passenger vehicles (cars and light trucks), under AB 1493, combines the control of smog-causing pollutants and GHG emissions into a single coordinated package of standards. This approach also includes efforts to support and accelerate the numbers of plug-in hybrids and zero-emission vehicles in California. These standards will apply to all passenger and light-duty trucks used by Project residents, employees, and visitors, and for deliveries made to the Project site.

Advanced Clean Cars

In January 2012, CARB approved the Advanced Clean Cars (ACC) program, an emissions-control program for model years 2017 through 2025. The program combines the control of smog, soot, and GHGs with requirements for greater numbers of zero-emission vehicles. By 2025, when the rules will be fully implemented, 2025 model year automobiles will emit 75 percent fewer smog-forming emissions and 34 percent fewer global warming gases than the average 2012 model year automobile (CARB 2015c).

Title 24 Energy Efficiency Standards

The Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24, Part 6 of the *California Code of Regulations* [CCR]) were established in 1978 in response to a legislative mandate to reduce California's energy consumption. The current applicable standards are the 2013 Standards, effective July 1, 2014; however, the 2016 Code was published on July 1, 2016, and will go into effect on January 1, 2017 (CBSC 2015). The requirements of the energy efficiency standards result in the reduction of natural gas and electricity consumption. Since using natural gas produces criteria pollutant emissions, a reduction in natural gas consumption results in a related reduction in air quality emissions.[1] Additional discussion of the Title 24 Energy Efficiency Standards is included in Section 4.7, Greenhouse Gas Emissions, of this EIR.

[1] Because electricity is not generated on site, the emissions associated with electricity generation are not included in the emissions calculations.

Title 24 Green Building Standards

The California Green Building Standards Code (24 CCR 11), also known as the "CALGreen Code", contains mandatory requirements and voluntary measures for new residential and nonresidential buildings (including buildings for retail uses, office uses, public schools, and hospitals) throughout California (CBSC 2014). Development of the CALGreen Code is intended to (1) reduce GHG emissions from buildings; (2) promote environmentally responsible, cost-effective, healthier places to live and work; (3) reduce energy and water consumption; and (4) respond to the directives by the Governor. In short, the CALGreen Code is established to reduce construction waste; make buildings more efficient in the use of materials and energy; and reduce environmental impacts during and after construction. The 2016 Code will go into effect on January 1, 2017.

The CALGreen Code provides standards for bicycle parking, carpool/vanpool/electric vehicle spaces, light and glare reduction, grading and paving, energy-efficient appliances, renewable energy, graywater systems, water efficient plumbing fixtures, recycling and recycled materials, pollutant controls (including moisture control and indoor air quality), acoustical controls, storm water management, building design, insulation, flooring, and framing, among others. Implementation of the CALGreen Code measures reduces energy consumption and vehicle trips and encourages the use of alternative-fuel vehicles which, in turn, reduces pollutant emissions. Additional discussion of the CALGreen Code is included in Section 4.7, Greenhouse Gas Emissions, of this EIR.

Beyond the mandatory standards, the CALGreen Code specifies voluntary measures for energy and water efficiency, material conservation, and other design features. The levels of participation are classified as Tier 1 and Tier 2. An example of Tier 1 requirements is 15 percent less energy use in residential construction than required by existing regulations. Tier 2 requires 30 percent less energy use in residential construction.

Regional

South Coast Air Quality Management District and Southern California Association of Governments

In the SoCAB, the SCAQMD is the agency responsible for protecting public health and welfare through the administration of federal and State air quality laws, regulations, and policies. Included in the SCAQMD's tasks are the monitoring of air pollution; the preparation of the Air Quality Management Plan (AQMP) for the SoCAB; and the promulgation of rules and regulations.

In the Project area, SCAG is the federally designated Metropolitan Planning Organization and the State-designated transportation planning agency for six counties: Riverside, San Bernardino, Los Angeles, Ventura, Imperial, and Orange.

The SCAQMD and SCAG are jointly responsible for formulating and implementing the AQMP for the SoCAB. SCAG's Regional Mobility Plan and Growth Management Plan form the basis for the land use and transportation control portion of the AQMP.

Air Quality Management Plans

The current regional plan applicable to the Project is the SCAQMD's 2012 AQMP. However, CARB and the USEPA also consider elements of the 2007 AQMP in review of the Statewide 2007 SIP. An AQMP establishes a program of rules and regulations directed at attaining the NAAQS and CAAQS. The AQMP control measures and related emission reduction estimates are based on emissions projections for a future development scenario derived from land use, population, and employment characteristics defined in consultation with local governments. Accordingly, conformance with the AQMP for development projects is determined by compliance with local land use plans and/or population projections.

The AQMP and SIP processes generally occur concurrently: the SIP is required under the CAA to provide the framework for nonattainment areas to come into attainment, and the AQMP is prepared by the SCAQMD, in part, to satisfy the requirement for an SIP. The AQMP traditionally evaluates all nonattainment and maintenance criteria pollutants; portions of the AQMP represent the required SIP elements, which are then transmitted to CARB for review and approval before being transmitted to the USEPA for inclusion in the overall California SIP.

The Orange County portion of the SoCAB is currently designated as a nonattainment area for the federal and State O_3 standards, the State PM10 standards, and the federal and State PM2.5 standards.[2] The current status of the SIPs for these nonattainment pollutants are shown below:

- The 2007 AQMP provides attainment demonstrations for the annual PM2.5 standard by April 5, 2015, and the 8-hour O_3 standard by December 31, 2023. In 2009 and 2011, respectively, at the request of the USEPA, CARB provided clarifying revisions to the annual PM2.5 and 8-hour O_3 SIP amendments. In 2011, the USEPA approved the control strategy, emission reduction commitment, and attainment demonstration for the annual PM2.5 standard by April 5, 2015. In 2012, the USEPA approved the control strategy, emission reduction commitment, and attainment demonstration for the annual 8-hour O_3 standard by June 15, 2024.
- The 2012 AQMP provides attainment demonstrations for the 24-hour PM2.5 standard by 2019 and the 1-hour O_3 standard by 2023. In addition, it provides supplemental information for the approved 8-hour O_3 SIP (SCAQMD 2013a). On January 25, 2013, CARB approved the 2012 AQMP, which was subsequently submitted to the USEPA. To date, the 2012 AQMP has not been formally approved by the USEPA. However, the 2012 AQMP is still considered by the SCAQMD as the current and approved AQMP.
- The SCAQMD is currently developing the 2016 AQMP. Adoption by the SCAQMD Governing Board is scheduled for February 2017. The 2016 AQMP will develop integrated strategies and measures to meet the following NAAQS (SCAQMD 2016a):
    - 8-hour O_3 (75 parts per billion [ppb]) by 2031[3]
    - Annual PM2.5 (12 micrograms per cubic meter [$\mu g/m^3$]) by 2025

[2] The Los Angeles County portion of the SoCAB is a nonattainment area for lead.

[3] On October 1, 2015, the USEPA lowered the 8-hour O_3 standard to 0.070 ppm (70 ppb). The SIP (or AQMP) for the 70 ppb standard will be due 4 years after the attainment/nonattainment designations are issued by the USEPA, which is expected in 2017. Thus, meeting the 70 ppb standard will be addressed in a 2021 AQMP.

- 8-hour O_3 (80 ppb) by 2023
- 1-hour O_3 (120 ppb) by 2022
- 24-hour PM2.5 (35 μg/m^3) by 2019

South Coast Air Quality Management District Rules

The Project will be required to comply with existing SCAQMD rules for the reduction of fugitive dust and criteria pollutant emissions. The following rules are most relevant to the proposed Project:

SCAQMD Rule 201 requires a "Permit to Construct" prior to the installation of any equipment "the use of which may cause the issuance of air contaminants . . ." and Regulation II provides the requirements for the application for a Permit to Construct. Rule 203 similarly requires a Permit to Operate. Rule 219, Equipment not Requiring a Written Permit Pursuant to Regulation II, identifies "equipment, processes, or operations that emit small amounts of contaminants that shall not require written permits . . ."

SCAQMD Rule 402, Nuisance, states that a project shall not "discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property".

SCAQMD Rule 403, Fugitive Dust, requires actions to prevent, reduce, or mitigate fugitive particulate matter emissions. These actions include applying water or chemical stabilizers to disturbed soils; managing haul road dust by applying water; covering all haul vehicles before transporting materials; restricting vehicle speeds on unpaved roads to 15 miles per hour (mph); and sweeping loose dirt from paved site access roadways used by construction vehicles. In addition, Rule 403 requires that vegetative ground cover be established on disturbance areas that are inactive within 30 days after active operations have ceased. Alternatively, an application of dust suppressants can be applied in sufficient quantity and frequency to maintain a stable surface. Rule 403 also requires grading and excavation activities to cease when winds exceed 25 mph.

SCAQMD Rule 445 has been adopted to reduce the emissions of particulate matter from wood-burning devices and prohibits the installation of such devices in any new development.

SCAQMD Rule 1113 governs the sale of architectural coatings and limits the VOC content in paints and paint solvents. Although this rule does not directly apply to the Project, it does dictate the VOC content of paints available for use during building construction.

Local

Based on the Pre-Annexation Agreement and as described in Section 2.4.3 of this EIR, the Project is not subject to County or City regulations, and the County is entitled to develop the property and process the Project as though the property is unincorporated. However, in the interest of informed decision making, an evaluation of County and City regulations is provided for informational purposes.

County of Orange

The Resources Element, one of nine elements of the County's General Plan, contains official County policies on the conservation and management of resources (Orange County 2011). One component of the Resources Element is Air Resources. The policy of the Air Resources component is "To develop and support programs which improve air quality or reduce air pollutant emissions". The Air Resources component includes 15 implementation programs. The responsibility for implementation is designated to the County, the Orange County Transportation Authority, and other public agencies.

City of Irvine General Plan

Energy Element

Objective I-1 of the Energy Element of the City's General Plan, Energy Conservation, of the Energy Element, is to "Maximize energy efficiency through land use and transportation planning". Policies include encouraging and facilitating energy conservation measures. These measures are discussed in more detail in Section 4.7, Greenhouse Gas Emissions, of this EIR.

Growth Management Element

Objective M-4, Transportation Demand Management, of the Growth Management Element of the City's General Plan is to "Provide and encourage the use of a full range of alternative modes of transportation including transit systems". Policies include support of programs promulgated in the AQMP that are aimed at reducing vehicle trips and vehicle miles traveled (VMT). Elements of this objective that are relevant information from an information disclosure perspective include the following:

- Promote alternative work schedules, telecommuting, and other methods to spread and lessen work trips over a longer period of time to reduce peak period congestion.
- Encourage and promote the use of bicycles and walking.

4.3.3 METHODOLOGY

California Emission Estimator Model

Proposed Project emissions were calculated by using California Emissions Estimator Model (CalEEMod) version 2013.2.2 (SCAQMD 2013b). CalEEMod is a computer program accepted by the SCAQMD that can be used to estimate criteria pollutant and GHG emissions associated with land development projects in California. CalEEMod has separate databases for specific counties and air districts. The Orange County database was used for the Project. The model calculates emissions of CO, SO_2, PM10, PM2.5, and the O_3 precursors VOC and NOx. For this analysis, the results are expressed in pounds per day (lbs/day) and are compared with the SCAQMD mass daily thresholds described in Section 4.3.5 to determine impact significance.

Specific inputs to CalEEMod include land uses and acreages. Construction input data include, but are not limited to, (1) the anticipated start and finish dates of each Project construction activity (e.g., grading, building, and paving); (2) inventories of construction equipment to be used during each Project activity; (3) areas to be excavated and graded for development; (4) volumes of materials to be imported to and exported from the Project site; (5) areas to be paved; and (6) areas to be painted. The input data and assumptions are discussed in Section 4.3.6 below and are shown in notes on the CalEEMod data in Appendix C. The CalEEMod has the capability to calculate reductions in construction emissions from the effects of dust control, off-road diesel-engine classifications, low-emission paints, and other selected measures. CalEEMod was developed using EMFAC 2011 and OFFROAD 2011 for calculating emissions from on-road vehicles and off-road construction equipment, respectively.

Operational inputs to CalEEMod include (1) the specific year for Project operations; (2) vehicle trip generation rates; (3) land use and location characteristics that contribute to reductions in VMT; and (4) Project criteria for energy use. Output operational emissions data are separated into energy use, area sources, and mobile sources. The area sources are landscape maintenance equipment, consumer products, and architectural coatings used for routine maintenance. Consumer products (e.g., household cleaners, air fresheners, automotive products, and personal care products) emit VOCs. Mobile sources are the vehicles used by residents, visitors, and vendors at the Project site. The CalEEMod also includes data to calculate emissions reductions based on Project-specific characteristics and resulting from the implementation of mitigation measures (MMs). The methodology for most emissions reductions is based on the California Air Pollution Control Officers Association's (CAPCOA's) 2010 publication entitled *Quantifying Greenhouse Gas Mitigation Measures, A Resource for Local Government to Assess Emission Reductions from Greenhouse Gas Mitigation Measures* (CAPCOA 2010).

Local Concentrations of Criteria Pollutants from On-Site Sources

As part of the SCAQMD's environmental justice program, attention has focused on localized effects of air quality and the exposure of persons to criteria pollutants generated on a project site. The SCAQMD developed localized significance threshold (LST) methodology and mass rate look-up tables that public agencies can use to determine whether or not a project may generate significant adverse localized air quality impacts. In addition to the mass daily emissions for regional thresholds, the SCAQMD established California Environmental Quality Act (CEQA) significance thresholds for ambient air quality to address localized impacts. The localized impact analysis is based on the concentration of a pollutant at a receptor site. The concentration standard is either the same as the NAAQS or CAAQS or is based upon a health-based standard. It is possible for a pollutant to have a significant impact regionally and a less than significant impact locally or vice versa. It is also possible for both impacts (i.e., regional and local) to be significant or less than significant. The look-up tables allow the evaluation of impacts without the complex task of dispersion modeling.

The analysis is not performed for operations because there would be no substantial on-site stationary sources of criteria pollutants with the proposed Project. The LST methodology translates the concentration standards into emissions thresholds. The LST methodology is generally recommended to be limited to projects of five acres or less. For projects that exceed five acres, such as the proposed Project, the five-acre LST look-up values can be used as a screening tool to determine which pollutants require detailed analysis (MacMillan 2011). Although the proposed Project site is larger than five acres, SCAQMD recognizes the efficacy of

using the LST for larger sites if it is demonstrated that the calculated Project emissions would be less than the five-acre site emissions limits. If a project exceeds the LST look-up values, then the SCAQMD recommends that project-specific localized air quality modeling be performed.

The LST methodology addresses NO_2, CO, PM10, and PM2.5 emissions. SO_2 and lead are not included because these pollutants are generated in very small amounts in development projects. Ozone is not included because it is a secondary pollutant and local concentrations cannot be estimated from precursor emissions. For NO_2 and CO, the one-hour standards are used and receptors that could be exposed for one hour are considered. For PM10 and PM2.5, the 24-hour standards are used and the receptors of interest are those where persons could be exposed for 24 hours, such as residences. Because emissions are based on the AAQS, exceedance of the LST represents a potential health impact. As noted above, even if a standard is exceeded, the potential impact can be confirmed or found to be less than significant by a more detailed analysis.

Carbon Monoxide Hotspots

Local area CO concentrations for roadways were evaluated using screening level criteria. An initial screening procedure is provided in the *Transportation Project-Level Carbon Monoxide Protocol* (CO Protocol) to determine whether a project poses the potential to generate a CO hotspot (UCD ITS 1997). A hotspot analysis involves an estimation of likely future localized pollutant concentrations and a comparison of those concentrations to the relevant NAAQS. According to the protocol, projects might pose a potential for CO hotspots if they (1) increase the percentage of vehicles in cold start mode by two percent or more; (2) increase traffic volumes by five percent or more over existing volumes; or (3) make traffic flow worse, which is defined for signalized intersections as increasing average delay at intersections operating at Level of Service (LOS) E or F or causing an intersection that would operate at LOS D or better without a project to operate at LOS E or F with a project. If a project poses a potential for a CO hotspot, a quantitative screening is required. Various air quality agencies in California, but not the SCAQMD, have developed conservative screening methods. The screening methods of the Sacramento Metropolitan Air Quality Management District (SMAQMD) are used because background CO levels in the Project area are less than in the metropolitan Sacramento area, which means that the allowable increase in CO due to project sources (i.e., the standard less background) based on Sacramento data is less than would be allowed based on Orange County conditions. Therefore, this is a conservative evaluation.

4.3.4 EXISTING CONDITIONS

Climate and Meteorology

The Project site is located in the SoCAB, which includes all of Orange County and the urbanized portions of Los Angeles, Riverside, and San Bernardino Counties. The SoCAB is arid, with virtually no rainfall and abundant sunshine during the summer months. It has light winds and poor vertical mixing compared to the other large urban areas in the United States. The combination of poor dispersion and abundant sunshine, which drives the photochemical reactions that form pollutants (such as O_3) provide conditions especially favorable to the formation of smog. The SoCAB is bound to the north and east by mountains with maximum elevations exceeding 10,000 feet. The unfavorable combination of meteorology, topography, and emissions from the nation's second largest urban area results in the SoCAB having some of the worst air quality in the United States.

Sensitive Air Quality Receptors

Some members of the population are especially sensitive to air pollutant emissions and should be given special consideration when evaluating air quality impacts from projects. These people include children, the elderly, persons with pre-existing respiratory or cardiovascular illness, and athletes and others who engage in frequent exercise. The SCAQMD defines structures that house these persons or places where they gather (e.g., residences, schools, playgrounds, childcare centers, convalescent centers, retirement homes, and athletic fields) as "sensitive receptors".

The Project site consists of vacant land with two streets running through the site: Magazine Road and a private road. There are no existing sensitive receptors on the Project site.

The area surrounding the Project site consists primarily of industrial, office, and transportation uses and undeveloped or previously developed land. The nearest sensitive receptor to the proposed Project site is Portola High School, which opened in Fall of 2016. The athletic fields located approximately 290 feet east of the northwestern-most corner of the proposed Project site and classrooms approximately 1,200 feet from the Project site. The next nearest sensitive receptors to the proposed Project site are residences located approximately 0.6 mile southeast of the Project site, south of Bake Parkway. There are no other existing sensitive receptors within one mile of the Project site.

Existing Air Quality

Regional Attainment Status

As previously discussed, based on monitored air pollutant concentrations, the USEPA and CARB designate an area's status in attaining the NAAQS and CAAQS for the criteria pollutants. Table 4.3-2, provided above, summarizes the attainment status in the SoCAB for the criteria pollutants.

Local Air Quality

The SCAQMD has divided the SoCAB into 38 source receptor (air monitoring) areas (SRAs), with a designated ambient air monitoring station representative of each area. The Project site is in the area represented by measurements made at the Mission Viejo Monitoring Station located on 26081 Via Pera in Mission Viejo, the closest monitoring station, approximately 3.2 miles southeast of the Project site. The pollutants measured at the Mission Viejo Station include O_3, CO, PM2.5, and PM10. The monitored air quality data from 2013 to 2015 and a comparison to the NAAQS and CAAQS from the Mission Viejo Monitoring Station are presented in Table 4.3-3. As shown, the national and State standards were exceeded in all three years for O_3 (eight hour), and State standards were exceeded in all three years for O_3 (one hour).

TABLE 4.3-3
AIR POLLUTANT LEVELS MEASURED AT THE MISSION VIEJO MONITORING STATION

Station	Pollutant	California Standard	National Standard	Year	Max. Level[a]	Days State Standard Exceeded[b]	Days National Standard Exceeded[b, c]
Mission Viejo Station	O_3 (1 hour)	0.09 ppm	None	2013	0.104	2	0
				2014	0.115	4	0
				2015	0.099	2	0
	O_3 (8 hour)	0.070 ppm	0.075 ppm	2013	0.082	5	2
				2014	0.088	10	5
				2015	0.088	8	3
	PM10 (24 hour)	50 µg/m³	150 µg/m³	2013	50.0	0	0
				2014	40.0	0	0
				2015	45.0	0	0
	PM10 (AAM)	20 µg/m³	None	2013	19.0	No	–
				2014	19.8	No	–
				2015	*	*	–
	PM2.5 (24 hour)	None	35 µg/m3	2013	28.0	–	0
				2014	25.5	–	0
				2015	31.5	–	0
	PM2.5 (AAM)	12 µg/m3	12 µg/m3	2013	8.1	No	No
				2014	8.0	No	No
				2015	7.0	No	No

Max.: maximum; O_3: ozone; ppm: parts per million; PM10: respirable particulate matter with a diameter of 10 microns or less; µg/m³: micrograms per cubic meter; AAM: Annual Arithmetic Mean; –: No standard; *: Data Not Reported or insufficient data available to determine the value; PM2.5: fine particulate matter with a diameter of 2.5 microns or less.

[a] California maximum levels were used.
[b] For annual averaging times, a "yes" or "no" response is given if the annual average concentration exceeded the applicable standard.
[c] Particulate matter is measured once every six days.

Source: CARB 2016.

Carcinogenic Risks

Carcinogenic risks (i.e., cancer risks) are estimated as the incremental probability that an individual will develop cancer over a lifetime as a direct result of exposure to potential carcinogens. The estimated risk is expressed as a probability (e.g., ten in one million). A risk level of 1 in 1 million implies a likelihood that up to 1 person out of 1 million equally exposed people would contract cancer if exposed continuously to a specific concentration 24 hours per day for 70 years (an assumed lifetime exposure). This would be in addition to those cancer cases that would normally occur in an unexposed population of one million people. The Hazard Index (HI) expresses the potential for chemicals to result in non-cancer-related health impacts and are expressed using decimal notation (e.g., 0.001). A calculated HI exposure less than 1.0 will likely not result in adverse non-cancer-related health effects over a lifetime of exposure. However, an HI greater than 1.0 does not necessarily mean that adverse effects will occur.

The Multiple Air Toxics Exposure Study IV (MATES IV) is a monitoring and evaluation study conducted in the SoCAB and is part of the SCAQMD Governing Board's Environmental Justice Initiative (SCAQMD 2015a). The study focuses on the carcinogenic risk from exposure to air toxics. It does not estimate mortality or other adverse health effects from particulate exposures. MATES IV uses 2012 monitored data to model risk throughout the SoCAB. Risk is shown in two-kilometer (km) by two-km squares. Two squares cover the Project area. The first square includes the northern edge of the Project site. The modeled carcinogenic risk for this area is 560 per million. The second square covers the remainder of the Project site; the modeled carcinogenic risk for this area is 593 per million (SCAQMD 2016b). These risk data may be compared to the calculated SoCAB population-weighted risk of 367 per 1 million persons (SCAQMD 2015a). The MATES IV SoCAB population-weighted risk is about 57 percent lower than the MATES III risk calculated from 2005 data. These MATES IV and MATES III data were calculated using methods and guidelines established by the State Office of Environmental Health and Hazards Assessment (OEHHA) in 2003.

In March 2015, subsequent to the preparation of the MATES IV report, the OEHHA adopted new methods and guidelines for the calculation of cancer risk (OEHHA 2015). The new guidelines recognize increased risks to infants and children; revised assumptions for breathing rates of different age groups; and revised exposure periods for various age groups and receptor types. The new methods result in substantially greater estimated cancer risks than previously calculated. The SoCAB population-weighted risk, calculated with the new guidelines, is 897 per million. However, it should be noted that some of the risk increase resulting from the new methods may be offset by new (EMFAC 2014) heavy-duty diesel truck particulate emissions factors that are approximately a factor of ten lower than the corresponding EMFAC 2011 emissions factors that were used for the MATES IV calculations.

Existing Emissions

The Project consists of vacant land presently used as a container plant nursery and a greenwaste storage facility, a private road, and Magazine Road. There are no current permanent sources of emissions on the Project site. Occasional traffic on the roads and for the above referenced businesses are transient mobile sources of emissions.

4.3.5 THRESHOLDS OF SIGNIFICANCE

The Initial Study (provided in Appendix B) for the proposed Project concludes that additional analysis of the following thresholds of significance is required in this EIR. In accordance with the County of Orange's Environmental Analysis Checklist and Appendix G of the State CEQA Guidelines, a project will normally have a significant adverse environmental impact on air quality if it will:

Threshold 4.3-1 Conflict with or obstruct implementation of the applicable air quality plan.

Threshold 4.3-2 Violate any air quality standard or contribute substantially to an existing or projected air quality violation.

Threshold 4.3-3 Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).

Threshold 4.3-4 Expose sensitive receptors to substantial pollutant concentrations.

Appendix G of the State CEQA Guidelines states that the significance criteria established by the applicable air quality management district may be relied upon to make significance determinations. The SCAQMD has established significance thresholds to assess the regional and localized impacts of project-related air pollutant emissions; Table 4.3-4 presents the most current significance thresholds applicable to the proposed Project. A project with daily emission rates, risk values, or concentrations below these thresholds is generally considered to have a less than significant effect on air quality.

TABLE 4.3-4
SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT AIR QUALITY SIGNIFICANCE THRESHOLDS

Mass Daily Thresholds (lbs/day)		
Pollutant	**Construction**	**Operation**
VOC	75	55
NOx	100	55
CO	550	550
PM10	150	150
PM2.5	55	55
SOx	150	150
Lead	3	3
Toxic Air Contaminants		
TACs[a]	Maximum Incremental Cancer Risk ≥ 10 in 1 million Cancer Burden > 0.5 excess cancer cases (in areas ≥ 1 in 1 million) Chronic & Acute Hazard Index ≥ 1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
GHG	10,000 MT/yr CO_2eq for industrial facilities	
Ambient Air Quality for Criteria Pollutants[b]		
NO_2	1-hour average ≥ 0.18 ppm Annual average ≥ 0.03 ppm	
CO	1-hour average ≥ 20.0 ppm (State) 8-hour average ≥ 9.0 ppm (State/federal)	
PM10	24-hour average ≥ 10.4 µg/m^3 (construction) 24-hour average ≥ 2.5 µg/m^3 (operation) Annual average ≥ 1.0 µg/m^3	
PM2.5	24-hour average ≥ 10.4 µg/m^3 (construction) 24-hour average ≥ 2.5 µg/m^3 (operation)	
Sulfate	24-hour average ≥ 1.0 µg/m^3	
Lead 30-day average Rolling 3-month average	1.5 µg/m^3 (State) 0.15 µg/m^3 (federal)	

lbs/day: pounds per day; VOC: volatile organic compound; NOx: nitrogen oxides; CO: carbon monoxide; PM10: respirable particulate matter with a diameter of 10 microns or less; PM2.5: fine particulate matter with a diameter of 2.5 microns or less; SOx: sulfur oxides; TAC: toxic air contaminant; SCAQMD: South Coast Air Quality Management District; GHG: greenhouse gas; MT/yr CO_2eq: metric tons per year of carbon dioxide equivalent; NO_2: nitrogen dioxide; ppm: parts per million; µg/m^3: micrograms per cubic meter.

[a] TACs (carcinogenic and noncarcinogenic)
[b] Ambient air quality threshold based on SCAQMD Rule 403.

Source: SCAQMD 2015b.

4.3.6 IMPACT ANALYSIS

As discussed in Section 4.0, Impact Analysis Introduction, of this EIR, the Development Plan identifies a number of development requirements that serve to minimize potential impacts (the development requirements are in Appendix C of the Development Plan). The inclusion of these requirements, as appropriate, will be verified during the development review and/or ministerial permit process (e.g., building permit). The development requirements also include other

measures that will reduce or avoid potentially significant Project impacts. The County intends to implement the development requirements as part of the Project and has included the development requirements in the Development Plan for that purpose. These measures are listed in Section 4.3.8, Mitigation Program, of this EIR, because these measures will be tracked as part of the Mitigation Monitoring and Reporting Program.

Threshold 4.3-1

Would the Project conflict with or obstruct implementation of the applicable air quality plan?

Pursuant to the SCAQMD's *CEQA Air Quality Handbook*, a project would be inconsistent with the AQMP if it would (SCAQMD 1993):

- Create an increase in the frequency or severity of air quality violations; cause or contribute to new violations; delay attainment of air quality standards or
- Exceed the assumptions of the AQMP.

For land use development projects, a consistency analysis with the AQMP starts with an evaluation of the land use designation on site. The SCAQMD and SCAG compile the SoCAB's regional emissions inventory. Regional population, housing, and employment projections developed by SCAG are based, in part, on a 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 Regional Transportation Plan, compiled by SCAG, to determine priority transportation projects and to determine VMT for 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.

The consistency evaluation consists of a tiered screening approach. Tier 1 considers whether a project is consistent with the General Plan land use designation (City of Irvine 2012). As discussed in Section 4.10, Land Use, of this EIR, the Project site is designated in the *City of Irvine General Plan* as Orange County Great Park. The General Plan Land Use Element identifies Zoning Districts 1.1 (Exclusive Agriculture), 1.4 (Preservation Area), 1.9 (Orange County Great Park), 6.1 (Institutional), and 8.1 (Trails and Transit Oriented Development) as being correlated with the Orange County Great Park land use designation. The City of Irvine Zoning Map designates the southern portion of the site as 1.1 (Exclusive Agriculture) and the northwestern portion of the site as 1.4 (Preservation). The proposed residential use is different than the uses assumed in the General Plan's Land Use Element. As a result of those differences, the Project requires a Tier 2 evaluation.

Tier 2 considers whether a project is a regionally significant project under SCAG's intergovernmental review criteria that could exceed regional employment, population, and housing projections in the region. The housing, population, employment, and jobs/housing analyses provided in Section 4.12, Population and Housing, identifies that the Project is not included in the growth projections used as part of the long-range planning programs for the region because the RSA level projections in the OCP-2014 dataset did not include the Project

(CDR 2014).[4] Because the Project would not have been considered when the 2014 Orange County Projections (OCP-2014) were developed, the Project was not considered in the development of the SCAG Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS) or the SCAQMD AQMP, and the Project would exceed the projections in those documents. Therefore, the impact would be significant. MM LU-1 (included in Section 4.10, Land Use, of this EIR) would be incorporated into the Project to address the impact. MM LU-1 proposes action by the County of Orange to include the Project in a future update of the OCP, which would lead to inclusion of the Project in future AQMPs. However, because the required actions to update the OCP cannot be performed by the County, nor can it be certain that the timing of the updates would be consistent with the time frame for development of the Project, the impacts would be significant and unavoidable.

Impact Conclusion: *The proposed Project and the associated long-term emissions are not included in current regional air quality plans. Therefore, the Project conflicts with the current SCAQMD AQMP. MM LU-1 states that County shall provide the Project data to the Center for Demographic Research and request inclusion of the Project into the Orange County Projections (OCP) dataset, which will be used for the regional planning programs. This would allow for the anticipated growth to be included in future long-range planning documents and would eliminate the conflict. However, incorporation of the updated growth projections into the OCP dataset and the AQMP is not within the County's control. Therefore, the impact would be significant and unavoidable, pursuant to Threshold 4.3-1.*

Threshold 4.3-2

Would the Project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Construction

Mass Emissions

During the construction period for the proposed Project, air pollutants would be emitted by off-road and on-road construction equipment and worker vehicles, and fugitive dust would be generated during earth-moving and grading activities on the Project site. The following assumptions about the timing of construction activities were used to develop input to the quantitative emissions analysis. While actual construction may vary from these assumptions, this scenario represents a reasonable worst case for the purposes of evaluating air quality emissions. Construction of the proposed Project would begin in October 2018 with demolition activities that would occur for two weeks and overlap with site-preparation activities that would occur for a period of approximately three months. Grading of the Project site would begin in December 2018 for a period of approximately five months. Underground infrastructure and paving activities would begin in March 2019 and occur for four months. Building construction of the Project would begin in May 2019 and end in December 2021. Painting would begin in April

[4] It should be noted, construction of the Project would be initiated in the same timeframe as the next updates to the OCP dataset; thereby allowing it to be incorporated into the long-range planning assumptions before later phases of the Project.

2020 and end in December 2021. Demolition activities would require the removal of approximately 3,600 tons of debris from demolition of the existing road at the Project site. During site preparation activities, approximately 4,000 cubic yards (cy) of debris would be exported from the Project site. During grading, approximately 360,000 cy of soil would be moved with cut and fill balanced on the Project site. However, for a conservative emissions analysis, it was assumed that 20,000 cy of soil would be imported or exported during grading. Total paving would cover an estimated 11 acres. Architectural coating was assumed to occur continuously from April 2020 through December 2021. Project construction emissions were estimated using the CalEEMod described in Section 4.3.3. Project-specific input was based on information provided in Section 3.0, Project Description, of this EIR; additional data provided by the County or its designee; engineering judgment; and default model settings to estimate reasonable worst-case conditions. The details of phasing, selection of construction equipment, areas to be paved, and other input parameters, including CalEEMod data, are included in Appendix C of this EIR. Output emissions include off-road equipment exhaust, on-road vehicle exhaust, fugitive dust from grading and vehicle travel on paved and unpaved roads, and VOCs from asphalt and architectural coatings. The model inputs reflect Development Requirement (DR) AQ-1 through DR AQ-3. DR AQ-1 requires compliance with SCAQMD Rules 403 and 402. SCAQMD Rule 403, Fugitive Dust, requires measures such as watering and control of track-out from the Project site. Dust-control measures are included in the emissions calculations. Construction would also be required to comply with SCAQMD Rule 402, Nuisance, which prohibits the emission of quantities of air contaminants that could cause injury, detriment, nuisance, or annoyance to the public or that endanger the comfort, repose, health, or safety of the public. DR AQ-2 requires compliance with SCAQMD Rule 1113, Architectural Coatings, which places limits on the VOC content of coatings sold and used. DR AQ-3 requires that all off-road diesel-powered construction equipment greater than 50 horsepower (hp) shall meet Tier 3 off-road emissions standards.

The primary source of the VOC emissions generated during construction would be off-gassing from architectural coatings activities. The primary source of NOx emissions would be diesel engines from construction equipment during site preparation and grading activities. The principal source of CO emissions would be on-road vehicles from vendor and worker trips during concurrent grading, building, and paving activities. The primary source of PM10 and PM2.5 emissions would be fugitive dust and on-road vehicles during the concurrent grading, building, and paving activities. Estimated daily construction emissions for the proposed Project are shown in Table 4.3-5, Maximum Daily Construction Emissions. As shown in Table 4.3-5, emissions of all pollutants would be less than the SCAQMD CEQA thresholds.

TABLE 4.3-5
MAXIMUM DAILY CONSTRUCTION EMISSIONS
(POUNDS PER DAY)

Year	VOC	NOx	CO	SOx	PM10	PM2.5
2018	2	44	61	<0.5	15	8
2019	6	64	103	<0.5	9	5
2020	16	53	95	<0.5	11	5
2021	15	51	93	<0.5	11	5
SCAQMD CEQA Thresholds (Table 4.3-4)	***75***	***100***	***550***	***150***	***150***	***55***
Exceed Thresholds?	**No**	**No**	**No**	**No**	**No**	**No**

VOC: volatile organic compound; NOx: nitrogen oxides; CO: carbon monoxide; SOx: sulfur oxides; PM10: respirable particulate matter with a diameter of 10 microns or less; PM2.5: fine particulate matter with a diameter of 2.5 microns or less; SCAQMD: South Coast Air Quality Management District; CEQA: California Environmental Quality Act.

Source: SCAQMD 2015b (thresholds). Emissions calculations can be found in Appendix C.

Local Emissions

For the proposed Project, the localized effects from the on-site portion of daily construction emissions were evaluated at receptor locations potentially impacted by the Project according to the SCAQMD's LST methodology, described above. Consistent with the LST methodology guidelines, when quantifying mass emissions for localized analysis, only emissions that occur on site are considered. Consistent with the SCAQMD's LST methodology, emissions related to off-site delivery/haul truck activity and employee trips are not considered in the evaluation of localized impacts, because, for the most part, they occur away from the Project site and local area. For the CO and NOx LST exposure analysis, receptors that could be exposed for one hour or more are considered. For the PM10 and PM2.5 LST exposure analysis, receptors that could be exposed for 24 hours are considered. LST impacts are analyzed for a receptor within 25 meters of the Project site for CO and NOx analysis.[5] There are no off-site receptors (e.g., residences) within ½ mile (800 meters) of the Project site that would potentially be exposed for 24 hours. However, to be conservative, the 75-meter (250-foot) distance is used for PM10 and PM2.5 analysis to account for Portola High School, which is located approximately 75 meters west of the Project site even though there would not be 24 hour exposures. The highest maximum localized daily construction emissions would occur during an overlap of demolition and site preparation activities in 2018 (PM10); an overlap of site preparation and grading activities in 2018 (NOx and PM2.5); and an overlap of underground infrastructure/paving and building construction activities in 2019 (CO).

As shown in Table 4.3-6 below, even under this conservative assumption, localized emissions for NOx, CO, PM10, and PM2.5 would be below their respective SCAQMD LSTs. There would be a less than significant impact for the proposed Project related to local emissions during construction and no mitigation is required.

[5] The LST method uses metric measurements for source-to-receptor distances.

TABLE 4.3-6
MAXIMUM LOCALIZED DAILY CONSTRUCTION EMISSIONS
(POUNDS PER DAY)

Year	NOx	CO	PM10	PM2.5
Maximum Daily Emissions	37	61	10	8
SCAQMD LST*	***197***	***1,711***	***50***	***14***

NOx: nitrogen oxides; CO: carbon monoxide; PM10: respirable particulate matter with a diameter of 10 microns or less; PM2.5: fine particulate matter with a diameter of 2.5 microns or less; SCAQMD: South Coast Air Quality Management District; LST: Localized Significance Threshold.

* Thresholds for Source Receptor Area 20, Central Orange County Coastal, 5-acre site, 25-meter receptor distance (for NOx and CO) and 75-meter distance for (PM10 and PM2.5).

Source: SCAQMD 2009 (for LST). Emissions calculations can be found in Appendix C.

After the completion of demolition, site preparation, and grading within a Planning Area, residences would be built and it is likely that the first residences completed would be occupied prior to the complete development of the Project site, and the on-site residents could be exposed to pollutant emissions from continuing construction. However, construction emissions would not be expected to result in a significant impact to occupied residences because there is substantially less diesel-engine equipment operation and minimal soil disturbance during building construction compared to demolition, site preparation, and grading, the emissions during building construction would be less than the emissions that would occur during demolition, site preparation, and grading. As the emissions during demolition, site preparation, and grading are less than significant, the lower emissions during building construction would also be less than significant.

Operational Emissions

Mass Emissions

Operational emissions are calculated with CalEEMod for 2022, which is the proposed Project's estimated completion of building and the occupancy year. Operational emissions are composed of area, energy, and mobile source emissions. Area source emissions would result from the use of consumer products, natural gas fireplaces, landscaping equipment, and periodic repainting of buildings. Energy emissions come from the use of natural gas for heating and hot water. Mobile emissions come from vehicles that would be used by residents, employees, and visitors. There would be no fireplaces within residential units (see DR AQ-5); fireplaces within residential developments will be restricted to common areas. Project design would comply with California Building Code requirements for energy efficiency. At a minimum, the 2016 Energy Efficiency Code would apply, and, as estimated by the California Energy Commission, the 2016 Code is 28 percent more efficient for Title 24 electric and gas applications than the 2013 Code (CEC 2015). Mobile source emissions are based on Project trip generation forecasts, as contained in the Project Traffic Study (refer to Section 4.15, Transportation/Traffic, of this EIR); the proposed Project would generate an estimated 4,963 average daily trips (ADT). The proposed Project would also include at least 88 affordable housing units; CalEEMod calculates a VMT reduction and corresponding emissions reduction because average trip generation is less for affordable units than market-rate units (CAPCOA 2010). Reductions are calculated manually in accordance with SCAQMD recommendations (SCAQMD 2016c).

Estimated peak daily operational emissions are shown in Table 4.3-7 and are compared with SCAQMD CEQA thresholds for operations.

TABLE 4.3-7
ESTIMATED MAXIMUM DAILY OPERATIONAL EMISSIONS
(POUNDS PER DAY)

Source	VOC	NOx	CO	SOx	PM10	PM2.5
Area Sources[a]	21	1	66	<0.5	<0.5	<0.5
Energy Sources[a]	<0.5	1	1	<0.5	<0.5	<0.5
Mobile Sources[a]	14	28	144	1	39	11
Total Gross Operational Emissions[b]	*34*	*30*	*211*	*1*	*40*	*11*
SCAQMD Thresholds (Table 4.3-4)	***55***	***55***	***550***	***150***	***150***	***55***
Exceeds SCAQMD Thresholds?	**No**	**No**	**No**	**No**	**No**	**No**

VOC: volatile organic compounds; NOx: nitrogen oxides; CO: carbon monoxide; SOx: sulfur oxides; PM10: respirable particulate matter with a diameter of 10 microns or less; PM2.5: fine particulate matter with a diameter of 2.5 microns or less; SCAQMD: South Coast Air Quality Management District.

[a] Values shown are higher than either summer or winter emissions.
[b] Totals may not add due to rounding.

Source: SCAQMD 2015b (thresholds). Emissions calculations can be found in Appendix C.

As shown in Table 4.3-7, emissions of all pollutants would be less than the SCAQMD CEQA significance thresholds and there would be a less than significant impact. No mitigation is required.

MM GHG-1 and MM GHG-2, described in Section 4.7, Greenhouse Gas Emissions, of this EIR, would be implemented to reduce vehicle trips and VMT and the corresponding mobile emissions. The reductions attributed to these MMs are not quantified but would reduce emissions from the values shown in Table 4.3-7. Regardless, even without these measures, Project impacts are less than significant.

Local Emissions

Carbon Monoxide Hotspots

In an urban setting, vehicle exhaust is the primary source of CO. Consequently, the highest CO concentrations generally are found close to congested intersections. Under typical meteorological conditions, CO concentrations tend to decrease as the distance from the emissions source (e.g., congested intersection) increases. Therefore, for the purposes of providing a conservative worst-case impact analysis, CO concentrations are typically analyzed at congested intersection locations. If impacts are less than significant close to congested intersections, impacts would also be less than significant at more distant sensitive receptors and other locations.

The Traffic Impact Analysis (TIA) forecasts that the following signalized intersections would operate at LOS E or F with conditions that would be worsened under the with-project scenario as compared to the without-project scenario (Fehr & Peers 2015):

- Existing Plus Project
    - Jeffrey Road and Walnut Avenue/Interstate (I) 5 southbound (PM)
- 2017 With Project
    - Jeffrey Road and Walnut Avenue/I-5 southbound (AM and PM)
    - Sand Canyon Avenue and I-5 northbound/Marine Way (AM)
- 2035 With Project
    - Jamboree Road and Barranca Parkway (PM)
    - State Route (SR) 133 northbound/Gateway Boulevard and Pacifica (PM)
    - Lake Forest Drive and Jeronimo Road (PM)
    - Lake Forest Drive and Rockfield Boulevard (PM)
    - SR-241/SR-261 northbound and Chapman Avenue (PM)
    - Jeffrey Road and Walnut Avenue/I-5 southbound (AM and PM)
    - Sand Canyon Avenue and I-5 northbound/Marine Way (AM and PM)
    - Fortune Drive/I-5 southbound and Enterprise Drive (PM)
- Post-2035 With Project
    - Tustin Ranch Road and Irvine Boulevard (AM)
    - Jeffrey Road and Walnut Avenue/I-5 southbound (AM)
    - Sand Canyon Avenue and I-5 northbound/Marine Way (AM and PM)
    - Portola Parkway and SR-241 southbound (PM)
    - Fortune Drive/I-5 southbound and Enterprise Drive (PM)

Consistent with the CO Protocol, these findings indicate that quantitative screening is required. As described in Section 4.3.3, conservative screening criteria for local CO impacts developed by the SMAQMD were used. The SMAQMD states that a project would result in a less than significant impact to air quality for local CO if:

- The project would result in an affected intersection experiencing less than 31,600 vehicles per hour;
- The project would not contribute traffic to a tunnel, parking garage, bridge underpass, urban street canyon, below-grade roadway, or other location where horizontal or vertical mixing of air would be substantially limited; and
- The intersection, which includes a mix of vehicle types, is not anticipated to be substantially different from the County average (SMAQMD 2009).

The highest traffic volume of the intersections affected in the four scenarios listed above are 10,321 vehicles in the PM peak hour at the intersection of Jamboree Road and Barranca Parkway in the 2035 With Project scenario. The intersection is not located in a tunnel, urban canyon, or similar area where mixing of air would be limited, nor is the vehicle mix anticipated to be substantially different than the County average. There would be no potential for a CO hotspot or exceedance of a federal or State CO ambient air quality standard because all of the screening criteria are met. The impact related to CO hotpots would be less than significant for the proposed Project and no mitigation measures are required.

Air Quality Health Effects

Ozone and particle pollution (particulate matter, or PM, which include both PM10 and PM2.5) are both air pollutants that can cause serious health effects, particularly in children, people with pre-existing respiratory or cardiovascular diseases, and the elderly. Numerous scientific studies have linked exposure to ground-level ozone and PM pollution to a variety of problems, including premature death in people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms such as coughing or difficulty breathing. Both the federal and State regulatory agencies have created regulations both for the emissions allowed from certain types of pollution sources (motor vehicles, industrial emissions) and for the ambient concentration of particulates. These regulations are based on the currently available epidemiology evidence, taking into account the statistical precision of these pollutant-associated health effects that often occur with various co-pollutants, along with supporting evidence from controlled human exposure or animal toxicity studies.

However, one cannot reliably attribute actual increases in such health endpoints directly to increased emissions from individual developments like the Project. The Project's 2022 operational emissions, shown in Table 4.3-7, are estimated to increase the regional (Orange County) emissions of PM10, PM2.5, VOC, and NOx inventories by 0.03 percent, 0.03 percent, 0.07 percent, and 0.05 percent, respectively, when compared to the 2022 Orange County emissions forecast data (CARB 2013).[6] The correlation between emissions increases and health effects is so complex and the science so imprecise, that it would be speculative to attribute even a portion of the health impacts that potentially may be associated with an increase in the regional PM or ozone concentrations as being a result of a single project, especially for a project with a relatively small and less than significant contribution to the County emissions inventory.

For this health effects discussion, the County relies on the NAAQS and CAAQS set by the USEPA and CARB, respectively, as described in Section 4.3.2, for criteria pollutants because these standards are based on extensive evaluation of the scientific literature regarding possible health impacts. The aim of the primary NAAQS is to "provide public health protection, including protecting the health of 'sensitive' populations . . ." The CAA requires a thorough review of each standard every five years.

There is a large body of epidemiology and toxicology studies examining the relationship between exposure to PM and increased illness (morbidity) or increased death rates (mortality) in people. A number of these studies demonstrate that short-term exposure to elevated PM increases acute

[6] Orange County projected emissions are published for 2020 and 2025. The 2022 emissions values were interpolated from the 2020 and 2025 data.

mortality in people with pre-existing cardiovascular disease or respiratory conditions, especially elderly people with such diseases. Other epidemiology studies suggest that exposure to elevated PM may affect pregnant women and their fetuses and infants, including effects such as increased incidence of low birth weight, premature birth, or increased risk of infant or child mortality. Studies exposing animals, bred to mimic certain human cardiac and pulmonary conditions, to air containing concentrated PM support the linkage between exposures to PM and disease.

Similarly, long-term exposures to elevated concentrations of PM are associated with both morbidity and mortality. Some studies report an increased association between exposure to PM and total mortality, cardiorespiratory mortality, and possibly lung cancer; other studies do not find such effects. Overall, the body of evidence suggests that although the adverse health effects of exposure to PM may be small, if the study has sufficient statistical power and exposures are estimated accurately, an effect may be found. However, the studies do not establish a non-speculative method for quantifying what, if any, adverse health effects would result from an individual project's relatively minor contribution to PM emissions.

A large body of scientific evidence shows that short-term exposure to ozone can cause a broad range of respiratory effects, including inflammation of the airways, asthma, and chronic obstructive pulmonary disease (COPD), and significant declines in lung function. Evidence also supports an association of long-term exposures to ozone and harmful respiratory effects, including respiratory symptoms and the development of asthma. In addition, some studies suggest long-term or repeated exposures to higher concentrations of ozone may also be associated with permanent lung damage, such as abnormal lung development in children. There is a large amount of variability among individuals following short-term exposure to ozone. Some of these differences may be due to differences in age and in body mass indexes (BMIs), with young adults (teens to 30s) and those with high BMIs being much more responsive than older adults (50s to 80s) and those with low BMIs. However, some of this variation is believed to be genetic (USEPA 2016).

For most chemicals that are not carcinogens, researchers assume that normal homeostasis and defense mechanisms lead to a practical dose threshold, below which exposures will not cause adverse health effects. However, for chemicals where there is a better understanding of mode of action or where a threshold cannot be defined in the scientific literature, the regulatory approach for even noncarcinogens may take a non-threshold approach. Various air pollution researchers have modeled the concentration-response curve observed in studies of association between PM concentration and health effects, suggesting that there are no observable thresholds. In evaluating the shape of the concentration-response curve and trying to determine whether there is a "safe" concentration of PM (a threshold for adverse health response) the USEPA concluded that none existed. This was based on a review of the epidemiology literature on cardiovascular hospital admissions and emergency department visits and mortality associated with short-term exposure to PM10 and mortality associated with long term exposure to PM2.5. Furthermore, the USEPA recognizes the uncertainties that underlie those studies, particularly as ambient PM2.5 mixtures are complex and differ depending on sources of PM, and different epidemiology studies identify different concentration-responses for different health outcomes (USEPA 2009). These studies and conclusions regarding potential thresholds are part of the reason why it would be speculative to quantify what, if any, adverse, significant health effects result from an individual project's relatively small PM or ozone emission contributions.

A similar debate emerged with ozone, illustrated by application of various statistical models to assess the effects of air pollution, supporting the view that daily changes in exposures to ambient ozone were linked to premature mortality, even at very low ozone concentrations that were below the then-current NAAQS. Thus, some researchers believe that meeting the NAAQS should not be considered to be without adverse health risks. This and subsequent analyses support the USEPA position that a population-level threshold (a concentration below which health effects are not expected for a large population) for ozone has not been identified. However, the USEPA concludes that if such a threshold concentration existed for health effects, it is likely near the lower limit of ambient ozone concentration in the United States. Although NAAQS are set to protect public health, including the health of at-risk populations such as people with pre-existing heart or lung disease, children, and older adults, the USEPA recognizes that considerable uncertainty exists in evaluating the epidemiology studies at the lower ozone concentrations. These and other uncertainties help explain why it would be speculative to quantify the significant, adverse health effects, if any, attributable to an individual project's relatively small ozone emission contributions.

In addition, considerable uncertainties surround the use of epidemiology studies for setting PM and ozone NAAQS standards. Most of these analyses depend upon time-series studies of short-term exposures. However, changes in the concentrations of one pollutant usually fluctuates in a similar manner as other pollutants due to meteorology, making identification of specific dose-response relationships difficult. Furthermore, most pollutants are only measured at limited locations within a city, generally outdoors, and assumptions must be made as to what concentrations individuals are actually exposed to using assumptions related to climate and infrastructure (which can impact time spent indoors compared to outdoors) and estimates of the amount of outdoor pollution that gets indoors (including assumptions related to whether air conditioning is used, how often windows are opened, and what material buildings are made of, which impacts how much PM moves into buildings). These assumptions lead to measurement error, the difference between the measured concentration of the pollutant and its true exposure concentration. These and other statistical considerations in determining the health significance of PM (or other pollutants) have been discussed in the literature. Although researchers attempt to address these uncertainties using various methods (including alternative statistical approaches and epidemiological study design), material doubt remains, and the general regulatory approach involves conservative assumptions in an effort to protect public health as opposed to scientifically rigorous proof of cause and effect. Thus, while the trend among many different studies of air pollution indicate that there is a correlative effect between overall pollutant levels and adverse health effects, the quantification of the magnitude of the effects of individual project contributions is speculative at best.

In summary, in light of the current scientific knowledge, the analysis demonstrating that the Project will result in construction and operational air quality emissions below the applicable CEQA significance thresholds and the complexity of the issues associated with correlating emission increases to specific adverse health effects, it would be speculative to attempt to attribute a specific number or amount of a portion of the adverse health impacts that may potentially be associated with the Project emissions or future ambient PM and ozone concentrations to the Project.

Impact Conclusion: *Pursuant to Threshold 4.3-2, construction mass (regional) criteria pollutant emissions and local construction emissions, with implementation of DR AQ-1 through DR AQ-3, would not exceed SCAQMD CEQA significance thresholds*

and would be less than significant. Implementation of DR AQ-4 would reduce construction emissions. Operational mass (regional) criteria pollutant emissions would not exceed the SCAQMD CEQA significance thresholds and would be less than significant. Implementation of DR AQ-6 would avoid emissions from indoor residential fireplaces. MM GHG-1 and MM GHG-2 would potentially reduce vehicle travel and mobile emissions.

It would be speculative to attribute specific numerical increases in adverse health impacts to the Project's emissions, especially as the Project's direct impacts are less than significant and the relative size of the Project's contributions are so small. Local CO emissions would not have the potential to exceed applicable standards and would be less than significant.

Threshold 4.3-3

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 (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

The SoCAB is a nonattainment area for PM10, PM2.5, and O_3 (see Table 4.3-2). As discussed under Threshold 4.3-2 and shown in Table 4.3-7, Project mass operational emissions of PM10, PM2.5, and the O_3 precursors VOC and NOx would be less than significant. SCAQMD's policy with respect to cumulative impacts associated with the above-referenced pollutants and their precursors is that impacts that would be directly less than significant would also be cumulatively less than significant (SCAQMD 2003). Therefore, the proposed Project's long-term mass operational emissions of the nonattainment pollutants would be cumulatively less than significant.

As shown in Table 4.3-5, construction emissions of PM10, PM2.5, and the O_3 precursors VOC and NOx would be less than SCAQMD significance thresholds. Therefore, consistent with SCAQMD policy, the cumulative construction impact of nonattainment pollutants would be less than significant.

Impact Conclusion: *Pursuant to Threshold 4.3-3, long-term operational and short-term construction emissions of nonattainment pollutants and their precursors would be less than the applicable significance thresholds established by SCAQMD. Thus, the long-term operational and short-term construction emissions would not be cumulatively considerable and would be less than significant. The conclusions of significance take into consideration the Project's implementation of DR AQ-1 through DR AQ-5 as well as MM GHG-1 and MM GHG-2 that would potentially reduce vehicle travel.*

Threshold 4.3-4

Would the Project expose sensitive receptors to substantial pollutant concentrations?

Local concentrations and emissions of criteria pollutants generated during construction is addressed in Threshold 4.3-2. Because emissions would be less than SCAQMD CEQA significance thresholds, the exposure of sensitive receptors would be less than significant.

Local concentrations of CO resulting from Project-generated traffic at severely congested intersections is addressed in Threshold 4.3-2. Because emissions would be less than applicable standards, the exposure of sensitive receptors would be less than significant.

Toxic Air Contaminants

Construction

The greatest potential for TAC emissions during construction would be related to diesel PM emissions associated with heavy equipment operations during earth-moving activities. When quantitative analysis of TAC exposure is required, the applicable thresholds are the cancer risk and HI limits shown in Table 4.3-4. Health risks are evaluated at the nearest off-site receptor and the nearest off-site worker (SCAQMD 2015c). The assessment of cancer risk is typically based on a 70-year exposure period to the closest residential receptors and a 30-year exposure to off-site workers. The SCAQMD does not consider diesel-related cancer risks from construction equipment to be a significant issue due to the short-term nature of construction activities relative to these exposure periods. Heavy construction activities associated with the proposed Project, such as during grading, would occur for a period of 5 months, which is relatively short when compared with the 70-year exposure period used in the assessment of cancer risk. Further, as previously described, there would be no residential receptors within ½ mile of the Project site during demolition, site preparation, and grading.

Subsequent to completion of demolition, site preparation, and grading, residences would be built and it is likely that the completed residences would be occupied prior to the complete development of the Project site and the on-site residents could be exposed to pollutant emissions from continuing construction. However, because there is substantially less diesel-engine equipment operation during building than during grading, the diesel emissions during building construction would be less than the emissions that would occur during demolition, site preparation, and grading. Because exposure to diesel exhaust from construction of the Project would be well below the 70-year exposure period, and as noted the SCAQMD does not consider diesel-related cancer risks from short term construction equipment usage to be a significant issue, construction of the proposed Project is not anticipated to result in an elevated cancer risk to exposed persons. As such, Project-related toxic emission impacts during construction would not be significant and no mitigation is required.

Operations

CARB's 2005 *Air Quality and Land Use Handbook* (CARB Handbook) cautions against siting sensitive receptors near sources of substantial TACs. These sources include, but are not limited to, freeways, distribution centers, rail yards, and large gasoline stations. The Project site is not near any of these sources or other similar sources of the type identified in the CARB Handbook.

The TAC impact to future residents and employees of the proposed Project and to off-site receptors would be less than significant. No mitigation is required.

Impact Conclusion: *Exposure of sensitive receptors to criteria pollutants from on-site construction to CO at congested intersections or to off-site and future on-site receptors from TACs would be less than significant, pursuant to Threshold 4.3-4. No mitigation is required.*

4.3.7 CUMULATIVE IMPACTS

As discussed under Threshold 4.3-3, SCAQMD's policy with respect to cumulative impacts relative to the relevant pollutants is that impacts that would be directly less than significant would also be cumulatively less than significant. As demonstrated under Threshold 4.3-2, short-term construction and long-term operational emissions of criteria pollutants would be less than significant. Therefore, the short-term construction and long-term operational emissions of criteria pollutants would not be cumulatively significant.

As discussed under Threshold 4.3-4, the potential for exposure to substantial TAC concentrations from construction and operations does not rise to a level where a quantitative analysis is required. Therefore, impacts associated with TAC emissions would not be cumulatively considerable and cumulative impact would be less than significant.

As part of its traffic model, the City of Irvine maintains a list of approved and pending projects. The cumulative analysis is based on the Post-2035 (buildout of the General Plan) plus all the proposed and pending projects. This is inclusive of the cumulative growth associated with the long-term socioeconomic projections (OCP-2014) and the approved and pending projects identified in Table 4-1, Approved and Pending Projects in the City of Irvine, of this EIR.[7] For purposes of the discussion in this EIR, this is simply referenced as the cumulative scenario.

The TIA forecasts that the signalized intersections listed below would have a significant traffic impact under the Post-2035 with Pending Projects scenario and would operate at LOS E or F (Fehr & Peers 2015). Therefore, these intersections were evaluated to determine if that cumulative scenario would result in a CO hotspot impact.

- Jeffrey Road and Walnut Avenue/I-5 southbound (AM and PM)
- Sand Canyon Avenue and I-5 northbound/Marine Way (AM and PM)
- Sand Canyon Avenue and I-5 southbound (PM)
- Sand Canyon Avenue and Oak Canyon/Laguna Canyon Road (PM)
- Portola Parkway and SR-241 northbound (PM)
- Portola Parkway and SR-241 southbound (PM)
- Fortune Drive/I-5 southbound and Enterprise Drive (PM)

[7] It should be noted that the Project's Transportation Impact Analysis also evaluated 2017 and 2035 traffic conditions with the proposed and pending projects. However, to ensure the worst-case cumulative conditions are evaluated, the EIR focuses on the Post-2035 conditions with pending projects.

- Bake Parkway and I-5 southbound (PM)
- Sand Canyon Avenue and Burt Road (AM)

The highest traffic volume of the intersections listed above is 9,490 vehicles in the PM peak hour at the intersection of Sand Canyon Avenue and I-5 northbound/Marine Way. There would be no potential for a CO hotspot or exceedance of federal or State CO ambient air quality standard because the maximum traffic volume would be substantially less than the 31,600 vehicles per hour screening level described under Threshold 4.3-2. The cumulative impact would be less than significant.

4.3.8 MITIGATION PROGRAM

Development Requirements

DR AQ-1 During construction of the Project, the County or its designee shall comply with South Coast Air Quality Management District (SCAQMD) Rules 402 and 403, in order to minimize short-term emissions of dust and particulates. SCAQMD Rule 402 requires that air pollutant emissions not be a nuisance off site. SCAQMD Rule 403 requires that fugitive dust be controlled with the best available control measures so that the presence of such dust does not remain visible in the atmosphere beyond the property line of the emission source. This requirement shall be included as notes on the contractor specifications. Table 1 of Rule 403 prescribes the best available control measures that are applicable to all construction projects and is included in Appendix C of the Environmental Impact Report (EIR) for this Project. The County or its designee shall provide the Manager of Building & Safety, or designee, with an SCAQMD-approved Dust Control Plan or other sufficient proof of compliance with Rule 403, prior to issuance of a grading permit.

DR AQ-2 Architectural coatings shall be selected so that the volatile organic compound (VOC) content of the coatings is compliant with SCAQMD Rule 1113. This requirement shall be included as notes on the contractor specifications. The specifications for each project within the Development Plan area shall be reviewed by the Manager of Building & Safety, or designee, for compliance with this requirement prior to issuance of a building permit.

DR AQ-3 Prior to issuance of each grading and building permit, the County or its designee shall provide plans and specifications demonstrating that construction documents require the construction contractors to implement the measure listed below. The contractor shall comply with the identified requirements, and verification that the contractor has complied shall be confirmed by the Manager of Building & Safety, or designee, during construction.

All off-road diesel-powered construction equipment greater than 50 horsepower (hp) shall meet Tier 3 off-road emissions standards. In addition, all construction equipment shall be outfitted with Best Available Control Technology (BACT) devices certified by the California Air Resources Board (CARB). Any emissions-control device used by the contractor shall achieve emissions reductions that are no less

than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations.

DR AQ-4 Prior to issuance of each grading and building permit, the County or its designee shall provide plans and specifications demonstrating that construction documents require the construction contractors to implement the following measures or provide information and data that demonstrate that implementation would not be feasible or practicable:

a. Electricity shall come from power poles rather than diesel- or gasoline-fueled generators, compressors, or similar equipment;

b. Construction parking shall be configured to minimize traffic interference;

c. Construction trucks shall be routed away from congested streets and sensitive receptors;

d. Construction activities that affect traffic flow on the arterial system shall be scheduled to off-peak hours to the extent practicable;

e. Temporary traffic controls, such as a flag person(s), shall be provided where necessary to maintain smooth traffic flow, as necessary;

f. Dedicated turn lanes for movement of construction equipment on and off site and signal synchronization shall be provided as necessary to maintain smooth traffic flow;

g. All construction equipment shall be tuned and maintained in accordance with the manufacturer's specifications;

h. Diesel truck idling time shall be five minutes or less, both on and off site;

i. Work crews shall shut off diesel equipment when not in use; and

j. Contractors and construction workers shall be encouraged to use ride-sharing and commute using Metrolink.

The contractor shall comply with the identified requirements, and verification that the contractor has complied shall be confirmed by the Manager of Building & Safety, or designee, during construction.

DR AQ-5 Fireplaces shall be limited to residential common areas, and none shall be provided in residential units. The specifications for each residential project within the Development Plan area shall be reviewed by the Manager of Building & Safety, or designee, for compliance with this requirement prior to issuance of a building permit.

Mitigation Measures

MM LU-1 contained in Section 4.10, Land Use and Planning, of this EIR requires the County of Orange to coordinate with the Center for Demographic Research to include the Project with the next update of the OCP dataset. As part of the next updates, the regional planning programs would be modified to reflect the growth associated with the Project and any potential land use planning inconsistency impact would be reduced to less than significant. However, in the interim,

until these planning programs are amended, this impact has been identified as a significant, unavoidable impact for regional planning programs as revision to those programs is not within the jurisdiction or control of the County.

4.3.9 LEVEL OF SIGNIFICANCE AFTER MITIGATION

The inconsistency of the Project with the SCAQMD AQMP would be eliminated when the County coordinates with the Center for Demographic Research to incorporate the Project into the OCP dataset, which would then be used for the update of regional planning documents, including the AQMP. As noted above, the requirement for the County to coordinate on inclusion of the Project into the long-term growth projections for the region is provided for in MM LU-1 (see Section 4.10, Land Use and Planning, of this EIR). This would occur either through a mid-cycle update or in conjunction with the next scheduled update, which is anticipated in 2018. Therefore, the Project would be incorporated into the next AQMP, which would be expected in the year 2020. However, as updating the OCP and AQMP is outside the control of the County, the plan inconsistency impacts are considered significant and unmitigated.

Construction phase emissions, long-term operational emissions, and exposure of sensitive receptors to short-term and long-term criteria pollutant and TAC emissions would be less than significant.

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4.4 BIOLOGICAL RESOURCES

The information in this section is based on the results of a literature review, biological resources surveys, and a jurisdictional delineation conducted for the Project. In addition, this Section summarizes the following technical reports: *Results of Special Status Plant Surveys for the Alton Parcel in Orange County, California* (BonTerra Psomas 2014a), *Results of a Western Burrowing Owl Survey for the Alton Parcel in Orange County, California* (BonTerra Psomas 2014b), *Results of a Coastal California Gnatcatcher Survey for the Alton Parcel in the City of Irvine, Orange County, California* (BonTerra Psomas 2014c), *Results of the Least Bell's Vireo Survey for the Alton Parcel, Orange County, California* (BonTerra Psomas 2014d), and *Jurisdictional Delineation Report for the West Alton Development Plan in Orange County, California* (BonTerra Psomas 2016). These reports are included in Appendix D. A walk-over survey of the Project site was conducted on September 15, 2016 to verify and confirm that the existing condition of the Project site has not changed since the last survey. Additionally, an updated report based on a recent survey of the Wildlife Movement Corridor was prepared by ICF International in September 2016 and the result of the said report is also included in this section.

4.4.1 REGULATORY SETTING

Federal

Federal Endangered Species Act

The Federal Endangered Species Act (FESA) protects plants and animals that the U.S. Fish and Wildlife Service (USFWS) has listed as "Endangered" or "Threatened". A federally listed species is protected from unauthorized "take", which is defined in the FESA as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or attempt to engage in any such conduct".

Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act requires consultation with the USFWS and the fish and wildlife agencies of States where the "waters of any stream or other body of water are proposed or authorized, permitted or licensed to be impounded, diverted . . . or otherwise controlled or modified" by any agency under a federal permit or license. Consultation is to be undertaken for the purpose of "preventing loss of and damage to wildlife resources".

Sections 404 and 401 of the Clean Water Act of 1972

Section 404 of the Clean Water Act (CWA) (33 *United States Code* [USC] Section 1251 et seq.) regulates the discharge of dredged or fill material into "waters of the U.S.", including wetlands. The U.S. Army Corps of Engineers (USACE) is the designated regulatory agency responsible for administering the 404 permit program and for making jurisdictional determinations. This permitting authority applies to all "waters of the U.S." where the material has the effect of (1) replacing any portion of a "waters of the U.S." with dry land or (2) changing the bottom elevation of any portion of "waters of the U.S.". These fill materials would include sand, rock, clay, construction debris, wood chips, and materials used to create any structure or infrastructure in "waters of the U.S.". Dredge and fill activities are typically associated with development projects;

water-resource related projects; infrastructure development; and wetland conversion to farming, forestry, or urban development.

Under Section 401 of the CWA, an activity requiring a USACE Section 404 permit must obtain a State Water Quality Certification (or waiver thereof) to ensure that the activity will not violate established State water quality standards. The State Water Resources Control Board (SWRCB), in conjunction with the nine California Regional Water Quality Control Boards (RWQCBs), is responsible for administering the Section 401 water quality certification program.

Under Section 401 of the federal CWA, an activity involving discharge into a water body must obtain a federal permit and a State Water Quality Certification to ensure that the activity will not violate established water quality standards. The U.S. Environmental Protection Agency (USEPA) is the federal regulatory agency responsible for implementing the CWA. However, it is the SWRCB, in conjunction with the nine RWQCBs, who essentially has been delegated the responsibility of administering the water quality certification (Section 401) program.

Migratory Bird Treaty Act of 1918

The Migratory Bird Treaty Act (MBTA) of 1918 (16 USC 703–711), as amended in 1972, makes it unlawful, unless permitted by regulations, to "pursue; hunt; take; capture; kill; attempt to take, capture or kill; possess; offer for sale; sell; offer to purchase; purchase; deliver for shipment; ship; cause to be shipped; deliver for transportation; transport; cause to be transported; carry or cause to be carried by any means whatever; receive for shipment, transportation, or carriage; or export, at any time, or in any manner, any migratory bird for the protection of migratory birds or any part, nest, or egg of any such bird" (16 USC 703).

In 1972, the MBTA was amended to include protection for migratory birds of prey (e.g., raptors). Six families of raptors occurring in North America were included in the amendment: Accipitridae (kites, hawks, and eagles); Cathartidae (New World vultures); Falconidae (falcons and caracaras); Pandionidae (ospreys); Strigidae (typical owls); and Tytonidae (barn owls). The provisions of the 1972 amendment to the MBTA protect all species and subspecies of these families.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (16 USC 668) provides for the protection of the bald eagle (*Haliaeetus leucocephalus*) and the golden eagle (*Aquila chrysaetos*) by prohibiting, except under certain specified conditions, the taking, possession, and commerce of such birds. The 1972 amendments increased penalties for violating provisions of the Act and strengthened other enforcement measures. A 1978 amendment authorizes the Secretary of the Interior to permit the taking of golden eagle nests that interfere with resource development or recovery operations. A 1994 Memorandum from President William J. Clinton to the heads of Executive Agencies and Departments sets out the policy concerning collection and distribution of eagle feathers for Native American religious purposes.

State

California Endangered Species Act

Pursuant to the California Endangered Species Act (CESA) and Section 2081 of the *California Fish and Game Code,* an Incidental Take Permit from the California Department of Fish and Wildlife (CDFW) is required for projects that could result in the "take" of a State-listed Threatened or Endangered species. Under the CESA, "take" is defined as an activity that would directly or indirectly kill an individual of a species.

Native Plant Protection Act

Sections 1900–1913 of the *California Fish and Game Code* were developed to preserve, protect, and enhance Rare and Endangered plants in the State of California. The act requires all State agencies to use their authority to carry out programs to conserve Endangered and Rare native plants. Provisions of the Native Plant Protection Act prohibit the taking of listed plants from the wild and require notification of the CDFW at least ten days in advance of any change in land use that would adversely impact listed plants. This allows the CDFW to salvage listed plant species that would otherwise be destroyed.

Unlawful Take or Destruction of Nests or Eggs

Sections 3503 and 3503.5 of the *California Fish and Game Code* specifically protect nests and eggs of birds of prey. Section 3513 of the *California Fish and Game Code* duplicates the federal protection of migratory birds and prohibits the take and possession of any migratory nongame bird, as designated in the MBTA.

California Environmental Quality Act Treatment of Non-Listed Plant and Animal Species

Section 15380 of the California Environmental Quality Act (CEQA) Guidelines indicates that a lead agency can consider a non-listed species (e.g., species with a California Rare Plant Rank [CRPR]) to be Endangered, Rare, or Threatened for the purposes of CEQA if the species can be shown to meet the criteria set forth in subdivision (b) of Section 15380, which defines "Rare" and "Endangered".

California Fully Protected Species

The State of California created the "Fully Protected" classification in an effort to identify and provide additional protection to those animals that are rare or that face possible extinction. Lists were created for fish, amphibians and reptiles, birds, and mammals. Most of the species on these lists have subsequently been listed under the State and/or Federal Endangered Species Acts; however, white-tailed kite (*Elanus leucurus*), golden eagle, trumpeter swan (*Cygnus buccinator*), northern elephant seal (*Mirounga angustirostris*), and ring-tailed cat (*Bassariscus astutus*) are the exceptions.

Natural Communities Conservation Plan/Habitat Conservation Plan

On August 30, 1991, the California Fish and Game Commission considered a petition in support of listing the coastal California gnatcatcher (*Polioptila californica californica*) as a State Endangered species. The Commission decided not to list the coastal California gnatcatcher in favor of pursuing preparation of a Natural Communities Conservation Plan (NCCP) program, as proposed by Assembly Bill (AB) 2172 (*California Fish and Game Code,* Sections 2800 et seq.). AB 2172 authorizes the CDFW to enter into agreements with any person or local, State, or federal agencies for the purpose of preparing and implementing NCCPs and for preparing guidelines for developing and implementing NCCPs. The purpose of the NCCP program is to provide regional or areawide protection and to promote perpetuation of natural wildlife diversity while allowing compatible and appropriate development and growth. The focus of the NCCP program represents a dramatic shift from "individual species" to "habitat" preservation.

The County of Orange (in conjunction with State and federal resource agencies, local jurisdictions, utility companies, the Transportation Corridor Agencies, and major private landowners) prepared the Orange County Central/Coastal Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP) (approved on July 10, 1996). This NCCP/HCP is intended to ensure the long-term survival of the coastal California gnatcatcher and other special status, coastal sage scrub-dependent plant and wildlife species in accordance with State-sanctioned NCCP program guidelines.

California Fish and Game Code (Sections 1600 through 1616)

All diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake in California that support wildlife resources and/or riparian vegetation are subject to CDFW regulations, pursuant to Sections 1600 through 1616 of the *California Fish and Game Code*. Under Section 1602, it is unlawful for any person to substantially divert or obstruct the natural flow or substantially change the bed, channel or bank of any river, stream, or lake that the CDFW designated as waters within their jurisdiction without first notifying CDFW of such activity. Additionally, a person cannot use any material from the streambeds without first notifying CDFW of such activity. For a project that may affect stream channels and/or riparian vegetation regulated under Sections 1600 through 1616, CDFW authorization is required in the form of a Streambed Alteration Agreement.

California Porter-Cologne Water Quality Control Act

Pursuant to the California Porter-Cologne Water Quality Control Act, the SWRCB and the nine RWQCBs may require permits (known as "Waste Discharge Requirements" or WDRs) for the fill or alteration of the "waters of the State". The term "waters of the State" is defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (*California Water Code,* Section 13050[e]). The State and Regional Boards have interpreted their authority to require WDRs to extend to any proposal to fill or alter "waters of the State", even if those same waters are not under USACE jurisdiction. Pursuant to this authority, the State and Regional Boards may require the submission of a "report of waste discharge" under Section 13260, which is treated as an application for WDRs.

4.4.2 METHODOLOGY

Vegetation Mapping and General Surveys

The Project "study area" for the biological resources (i.e., areas that have been mapped and where surveys have been conducted) is depicted in Exhibit 4.4-1; this area includes the Project development area (Planning Areas 1 and 2), the off-site modification within Irvine Boulevard right-of-way where the Project must implement improvements, and the Wildlife Movement Corridor. Prior to the vegetation mapping and general survey, the California Native Plant Society's (CNPS's) Locational Inventory of Rare and Endangered Vascular Plants of California (CNPS 2016) and the CDFW's California Natural Diversity Database (CNDDB, CDFW 2016) were reviewed to identify special status plants, wildlife, and habitats reported from the vicinity of the Project site. Database searches included the U.S. Geological Survey's (USGS') El Toro, Laguna Beach, San Juan Capistrano, and Tustin 7.5-minute quadrangles. The most recent database searches were completed in 2016 to obtain the most recent occurrence data.

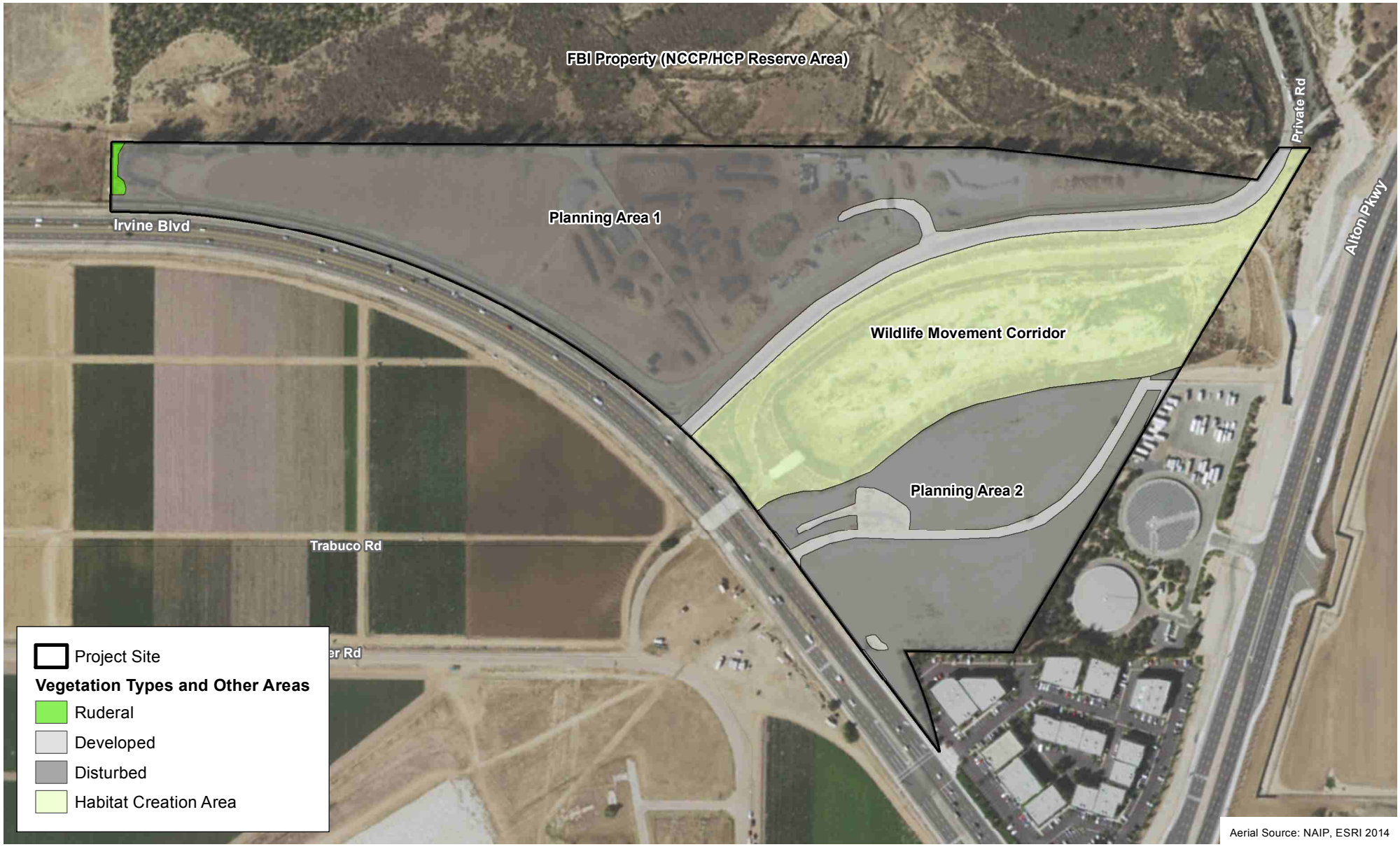
BonTerra Psomas Senior Biologist Allison Rudalevige and Biologist Jonathan Aguayo conducted a general plant and wildlife survey and mapped vegetation in Planning Areas 1 and 2 on April 1, 2014. Vegetation was mapped in the field on a 1 inch equals 250 feet (1″ = 250′) scale color aerial photograph. Vegetation mapping within the Wildlife Movement Corridor was established during the implementation of the Alton Parkway Extension Project Onsite Mitigation Program based on the restoration planting plan presented in the Habitat Mitigation and Monitoring Plan (RBF and BonTerra 2011). The portion of Irvine Boulevard where improvements (infrastructure connections) would occur is entirely disturbed and has been improved as a roadway. An additional field review of the entire study area was conducted on September 15, 2016 to verify site conditions. The purpose of the surveys was to describe the vegetation present on the Project site and to evaluate the potential of the habitats to support special status species (i.e., taxa protected under federal or State Endangered Species Acts; taxa identified as State Species of Special Concern and/or Fully Protected species; and/or taxa identified by conservation organizations as restricted in distribution or declining). Nomenclature for vegetation types generally follows that of *The Habitat Classification System Natural Resources Geographic Information System (GIS) Project* (Gray and Bramlet 1992). All plant species observed were recorded in field notes.

The most recent general surveys for amphibians, reptiles, birds, and mammals were conducted simultaneously with vegetation mapping in 2014. Each habitat type was evaluated for its potential to support special status species that are known to occur or that are expected to occur in the region. Taxonomy and nomenclature generally follows Baldwin et al. (2012), Hickman (1993), and Munz (1974) for plants, Crother (2012) for amphibians and reptiles, American Ornithologists' Union (AOU 2013) for birds, and Wilson and Reeder (2005) for mammals. All wildlife species observed were recorded in field notes.

Focused Surveys

Special Status Plant Surveys

Special status plant surveys were performed within Planning Areas 1 and 2; the Wildlife Movement Corridor was not included in the survey because this area would not be disturbed by



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Vegetation Types and Other Areas

Exhibit 4.4-1

West Alton Parcel Development Plan EIR

350 175 0 350 Feet

the Project and it consists of known restoration plantings. Surveys were floristic in nature and conducted following the *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFG 2009).

A survey was conducted by Ms. Rudalevige and BonTerra Psomas Senior Biologist Jennifer Pareti on May 13, 2014. A systematic survey was conducted in all areas of suitable special status plant habitat on the Project site. All plant species observed were recorded in field notes. The special status plant survey report is included as Appendix D-1.

Burrowing Owl Surveys

Surveys for burrowing owl (*Athene cunicularia*) were performed within Planning Areas 1 and 2. Surveys followed the CDFW's *Staff Report on Burrowing Owl Mitigation* (CDFG 2012). BonTerra Psomas Biologist Jonathan Aguayo conducted a burrow survey on April 15, 2014. Mr. Aguayo walked through all suitable habitat on the Project site using transects spaced no more than 65 feet apart in order to ensure 100 percent visual coverage of the ground surface. Any natural or man-made cavities large enough to allow a burrowing owl to enter were inspected for evidence of occupation. Evidence of occupation may include prey remains, cast pellets, white-wash, feathers, and observations of owls adjacent to burrows. The burrow survey was conducted at least five days after rain, which could have washed away potential sign.

Mr. Aguayo conducted the focused crepuscular surveys on April 15; May 29; June 20 and July 14, 2014. These surveys were conducted from either one hour before sunrise to two hours after, or from two hours before sunset to one hour after. All potential habitat on the Project site was surveyed by walking in straight-line transects to allow 100 percent visual coverage of the Project site. At the start of each transect and, at least, every approximately 300 feet, the Project site was scanned for burrowing owls or burrowing owl sign (e.g., pellets, prey remains, whitewash, or decoration) using binoculars. Periodically, binoculars were used to inspect holes; crevices; and potential perches such as rocks, fence posts, and other elevated structures for the presence of owls while listening for owl calls. All wildlife observed were recorded in field notes. The burrowing owl survey report is included as Appendix D-2.

Least Bell's Vireo Surveys

Surveys for least Bell's vireo were performed within the Wildlife Movement Corridor to account for indirect impacts (i.e., noise) from Project construction; Planning Areas 1 and 2 were not included in the survey because it lacks suitable habitat for this species. Surveys followed the USFWS protocol. Mr. Aguayo conducted surveys on April 15 and 29; May 13 and 29; June 9 and 20; and July 1 and 14, 2014. All surveys were conducted under optimal weather conditions and during early morning hours when bird activity is at its peak. Mr. Aguayo systematically surveyed the riparian habitat by walking slowly and methodically along the margins of riparian habitat or by using meandering transects through riparian habitat. As the least Bell's vireo survey protocol does not require the playback of least Bell's vireo vocalizations, recorded least Bell's vireo vocalizations were not used during the surveys. "Pishing" sounds were used opportunistically to elicit responses from any potential least Bell's vireo present. All wildlife observed were recorded in field notes. The least Bell's vireo survey report is included as Appendix D-3.

Coastal California Gnatcatcher Surveys

Surveys for coastal California gnatcatcher (*Polioptila californica californica*) were performed within the Wildlife Movement Corridor to account for indirect impacts (i.e., noise) from Project construction; Planning Areas 1 and 2 were not included in the survey because it lacks suitable habitat for this species. Surveys followed the USFWS protocol for the coastal California gnatcatcher within a NCCP area; however, six surveys were conducted instead of the three required for sites within an NCCP. Mr. Aguayo conducted surveys on April 15 and 29; May 13 and 29; and June 9 and 20, 2014. All surveys were conducted under optimal weather conditions and during early morning hours when bird activity is at its peak. Mr. Aguayo conducted surveys by slowly walking through all appropriate habitats while listening and watching for gnatcatcher activity, and by using a combination of recordings of gnatcatcher vocalizations and "pishing" sounds to elicit responses from any gnatcatchers present. The frequency of vocalization playback and "pishing" varied depending on conditions such as habitat patch size, topography in each area, and ambient noise conditions. All wildlife observed were recorded in field notes. The coastal California gnatcatcher survey report is included as Appendix D-4.

Jurisdictional Delineation

A jurisdictional delineation was conducted within Planning Areas 1 and 2. A survey was conducted by Ms. Rudalevige and Ms. Pareti on March 24, 2015, to describe and map the extent of resources under the jurisdiction of the USACE, the RWQCB, and the CDFW. The jurisdictional delineation report is included as Appendix D-5.

USACE jurisdictional boundaries were delineated following guidelines presented in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008) in conjunction with the 1987 Corps of *Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987). The extent of wetland "waters of the U.S." on the Project site was based on the USACE's three-parameter approach in which wetlands are defined by the presence of hydrophytic vegetation, hydric soils, and presence of wetland hydrology indicators. Non-wetland "waters of the U.S." were delineated based on the limits of the Ordinary High Water Mark (OHWM), which can be determined by a number of factors including erosion, the deposition of vegetation or debris, and changes in vegetation. It should be noted that the RWQCB shares the USACE jurisdiction unless isolated conditions are present. If isolated waters conditions are present, the RWQCB takes jurisdiction using the USACE's definition of the OHWM and/or the three-parameter wetlands method pursuant to the 1987 Wetlands Manual. The CDFW's jurisdiction is defined as the top of the bank of the stream, channel, or basin or the outer limit of riparian vegetation located within or immediately adjacent to the river, stream, creek, pond, or lake.

4.4.3 EXISTING CONDITIONS

The Project site is within the Central-Coastal Subregion of the Natural Communities Conservation Plan/Habitat Conservation Plan (NCCP/HCP); however, it is not located within a Habitat Reserve (Reserve) area, special linkage area, non-reserve open space area, or transportation corridor wildlife crossing (Exhibit 4.4-2). The Project site is generally surrounded by open space, agricultural areas, and commercial development. Open space and a shooting range facility are present on Federal Bureau of Investigation (FBI) property to the northeast,

which is designated as a Reserve Area for the Central-Coastal Subregion NCCP/HCP.[1] Agricultural land is located on the City of Irvine/Great Park Neighborhoods property to the west and on the James A. Musick Branch Jail property to the southeast. Commercial/industrial uses and Irvine Ranch Water District (IRWD) facilities are located to the south.

The southern portion of the Project site (Planning Area 2) is graded and used for vehicle/equipment storage as part of the R&S Soils operations. The middle portion consists of a wildlife movement corridor linking Borrego Canyon Wash with the planned Orange County Great Park Wildlife Movement Corridor. The northern portion (Planning Area 1) is currently used for green waste operations by R&S Soils and a plant nursery. Portions of the Wildlife Movement Corridor are owned by the County of Orange in fee and portions are owned by the U.S. Department of the Navy (DoN) in fee and covered under a Lease in Furtherance of Conveyance.[2] As mitigation for the Alton Parkway extension project, the County of Orange constructed the Wildlife Movement Corridor. As part of the permit requirements, a conservation easement will be placed over the County-owned portion of the Wildlife Movement Corridor, which will ensure the site is retained in perpetuity as open space for the sole purpose of native wildlife conservation. Once the DoN-owned portion of the Wildlife Movement Corridor is transferred to the County of Orange, the County will either place a similar conservation easement over this section, or amend the existing conservation easement to include this section. Ultimately, ownership of the Wildlife Movement Corridor will be transferred to the City of Irvine (RBF and BonTerra 2011).

The Project site topography gently slopes up towards the southeastern portion of the Project, with a channel created for the Wildlife Movement Corridor. Mounds of sediment from the green waste operations were observed in Planning Area 1 and limited microtopography was observed in Planning Area 2. Elevations range from approximately 420 to 500 feet above mean sea level (msl). Soil types on the Project site consist of Metz loamy sand, Myford sandy loam (9 to 30 percent slopes, eroded), riverwash, San Emigdio fine sandy loam (2 to 9 percent slopes), and Sorrento loam (0 to 2 percent slopes) (USDA NRCS 2014). Representative photos are included in Appendix D-6.

Vegetation Types and Other Areas

Vegetation types on the Project site include ruderal and habitat creation areas; developed and disturbed areas are also present (Exhibit 4.4-1). A complete list of plant species observed on the Project site is included in Appendix D-7, Plant Compendium.

[1] It should be noted that the property currently owned by the FBI was identified as part of the Reserve in the Central-Coastal Subregion NCCP/HCP; however, currently there is no conservation easement on the property.

[2] As discussed in Section 2.4.2, there are portions of the former MCAS El Toro that are covered under a lease instrument called a "Lease in Furtherance of Conveyance" or "LIFOC." Once the property is remediated by the DoN, the DoN will make a Finding of Suitability to Transfer (FOST), allowing the transfer of the remaining property, in fee, to Heritage Fields LLC. Subsequently, that portion of the property will be transferred to the City, who must then transfer it to the County, as required by the Pre-Annexation Agreement.

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Central-Coastal Subregion Natural Communities Conservation Plan/Habitat Conservation Plan

Exhibit 4.4-2

West Alton Parcel Development Plan EIR

N W E S

1,000 500 0 1,000 Feet

COUNTY OF ORANGE CALIFORNIA

Ruderal

Ruderal vegetation occurs at the northwestern end of the Project site. This vegetation type contains scattered non-native, weedy species such as shortpod mustard (*Hirschfeldia incana*) and garland daisy (*Glebionis coronaria*).

Developed

Developed areas consist of Irvine Boulevard and other paved roads on the Project site.

Disturbed

Disturbed areas occur throughout much of the Project site. South of the Wildlife Movement Corridor, this consists of graded, bare ground generally lacking vegetation. To the north, this consists of a graded area currently used as a container plant nursery and green waste facility. The nursery operation was installed in a portion of the disturbed area at the western end of the Project site after the vegetation mapping was completed.

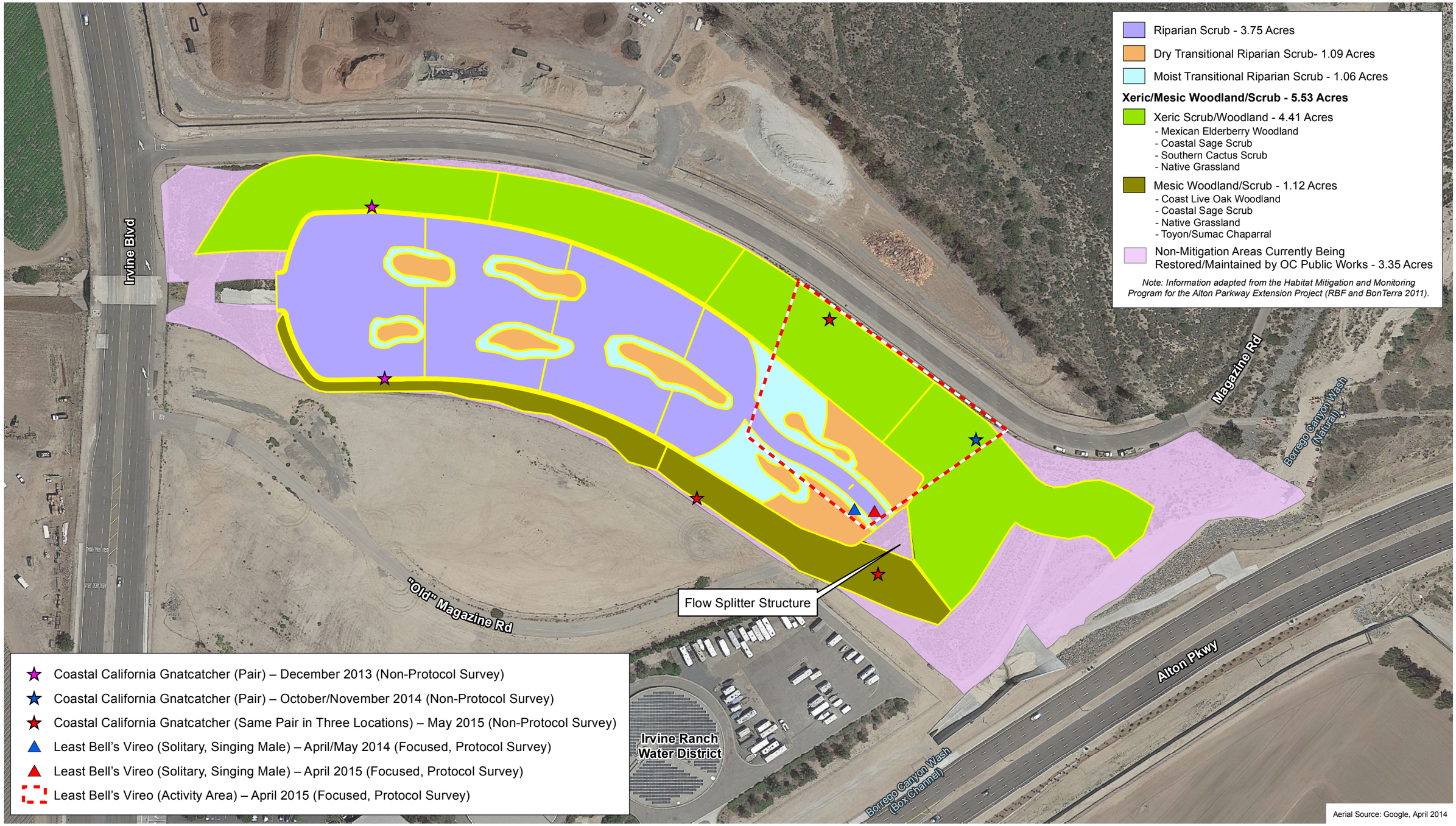
Habitat Creation Area (Wildlife Movement Corridor)

The Wildlife Movement Corridor was created in 2011 (Exhibit 4.4-3). Ultimately, it is intended to be part of a regional wildlife movement corridor established between Orange County's Central and Coastal Habitat Reserves. It consists of a 1,650-foot-long by 300-foot-wide channel (as measured from top of bank) with 3:1 side slopes on each side and a 60-foot-wide wildlife movement bench located on the northern side of the channel. Low flows from Borrego Canyon Wash (capacity of 125 cubic feet per second [cfs]; configured to allow between 0 and 21.7 cfs) are directed into the Wildlife Movement Corridor by a flow splitter inlet located in Borrego Canyon Wash to the southeast of the Project site. Those flows discharge through an outfall structure located near the eastern end of the corridor. Other inlets consist of (1) a storm drain that discharges into the middle of the northern side of the Wildlife Movement Corridor and (2) a storm drain that discharges adjacent to Irvine Boulevard at the western end of the Wildlife Movement Corridor (and outside of the designated project mitigation area).

The County installed an interim storm drain system to address storm water runoff from the Wildlife Movement Corridor prior to the ultimate extension of the corridor south under Irvine Boulevard. This interim storm drain system currently consists of an outfall stand-pipe near the western end of the Wildlife Corridor that ties into the existing storm drain system to the south at Irvine Boulevard. The interim storm drain system discharges into Borrego Canyon Wash at Alton Parkway. A berm, with a spillway at the top, was created at the western terminus of the Wildlife Movement Corridor to contain surface flows within the channel bed.

The interim storm drain system condition will remain in place until the Orange County Great Park's regional wildlife corridor is constructed and available to receive surface discharge through a former MCAS El Toro road undercrossing of Irvine Boulevard. In the ultimate design, the stand-pipe would be removed or capped/abandoned and the berm would be reconfigured to create a channel that extends to the undercrossing of Irvine Boulevard.

The channel bottom was planted with riparian scrub vegetation. This included plantings of species such as arroyo willow (*Salix lasiolepis*), Goodding's black willow (*Salix gooddingii*),



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Wildlife Movement Corridor

Exhibit 4.4-3

West Alton Parcel Development Plan EIR

N W E S

150 75 0 150 Feet

sandbar willow (*Salix exigua*), mule fat, and a variety of native herbaceous species. At the time of the survey, much of the riparian vegetation was immature and small in stature; denser, more mature trees were observed in the immediate vicinity of the splitter outfall location.

Xeric scrub/woodland was planted on the wildlife movement bench and side slopes along the north side of the channel and at the east end of the Wildlife Movement Corridor. This vegetation consists of blue elderberry woodland, coastal sage scrub, southern cactus scrub, and native grassland. At the time of the survey, this area was dominated by shrubs such as California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), and California brittlebush (*Encelia californica*) with a variety of herbaceous species such as deerweed (*Acmispon glaber* var. *glaber*) and American deervetch (*Acmispon americanus*). Within this vegetation type, a "terrace" of native herbs and grasses is being maintained free of woody vegetation.

Mesic woodland/scrub was planted along the southern side slopes of the channel and included coast live oak woodland, coastal sage scrub, native grassland, and toyon/sumac chaparral. At the time of the survey, this area was dominated by shrubs such as California sagebrush, California buckwheat, and California brittlebush with seedling coast live oak (*Quercus agrifolia*), toyon (*Heteromeles arbutifoli*a), laurel sumac (*Malosma laurina*), and a variety of herbaceous species such as deerweed and American deervetch.

Wildlife Observed or Expected to Occur

Common wildlife species observed or expected to occur on the Project site are discussed below. A complete list of wildlife species observed on the Project site is included in Appendix D-8, Wildlife Compendium.

No fish species are expected to occur on the Project site due to the limited amount of water flowing into the Wildlife Movement Corridor from Borrego Wash and lack of connectivity to downstream waters.

Amphibian species observed or expected to occur primarily in the Wildlife Movement Corridor include western toad (*Anaxyrus boreas*) and Baja California treefrog (*Pseudacris hypochondriaca*).

Western fence lizard (*Sceloporus occidentalis*) and California kingsnake (*Lampropeltis getula*) were observed on the Project site. Common reptile species with potential to occur on the Project site include southern alligator lizard (*Elgaria multicarinata*), common side-blotched lizard (*Uta stansburiana*), and gophersnake (*Pituophis catenifer*).

The disturbed portions of the Project site provide limited suitable habitat for primarily urban-adapted bird species, while a greater variety of species are expected to utilize the Wildlife Movement Corridor. Resident and wintering bird species observed on the Project site include killdeer (*Charadrius vociferus*), rock pigeon (*Columba livia*), mourning dove (*Zenaida macroura*), Say's phoebe (*Sayornis saya*), Cassin's kingbird (*Tyrannus vociferans*), American crow (*Corvus brachyrhynchos*), northern rough-winged swallow (*Stelgidopteryx serripennis*), cliff swallow (*Petrochelidon pyrrhonota*), bushtit (*Psaltriparus minimus*), white-crowned sparrow (*Zonotrichia leucophrys*), house finch (*Carpodacus mexicanus*), lesser goldfinch (*Spinus psaltria*), and American goldfinch (*Spinus tristis*). The turkey vulture (*Cathartes aura*), a scavenger, red-

tailed hawk (*Buteo jamaicensis*), and American kestrel (*Falco sparverius*) were observed in the immediate vicinity of the Project site.

Small, ground-dwelling mammals observed on the Project site include California ground squirrels (*Otospermophilus beecheyi*). Medium- to large-sized mammals, or their sign, observed or expected to occur on the Project site include Virginia opossum (*Didelphis virginiana*), brush rabbit (*Sylvilagus bachmani*), coyote (*Canis latrans*), and northern raccoon (*Procyon lotor*). Bats occur throughout most of Southern California and may use any portion of the Project site as foraging habitat. Suitable day roosting habitat for bats varies among the species. Common bat species that may forage on the Project site include Brazilian free-tailed bat (*Tadarida brasiliensis*), big brown bat (*Eptesicus fuscus*), and canyon bat (*Parastrellus Hesperus*).

Wildlife Movement

The Project site is located in a moderately urbanized landscape in close proximity to undeveloped open space. Limestone Canyon Regional Park and Whiting Ranch Wilderness Park are located approximately 2 miles to the northeast, with the Cleveland National Forest farther northeast. Wildlife may move relatively freely between Limestone Canyon Regional Park and the Project site by travelling under the Foothill Transportation Corridor and through existing open space on the FBI property. Between Whiting Ranch Wilderness Park and the Project site, Borrego Wash also provides a narrow corridor between residential and commercial development for wildlife movement.

Wildlife from Borrego Canyon Wash may move into the 300-foot-wide Wildlife Movement Corridor, which was constructed as mitigation for the construction of the County's portion of the Alton Parkway Extension Project (i.e. project activities located between Irvine Boulevard and Commercentre Drive). Wildlife may then move through a 72-inch pipe culvert under Irvine Boulevard into open areas on the former El Toro Marine Corps Air Station (MCAS). Wildlife are discouraged from entering the box culvert at the east end of the Wildlife Movement Corridor through the use of a concrete slab that slopes downward (10:1 slope) towards a debris wall and riprap at Alton Parkway. Exclusionary fencing runs along the edges of the Wildlife Movement Corridor to discourage wildlife movement onto adjacent roads.

At the present time, open space on the former MCAS immediately downstream of the Wildlife Movement Corridor (i.e., the undeveloped portion of the Great Park Neighborhoods) provides marginal habitat and there is not a continuous corridor of habitat connecting to a larger open space area to the south. To provide increased connectivity between Orange County's Central and Coastal Habitat Reserves, the OCGP includes the concept of a regional wildlife movement corridor that would facilitate the connection of the two NCCP/HCP habitat reserves. The approximately 300-foot-wide Wildlife Movement Corridor is a segment of this larger corridor.

Special Status Biological Resources

Special Status Vegetation Types

Vegetation types may be considered "special status" because they are "of limited distribution statewide or within a county or region and are often vulnerable to environmental effects" (CDFG 2009); because they may support federally or State-listed species; and/or because they are associated with a protected resource (e.g., jurisdictional waters). In addition to providing an

inventory of special status plant and wildlife species, the CNDDB also provides an inventory of vegetation types that are considered special status by the state and federal resource agencies, academic institutions, and various conservation groups (such as the CNPS).

Ruderal vegetation, developed, and disturbed areas would not be considered special status vegetation types; they are considered relatively low in biological value because they provide limited vegetation cover and are vegetated by non-native and ornamental species that do not provide as high a quality of habitat value relative to native vegetation.

Restoration plantings within the Wildlife Movement Corridor would be considered special status. The xeric and mesic scrub planted in the Wildlife Movement Corridor provides habitat for coastal California gnatcatcher, a listed species, which has been observed using the site. The riparian scrub in the channel also provides habitat for a listed species observed on site, least Bell's vireo.

The channel of the Wildlife Movement Corridor exhibits evidence of bed, bank, and ordinary high water marks and would be considered under the jurisdiction of the USACE, the RWQCB, and the CDFW. At the present time, surface flow from the channel is conveyed through an outfall stand-pipe that ties into the existing storm drain to the south. This storm drain discharges into Borrego Canyon Wash, which ultimately flows into San Diego Creek, a Traditional Navigable Water (TNW). Therefore, there is a connection to a TNW and areas within the OHWM would be under the jurisdiction of the USACE.

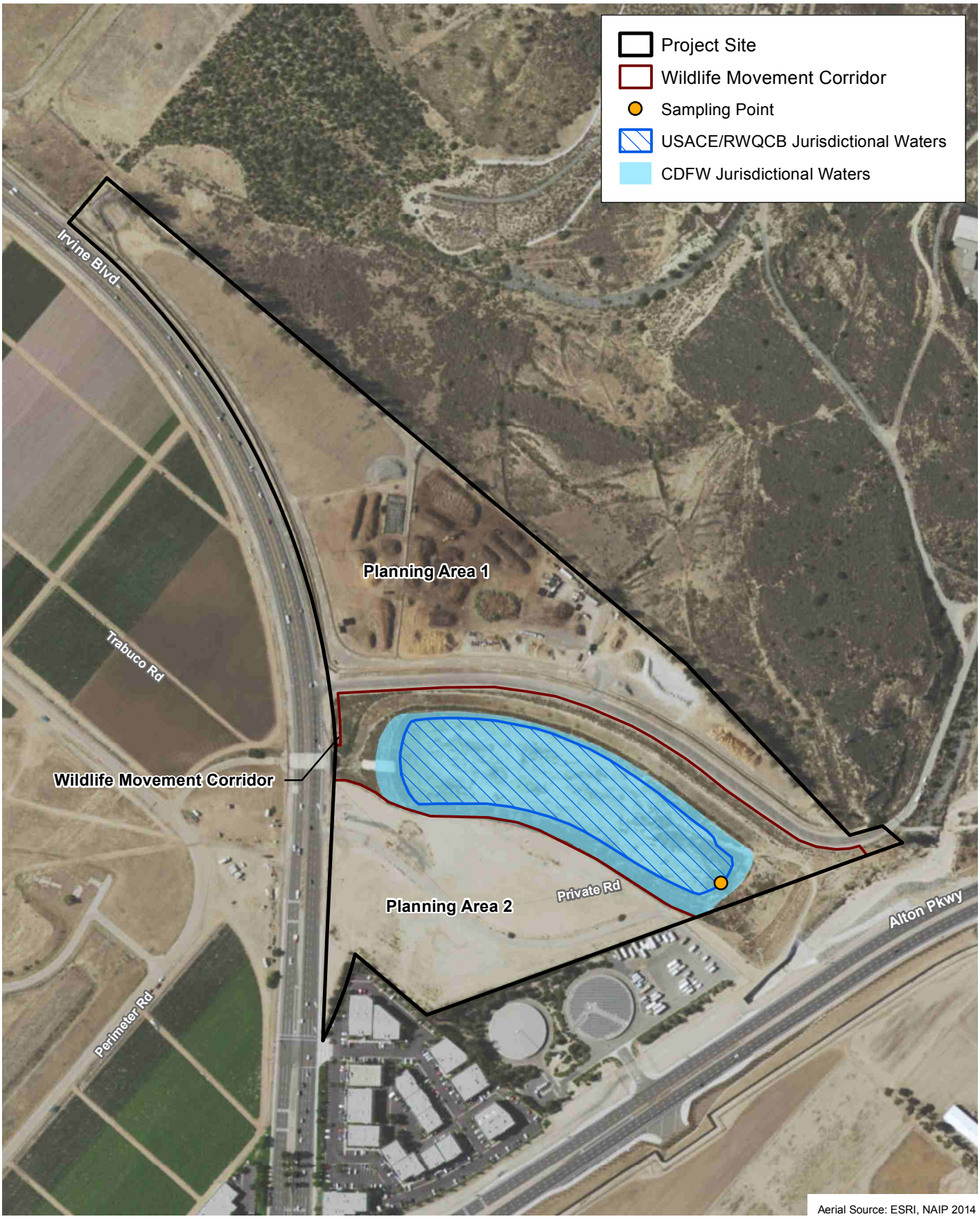
A total of 5.42 acres of "waters of the U.S." under the jurisdiction of the USACE, 5.42 acres of "waters of the State" under the jurisdiction of the RWQCB, and 7.83 acres of waters under the jurisdiction of the CDFW occur in the Wildlife Movement Corridor portion of the Project site (Table 4.4-1; Exhibit 4.4-4).

TABLE 4.4-1
JURISDICTIONAL RESOURCES ON THE PROJECT SITE

Jurisdictional Resources	Existing on Project Site (acres)
USACE Jurisdictional "waters of the U.S."	5.42
RWQCB Jurisdictional "waters of the State"	5.42
CDFW Jurisdictional Waters	7.83
USACE: U.S. Army Corps of Engineers; RWQCB: Regional Water Quality Control Board; CDFW: California Department of Fish and Wildlife.	

Special Status Plant Species

Table 4.4-2 provides a summary of special status plant species reported to occur in the vicinity of the Project site based on the results of the literature review. It includes information on the species' status, potential for occurrence on the Project site, and results of focused survey efforts.



Aerial Source: ESRI, NAIP 2014

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Jurisdictional Resources

Exhibit 4.4-4

West Alton Parcel Development Plan EIR

N W E S

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Feet

TABLE 4.4-2
SPECIAL STATUS PLANT SPECIES REPORTED FROM THE PROJECT VICINITY

Species	Status				Potential to Occur in Planning Areas 1 and 2; Results of Focused Surveys	Potential to Occur in the Wildlife Movement Corridor
	USFWS	CDFW	CRPR	NCCP/HCP		
Aphanisma blitoides aphanisma	–	–	1B.2	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.	No suitable habitat; not expected to occur.
Atriplex coulteri Coulter's saltbush	–	–	1B.2	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.	No suitable habitat; not expected to occur.
Atriplex pacifica south coast saltscale	–	–	1B.2	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.	No suitable habitat; not expected to occur.
Atriplex parishii Parish's brittlescale	–	–	1B.1	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.	No suitable habitat; not expected to occur.
Atriplex serenana var. *davidsonii* Davidson's saltscale	–	–	1B.2	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.	No suitable habitat; not expected to occur.
Brodiaea filifolia thread-leaved brodiaea	FT	SE	1B.1	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.	No suitable habitat; not expected to occur.
Calochortus catalinae Catalina mariposa lily	–	–	4.2	Covered	No suitable habitat; not expected to occur and not observed during focused surveys.	Suitable habitat, but not part of planting palette and not observed during multiple years of monitoring; not expected to occur.
Calochortus weedii var. *intermedius* intermediate mariposa lily	–	–	1B.2	Conditionally Covered	No suitable habitat; not expected to occur and not observed during focused surveys.	Suitable habitat, but not part of planting palette and not observed during multiple years of monitoring; not expected to occur.
Camissoniopsis lewisii Lewis' evening-primrose	–	–	3	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.	No suitable habitat; not expected to occur.
Centromadia parryi ssp. *australis* southern tarplant	–	–	1B.1	Not covered	Marginally suitable habitat; not observed during focused surveys.	Suitable habitat, but not part of planting palette and not observed during multiple years of monitoring; not expected to occur.

TABLE 4.4-2
SPECIAL STATUS PLANT SPECIES REPORTED FROM THE PROJECT VICINITY

Species	Status				Potential to Occur in Planning Areas 1 and 2; Results of Focused Surveys	Potential to Occur in the Wildlife Movement Corridor
	USFWS	CDFW	CRPR	NCCP/HCP		
Chaenactis glabriuscula var. *orcuttiana* Orcutt's pincushion	–	–	1B.1	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.	No suitable habitat; not expected to occur.
Comarostaphylis diversifolia ssp. *diversifolia* summer holly	–	–	1B.2	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.	No suitable habitat; not expected to occur.
Convolvulus simulans small-flowered morning-glory	–	–	4.2	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.	Marginally suitable habitat, but not part of planting palette and not observed during multiple years of monitoring; not expected to occur.
Dodecahema leptoceras slender-horned spineflower	FE	SE	1B.1	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.	No suitable habitat; not expected to occur.
Dudleya multicaulis many-stemmed dudleya	–	–	1B.2	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.	Marginally suitable habitat, but not part of planting palette and not observed during multiple years of monitoring; not expected to occur.
Dudleya stolonifera Laguna Beach dudleya	FT	ST	1B.1	Covered	No suitable habitat; not expected to occur and not observed during focused surveys.	No suitable habitat; not expected to occur.
Euphorbia misera cliff spurge	–	–	2B.2	Covered	No suitable habitat; not expected to occur and not observed during focused surveys.	No suitable habitat; not expected to occur.
Harpagonella palmeri Palmer's grapplinghook	–	–	4.2	Covered	No suitable habitat; not expected to occur and not observed during focused surveys.	Marginally suitable habitat, but not part of planting palette and not observed during multiple years of monitoring; not expected to occur.
Helianthus nuttallii ssp. *parishii* Los Angeles sunflower	–	–	1A	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.	No suitable habitat; not expected to occur.

TABLE 4.4-2
SPECIAL STATUS PLANT SPECIES REPORTED FROM THE PROJECT VICINITY

Species	Status				Potential to Occur in Planning Areas 1 and 2; Results of Focused Surveys	Potential to Occur in the Wildlife Movement Corridor
	USFWS	CDFW	CRPR	NCCP/HCP		
Hesperocyparis forbesii Tecate cypress	–	–	1B.1	Covered	No suitable habitat; not expected to occur and not observed during focused surveys.	No suitable habitat; not expected to occur.
Horkelia cuneata var. *puberula* mesa horkelia	–	–	1B.1	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.	Marginally suitable habitat, but not part of planting palette and not observed during multiple years of monitoring; not expected to occur.
Isocoma menziesii var. *decumbens* decumbent goldenbush	–	–	1B.2	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.	Marginally suitable habitat, but not part of planting palette and not observed during multiple years of monitoring; not expected to occur.
Lasthenia glabrata ssp. *coulteri* Coulter's goldfields	–	–	1B.1	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.	Marginally suitable habitat, but not part of planting palette and not observed during multiple years of monitoring; not expected to occur.
Lepidium virginicum var. *robinsonii** Robinson's pepper-grass	–	–	4.3	Not covered	Marginally suitable habitat; not observed during focused surveys.	Suitable habitat, but not part of planting palette and not observed during multiple years of monitoring; not expected to occur.
Monardella hypoleuca ssp. *intermedia* intermediate monardella	–	–	1B.3	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.	No suitable habitat; not expected to occur.
Nama stenocarpum mud nama	–	–	2B.2	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.	No suitable habitat; not expected to occur.
Navarretia prostrata prostrate vernal pool navarretia	–	–	1B.1	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.	No suitable habitat; not expected to occur.
Nolina cismontana chaparral nolina	–	–	1B.2	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.	No suitable habitat; not expected to occur.

TABLE 4.4-2
SPECIAL STATUS PLANT SPECIES REPORTED FROM THE PROJECT VICINITY

Species	Status				Potential to Occur in Planning Areas 1 and 2; Results of Focused Surveys	Potential to Occur in the Wildlife Movement Corridor
	USFWS	CDFW	CRPR	NCCP/HCP		
Pentachaeta aurea ssp. *allenii* Allen's pentachaeta	–	–	1B.1	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.	Marginally suitable habitat, but not part of planting palette and not observed during multiple years of monitoring; not expected to occur.
Phacelia ramosissima var. *austrolitoralis** south coast branching phacelia	–	–	3.2	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.	No suitable habitat; not expected to occur.
Pseudognaphalium leucocephalum white rabbit-tobacco	–	–	2B.2	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.	No suitable habitat; not expected to occur.
Quercus dumosa Nuttall's scrub oak	–	–	1B.1	Covered	No suitable habitat; not expected to occur and not observed during focused surveys.	Suitable habitat, but not part of planting palette and not observed during multiple years of monitoring; not expected to occur.
Romneya coulteri Coulter's matilija poppy	–	–	4.2	Covered	No suitable habitat; not expected to occur and not observed during focused surveys.	Suitable habitat, but not part of planting palette and not observed during multiple years of monitoring; not expected to occur.
Senecio aphanactis chaparral ragwort	–	–	2B.2	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.	No suitable habitat; not expected to occur.
Sidalcea neomexicana salt spring checkerbloom	–	–	2B.2	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.	No suitable habitat; not expected to occur.
Suaeda esteroa estuary seablite	–	–	1B.2	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.	No suitable habitat; not expected to occur.
Symphyotrichum defoliatum San Bernardino aster	–	–	1B.2	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.	Suitable habitat, but not part of planting palette and not observed during multiple years of monitoring; not expected to occur.

TABLE 4.4-2
SPECIAL STATUS PLANT SPECIES REPORTED FROM THE PROJECT VICINITY

Species	Status				Potential to Occur in Planning Areas 1 and 2; Results of Focused Surveys	Potential to Occur in the Wildlife Movement Corridor
	USFWS	CDFW	CRPR	NCCP/HCP		
Verbesina dissita big-leaved crownbeard	FT	ST	1B.1	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.	No suitable habitat; not expected to occur.

USFWS: U.S. Fish and Wildlife Service; CDFW: California Department of Fish and Wildlife; CRPR: California Rare Plant Rank; NCCP/HCP: Orange County Central/Coastal Natural Community Conservation Plan/Habitat Conservation Plan.

LEGEND:

Federal (USFWS)

FE Endangered
FT Threatened

State (CDFW)

SE Endangered
ST Threatened

California Rare Plant Rank (CRPR)

1A Plants Presumed Extirpated in California and Either Rare or Extinct Elsewhere
1B Plants Rare, Threatened, or Endangered Throughout Their Range
2B Plants Rare, Threatened, or Endangered in California But More Common Elsewhere
3 Plants of About Which We Need More Information – A Review List
4 Plants of Limited Distribution – A Watch List

CRPR Threat Rank Extensions

None Plants lacking any threat information
.1 Seriously Endangered in California (over 80% of occurrences threatened; high degree and immediacy of threat)
.2 Fairly Endangered in California (20–80% of occurrences threatened; moderate degree and immediacy of threat)
.3 Not very threatened in California (<20% of occurrences threatened; low degree and immediacy of threat or no current threats known)

* Variety not currently recognized by Baldwin et al. (2012); however, it still retains a CRPR value.

Special Status Wildlife Species

Table 4.4-3 provides a summary of special status wildlife species reported to occur in the vicinity of the Project site based on the results of the literature review. It includes information on the species' status, potential for occurrence on the Project site, and results of focused survey efforts (if applicable).

TABLE 4.4-3
SPECIAL STATUS WILDLIFE SPECIES REPORTED FROM THE PROJECT VICINITY

Species	Status			Potential to Occur in Planning Areas 1 and 2	Potential to Occur in the Wildlife Movement Corridor; Results of Focused Surveys
	USFWS	CDFW	NCCP/HCP		
Invertebrates					
Streptocephalus woottoni Riverside fairy shrimp	FE	–	Conditionally Covered	No suitable habitat; not expected to occur.	No suitable habitat; not expected to occur.
Fish					
Gila orcuttii arroyo chub	–	SSC	Not covered	No suitable habitat; not expected to occur.	No suitable habitat; not expected to occur.
Rhinichthys osculus ssp. 3 Santa Ana speckled dace	–	SSC	Not covered	No suitable habitat; not expected to occur.	No suitable habitat; not expected to occur.
Eucyclogobius newberryi tidewater goby	FE	SSC	Not covered	No suitable habitat; not expected to occur.	No suitable habitat; not expected to occur.
Amphibians					
Spea hammondii western spadefoot	–	SSC	Covered	No suitable habitat; not expected to occur.	Limited suitable habitat in Wildlife Movement Corridor; limited potential to occur.
Anaxyrus californicus arroyo toad	FE	SSC	Conditionally Covered	No suitable habitat; not expected to occur.	No suitable habitat; not expected to occur.
Reptiles					
Emys marmorata western pond turtle	–	SSC	Not covered	No suitable habitat; not expected to occur.	Limited suitable habitat in Wildlife Movement Corridor; limited potential to occur.
Phrynosoma blainvillii coast horned lizard	–	SSC	Covered	No suitable habitat; not expected to occur.	Suitable habitat in Wildlife Movement Corridor; may occur.
***Aspidoscelis hyperythra beldingi* Belding's orange-throated whiptail**	**–**	**SSC**	**Covered**	No suitable habitat; not expected to occur.	**Suitable habitat in Wildlife Movement Corridor; incidentally observed in the Wildlife Movement Corridor as part of another project (BonTerra 2015).**
Aspidoscelis tigris stejnegeri San Diegan tiger whiptail	–	SA	Covered	No suitable habitat; not expected to occur.	Suitable habitat in Wildlife Movement Corridor; may occur.
Salvadora hexalepis virgultea coast patch-nosed snake	–	SSC	Not covered	No suitable habitat; not expected to occur.	Suitable habitat in Wildlife Movement Corridor; may occur.
Thamnophis hammondii two-striped garter snake	–	SSC	Not covered	No suitable habitat; not expected to occur.	Limited suitable habitat in Wildlife Movement Corridor; limited potential to occur.
Crotalus ruber red diamond rattlesnake	–	SSC	Covered	No suitable habitat; not expected to occur.	Suitable habitat in Wildlife Movement Corridor; may occur.

TABLE 4.4-3
SPECIAL STATUS WILDLIFE SPECIES REPORTED FROM THE PROJECT VICINITY

Species	Status			Potential to Occur in Planning Areas 1 and 2	Potential to Occur in the Wildlife Movement Corridor; Results of Focused Surveys
	USFWS	CDFW	NCCP/HCP		
Birds					
Accipiter cooperii **Cooper's hawk (nesting)**	**–**	**WL**	**Not covered**	Limited suitable foraging habitat; may occur for foraging. No suitable nesting habitat; not expected to occur for nesting.	**Limited suitable foraging habitat; may occur for foraging; incidentally observed in the Wildlife Movement Corridor as part of another project (BonTerra 2015). No suitable nesting habitat; not expected to occur for nesting.**
Buteo regalis ferruginous hawk (wintering)	–	WL	Not covered	Limited suitable foraging habitat; limited potential to occur for foraging. Outside known breeding range; not expected to occur for nesting.	Limited suitable foraging habitat; limited potential to occur for foraging. Outside known breeding range; not expected to occur for nesting.
Buteo swainsoni Swainson's hawk (wintering)	**–**	**ST**	**Not covered**	Limited suitable foraging habitat; may occur for foraging. Outside known breeding range; not expected to occur for nesting.	**Limited suitable foraging habitat; may occur for foraging; incidentally observed in the Wildlife Movement Corridor as part of another project (BonTerra 2015). Outside known breeding range; not expected to occur for nesting.**
Elanus leucurus white-tailed kite (nesting)	–	FP	Not covered	Limited suitable foraging habitat; may occur for foraging. No suitable nesting habitat; not expected to occur for nesting.	Limited suitable foraging habitat; may occur for foraging. No suitable nesting habitat; not expected to occur for nesting.
Falco peregrinus anatum **American peregrine falcon (nesting)**	**–**	**FP**	**Covered**	Limited suitable foraging habitat; may occur for foraging. No suitable nesting habitat; not expected to occur for nesting.	**Suitable foraging habitat; may occur for foraging; incidentally observed in the Wildlife Movement Corridor as part of another project (ICF 2016). No suitable nesting habitat; not expected to occur for nesting.**
Laterallus jamaicensis coturniculus California black rail		ST, FP	Not covered	No suitable habitat; not expected to occur.	No suitable habitat; not expected to occur.
Sternula antillarum browni California least tern (nesting colony)	FE[a]	SE, FP	Not covered	No suitable habitat; not expected to occur.	No suitable habitat; not expected to occur.

TABLE 4.4-3
SPECIAL STATUS WILDLIFE SPECIES REPORTED FROM THE PROJECT VICINITY

Species	Status			Potential to Occur in Planning Areas 1 and 2	Potential to Occur in the Wildlife Movement Corridor; Results of Focused Surveys
	USFWS	CDFW	NCCP/HCP		
Coccyzus americanus occidentalis western yellow-billed cuckoo (nesting)	FT	SE	Not covered	No suitable habitat; not expected to occur.	No suitable habitat; not expected to occur.
Athene cunicularia burrowing owl	–	SSC[a]	Not covered	Limited suitable foraging and nesting habitat; not observed during focused surveys.	Suitable foraging and nesting habitat; not observed during focused surveys.
***Vireo bellii pusillus* least Bell's vireo (nesting)**	**FE**	**SE**	**Conditionally Covered**	No suitable habitat; not expected to occur.	**Suitable foraging and nesting habitat in Wildlife Movement Corridor; observed foraging in the Wildlife Movement Corridor during focused surveys and observed as part of another project (BonTerra 2015).**
Eremophila alpestris actia California horned lark	–	WL	Not covered	No suitable habitat; not expected to occur.	Suitable habitat in Wildlife Movement Corridor; may occur.
Campylorhynchus brunneicapillus sandiegensis coastal cactus wren	–	SSC[b]	Covered	No suitable habitat; not expected to occur.	Limited suitable habitat in Wildlife Movement Corridor; limited potential to occur.
***Polioptila californica* coastal California gnatcatcher**	**FT**	**SSC**	**Covered**	No suitable habitat; not expected to occur.	**Suitable foraging and nesting habitat in Wildlife Movement Corridor; not observed during focused surveys, but incidentally observed nesting in the Wildlife Movement Corridor as part of another project (ICF 2016).**
***Icteria virens* yellow-breasted chat (nesting)**	**–**	**SSC**	**Not covered**	No suitable habitat; not expected to occur.	**Suitable foraging and nesting habitat in Wildlife Movement Corridor; observed in the Wildlife Movement Corridor.**
***Aimophila ruficeps canescens* Southern California rufous-crowned sparrow**	**–**	**WL**	**Covered**	No suitable habitat; not expected to occur.	**Suitable foraging and nesting habitat in Wildlife Movement Corridor; not observed during focused surveys, but incidentally observed in the Wildlife Movement Corridor as part of another project (BonTerra 2015).**
Ammodramus savannarum grasshopper sparrow (nesting)	–	SSC	Not covered	No suitable habitat; not expected to occur.	No suitable habitat; not expected to occur.

TABLE 4.4-3
SPECIAL STATUS WILDLIFE SPECIES REPORTED FROM THE PROJECT VICINITY

Species	Status			Potential to Occur in Planning Areas 1 and 2	Potential to Occur in the Wildlife Movement Corridor; Results of Focused Surveys
	USFWS	CDFW	NCCP/HCP		
Passerculus sandwichensis beldingi Belding's savannah sparrow	–	SE	Not covered	No suitable habitat; not expected to occur.	No suitable habitat; not expected to occur.
Mammals					
Sorex ornatus salicornicus Southern California saltmarsh shrew		SSC	Not covered	No suitable habitat; not expected to occur.	No suitable habitat; not expected to occur.
Choeronycteris mexicana Mexican long-tongued bat	–	SSC	Not covered	Outside current known range; not expected to occur.	Outside current known range; not expected to occur.
Lasiurus cinereus hoary bat	–	SA	Not covered	Limited suitable foraging habitat; limited potential to occur for foraging.	Limited suitable foraging habitat; limited potential to occur for foraging.
Myotis yumanensis Yuma myotis	–	SA	Not covered	Limited suitable foraging habitat; limited potential to occur for foraging.	Limited suitable foraging habitat; limited potential to occur for foraging.
Eumops perotis californicus western bonneted bat	–	SSC	Not covered	Limited suitable foraging habitat; limited potential to occur for foraging.	Limited suitable foraging habitat; limited potential to occur for foraging.
Nyctinomops macrotis big free-tailed bat	–	SSC	Not covered	Outside current known range; not expected to occur.	Outside current known range; not expected to occur.
Perognathus longimembris pacificus Pacific pocket mouse	FE	SSC	Conditionally Covered	No suitable habitat; not expected to occur.	Limited suitable habitat in Wildlife Movement Corridor; limited potential to occur.
Neotoma lepida intermedia San Diego desert woodrat	–	SSC	Covered	No suitable habitat; not expected to occur.	No suitable habitat; not expected to occur.
Bassariscus astutus ringtail	–	FP	Not covered	No suitable habitat; not expected to occur.	No suitable habitat; not expected to occur.

USFWS: U.S. Fish and Wildlife Service; CDFW: California Department of Fish and Wildlife; NCCP/HCP: Orange County Central/Coastal Natural Community Conservation Plan/Habitat Conservation Plan. **Bold text** indicates the species was observed on the Project site.

LEGEND:

Federal (USFWS)
FE Endangered
FT Threatened

State (CDFW)
SE Endangered
ST Threatened
SSC Species of Special Concern
WL Watch List
FP Fully Protected
SA Special Animal

[a] Designation refers to burrow sites; wintering observations not considered special status for Orange County.
[b] Designation refers to San Diego and Orange Counties only.

4.4.4 THRESHOLDS OF SIGNIFICANCE

In accordance with the County's Environmental Analysis Checklist and Appendix G of the State California Guidelines, the Project would result in a significant impact related to biological resources if it would:

Threshold 4.4-1 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 Services.

Threshold 4.4-2 Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Services.

Threshold 4.4-3 Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

Threshold 4.4-4 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.

Threshold 4.4-5 Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

Threshold 4.4-6 Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

4.4.5 IMPACT ANALYSIS

The following analysis addresses "direct" and "indirect" impacts. Direct impacts are those that involve the initial loss of habitat or individuals due to vegetation clearing and construction-related activities. These impacts would occur in Planning Areas 1 and 2 because that is where the development is proposed. Though improvements are proposed within the Irvine Boulevard right-of-way there are no resources in this area. No improvements are proposed within the Wildlife Movement Corridor. The proposed site improvements for Planning Area 2 would require the relocation of an existing private storm drain line that conveys storm water runoff from the Wildlife Movement Corridor to the existing storm drain line in Irvine Boulevard; however, the modifications would be outside the limits of the Wildlife Movement Corridor (see Exhibit 3-9). Indirect impacts would be those related to impacts on the adjacent remaining habitat due to construction activities (e.g., noise, dust) or operation of a project (e.g., human activity). For purposes of the following analysis, the term "special status" (synonymous with "sensitive") is used to refer to (1) species (including subspecies and varieties) listed under

federal or State Endangered Species Acts (including Candidate species), species identified as State Species of Special Concern, and species identified by State and local conservation organizations (e.g., the CNPS) as declining or limited in distribution (i.e., sensitive species) and (2) vegetation types (synonymous with "habitat" and "community") considered to be declining or of limited distribution at the global, statewide, regional, or local level; that support federally or State-listed species; and/or that are associated with a protected resource (e.g., riparian areas or other jurisdictional waters).

As discussed in Section 4.0, Impact Analysis Introduction, the Development Plan identifies a number of as which serve to minimize potential impacts (the development requirements are in Appendix C of the Development Plan). The inclusion of these requirements as appropriate, would be verified during the development review and/or ministerial permit process (e.g., building permit). The development requirements also include others measures that would reduce or avoid potentially significant Project impacts. The County intends to implement the development requirements as part of the Project and has included the development requirements in the Development Plan for that purpose. These measures are listed in Section 4.4.7, Mitigation Program because these measures would be tracked as part of the Mitigation Monitoring and Reporting Program.

Threshold 4.4-1

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 Services?

Direct Impacts

Special Status Plant Species

Table 4.4-1 identifies the special status plants reported from the vicinity of the Project. Of the 38 species reported, 36 species are not expected to occur within Planning Areas 1 and 2 due to lack of suitable native habitat and the heavily disturbed nature of the area. Marginally suitable habitat is present for two species (southern tarplant and Robinson's pepper-grass [*Lepidium virginicum* var. *robinsonii*]) within Planning Areas 1 and 2; however, neither species was observed during focused plant surveys. No special status plant species are expected to occur within the Wildlife Movement Corridor because none were included in the restoration plant palette and none were observed during annual monitoring surveys of the restoration planting. In addition, the Wildlife Movement Corridor will not be directly disturbed by the Project. Therefore, there would be no impact on special status plant species and no mitigation would be required.

Special Status Wildlife Species

To assess the impacts on special status wildlife species, the total impact on particular vegetation types that provide habitat for wildlife was assessed. A total of approximately 31.85 acres would be impacted by the Project (Table 4.4-4; Exhibit 4.4-1).

TABLE 4.4-4
VEGETATION TYPES AND OTHER AREAS
IMPACTED BY THE PROJECT

Vegetation Type and Other Areas	Project Impact (acres) [a]	Special Status (yes/no)
ruderal	0.07	no
developed	3.28	no
disturbed	28.50	no
habitat creation area	0.00	Yes[b]
Total	**31.85**	

[a] The combined acreage for the Planning Area 1 and 2 parcels is 32.32 acres; however, a buffer area has been included within the fence line surrounding the Wildlife Movement Corridor, which reduces the total acreage identified as being effected by the Project. The Project will not move the fence surrounding the Wildlife Movement Corridor.

[b] Considered to have special status because of association with a protected resource (e.g., water resource under the jurisdiction of the California Department of Fish and Wildlife) and because it may support Threatened or Endangered species.

Of the 39 special status wildlife species listed in Table 4.4-2, 15 are not expected to occur on the Project site due to lack of suitable habitat or because the Project site is outside the known range of the species. Therefore, there would be no impact on these species and no mitigation would be required.

Suitable or limited suitable habitat for the following species is present in the Wildlife Movement Corridor: western spadefoot (*Spea hammondii*), western pond turtle (*Emys marmorata*), coast horned lizard (*Phrynosoma blainvillii*), Belding's orange-throated whiptail (*Aspidoscelis hyperythra beldingi*), San Diegan tiger whiptail (*Aspidoscelis tigris stejnegeri*), coast patch-nosed snake (*Salvadora hexalepis virgultea*), two-striped garter snake (*Thamnophis hammondii*), red diamond rattlesnake (*Crotalus ruber*), least Bell's vireo, California horned lark (*Eremophila alpestris actia*), coastal cactus wren (*Campylorhynchus brunneicapillus sandiegensis*), coastal California gnatcatcher, yellow-breasted chat (*Icteria virens*), Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), and Pacific pocket mouse (*Perognathus longimembris pacificus*). These species are not expected to occur within Planning Areas 1 and 2 due to lack of suitable native habitat and the heavily disturbed nature of the area. The Wildlife Movement Corridor will not be directly disturbed by the Project. Therefore, there will be no direct impact on these species or their habitat and no mitigation would be required. However, it should also be noted, potential direct and indirect impacts are fully mitigated through the County's participation and contribution in the NCCP/HCP Mitigation Program. The participation not only provides mitigation for coastal sage scrub and the coastal California gnatcatcher, but other special status species covered by the NCCP/HCP and Implementation Agreement as well.

Limited suitable foraging, but no suitable nesting habitat is present on the Project site (Planning Areas 1 and 2 and Wildlife Movement Corridor) for the Cooper's hawk (*Accipiter cooperii*), Swainson's hawk (*Buteo swainsoni*), white-tailed kite, and American peregrine falcon (*Falco peregrinus anatum*). In addition, wintering ferruginous hawks (*Buteo regalis*) may occur. With the exception of American peregrine falcon, these species are not covered by the NCCP/HCP. Cooper's hawk, Swainson's hawk, and American peregrine falcon were incidentally observed on

the Project site between 2012 and 2016 as part of other projects (BonTerra 2015; ICF 2016). The Project would impact approximately 28.57 acres of marginally suitable foraging habitat (i.e., ruderal and disturbed areas) for these species. Impacts to these species would be considered less than significant given the status of the species and the limited amount of potential impacts relative to the habitat available in the region (i.e., open space in Irvine Ranch Open Space [20,000 acres], Limestone and Whiting Ranch Wilderness Park [2,500 acres], Laguna Coast Wilderness Park [7,000 acres], and OCGP [1,375 acres]). Potential direct and indirect impacts on American peregrine falcon are fully mitigated through the County's participation and contribution in the NCCP/HCP Mitigation Program. Therefore, no mitigation would be required to mitigate for foraging impacts on these species.

Suitable foraging and nesting habitat for burrowing owl is present in Planning Areas 1 and 2 and limited suitable habitat is present in the Wildlife Movement Corridor. No burrowing owls were observed during focused surveys, and no impacts are anticipated. Due to the presence of suitable habitat, CDFW guidelines require a follow-up pre-construction survey for burrowing owls to confirm the absence of the species at the time of construction. Compliance with Development Requirement (DR) BIO-1, which includes a requirement for a pre-construction survey and avoidance of active burrows within a buffer zone, would ensure that potential impacts are less than significant.

Limited suitable foraging, but no roosting habitat for hoary bat (*Lasiurus cinereus*), Yuma myotis (*Myotis yumanensis*), and western bonneted bat (*Eumops perotis californicus*) is present on the Project site (Planning Areas 1 and 2and Wildlife Movement Corridor). These species are not covered by the NCCP/HCP. The Project would impact approximately 28.57 acres of potential foraging habitat (i.e., ruderal and disturbed areas) for these species. This loss of foraging habitat would contribute to the ongoing regional loss of foraging habitat; however, abundant foraging habitat remains available in the Project region (i.e., open space in Irvine Ranch Open Space [20,000 acres], Limestone and Whiting Ranch Wilderness Park [2,500 acres], Laguna Coast Wilderness Park [7,000 acres], and OCGP [1,375 acres]). Therefore, these impacts would be less than significant and no mitigation would be required for impacts on bat foraging habitat.

Common wildlife species that are not "special status" but covered by the NCCP/HCP, such as coyote and red-shouldered hawk (*Buteo lineatus)*, have been observed or have potential to occur or move through the Project site (Planning Areas 1 and 2and Wildlife Movement Corridor). The Project would impact approximately 28.57 acres of marginal habitat (i.e., ruderal and disturbed areas) for these species. The loss of habitat for these species is covered by the County's participation in the NCCP/HCP (as a signatory to the NCCP/HCP Implementing Agreement). As part of the NCCP/HCP, the County and other participating landowners set aside large areas of habitat within the County that will remain as open space in perpetuity in order to mitigate for the loss of habitat areas outside the designated Reserve Area. Therefore, these impacts would be less than significant and no mitigation would be required for the loss of habitat for Covered species that would be impacted by the Project.

Indirect Impacts

The indirect impact discussion below includes a general assessment of the potential indirect effects of the Project's construction and operation on wildlife species utilizing adjacent habitat, specifically, habitat within the Wildlife Movement Corridor and FBI property (NCCP/HCP Reserve Area).

Lighting

Night lighting may impact the behavioral patterns of nocturnal and crepuscular (i.e., active at dawn and dusk) wildlife in the vicinity of the light source. Of greatest concern is the effect on small, ground-dwelling animals that use the darkness to hide from predators and/or owls, which are specialized night foragers. Development of the Project would increase the number of nighttime light and glare sources on the Project site. As discussed in Section 4.1, there would be an increase in ambient lighting levels on the Project site associated with general illumination and safety and security lighting. DR AES-1 and DR AES-2 incorporate measures to minimize the potential for indirect lighting impacts, especially as it pertains to the Wildlife Movement Corridor and the NCCP/HCP Reserve. Specifically, exterior lighting would be diffused, shielded, and low intensity and located so that direct rays are confined to the Project site (DR AES-1) and the County or its designee shall submit a photometric study that demonstrates that lighting levels will not increase over 0.25-foot-candle over ambient conditions at the Project border with the NCCP/HCP Reserve and Wildlife Movement Corridor (DR AES-2). With the incorporation of these DRs, indirect impacts as a resulting of night lighting would be less than significant.

Noise

During active construction, temporary noise impacts have the potential to disrupt foraging, nesting, roosting, and/or denning activities for a variety of wildlife species. Construction activities would occur during the day; thus, construction noise would not affect nocturnal species (i.e., those active at night). Diurnal species (i.e., species active during the day) would be deterred from the area by construction activities. This impact would be relatively short-term in nature and wildlife would be expected to disperse to adjacent open space. Therefore, noise impacts would be considered adverse, but less than significant for most species using the Project site and surrounding habitat. Species for which noise impacts are potentially significant are discussed below.

Suitable foraging and nesting habitat is not present for the coastal California gnatcatcher in Planning Areas 1 and 2. Since this species is not expected to nest in Planning Areas 1 and 2, Project implementation would not result in the loss of nesting habitat. However, there is the potential for nesting within the adjacent FBI property (NCCP/HCP Reserve Area) and Wildlife Movement Corridor within 500 feet of Planning Areas 1 and 2, and noise from Project construction may indirectly impact the coastal California gnatcatcher if construction would occur during the breeding season (i.e., February 15 to July 15). The coastal California gnatcatcher is a "covered species" in the Central-Coastal NCCP/HCP and take is authorized under the NCCP/HCP. However, the Project includes DR BIO-2, which requires incorporating construction-related minimization measures to avoid indirect impacts on the coastal California gnatcatcher and potential conflicts with the NCCP/HCP.

Suitable foraging and nesting habitat is not present for the least Bell's vireo in Planning Areas 1 and 2. Since this species is not expected to nest in Planning Areas 1 and 2, Project implementation would not result in the loss of nesting habitat. However, there is the potential for nesting within the adjacent Wildlife Movement Corridor within 500 feet of Planning Areas 1 and 2, and noise from Project construction may indirectly impact the least Bell's vireo if construction would occur during the breeding season (i.e., March 15 to September 15). The least Bell's vireo is a "conditionally covered" species in the Central-Coastal NCCP/HCP and any impact (direct or indirect) on the least Bell's vireo would be considered potentially significant if the species is

present during construction. Mitigation Measure (MM) BIO-1 requires that during the breeding season and consistent with wildlife agency permitting requirements applicable to the Project, unless preconstruction surveys determine the least Bell's vireo is not present, measures be taken to ensure construction-related noise levels remain less than the greater of 60 A-weighted decibels (dBA) or existing noise levels at the edge of riparian habitat. Implementation of MM BIO-1 would reduce this potential impact to a less than significant level.

Section 4.11, Noise includes a detailed discussion of the noise characteristics of the Project. Following Project construction, the ambient noise levels in the vicinity of the Project site are expected to incrementally increase. Wildlife species stressed by noise may disperse from the habitat located in the vicinity of the Project. This impact would be considered adverse, but less than significant for most wildlife using the FBI property (NCCP/HCP Reserve Area) to the north of Planning Areas 1 and 2 because there is a substantial amount of similar habitat to the north where the animals may disperse. A substantial increase in noise and human activity would have greater potential adverse impact on the Wildlife Movement Corridor because wildlife may be discouraged from utilizing the corridor. This could have a long-term, indirect and potentially significant impact on coastal California gnatcatcher, which have been known to nest in the Wildlife Movement Corridor (ICF 2016), and least Bell's vireo, which have potential to nest in the Wildlife Movement Corridor. However, there are several factors associated with Project design that would minimize potential noise impacts on the Wildlife Movement Corridor. First, as part of the fuel modification requirements (see DR HAZ-4 in Section 4.8, Hazards and Hazardous Materials), the Project will be required to incorporate a 100-foot setback as part of the fuel modification along the north/northeastern boundary adjacent to the NCCP/HCP Reserve and along the northern boundary of Planning Area 2 interfacing the Wildlife Movement Corridor in addition to a 48-foot setback along the southern boundary of Planning Area 1 interfacing the Wildlife Movement Corridor. These setbacks will reduce potential noise level increases. Additionally, the Fire Protection Plan requires radiant heat walls (i.e., block walls, or block and glass walls) at these locations, which would also reduce the potential for noise level increases in the habitat areas (i.e., NCCP/HCP Reserve and Wildlife Movement Corridor). Finally, the design of the Project eliminates Magazine Road as a continuous road adjacent to the Wildlife Movement Corridor that currently creates noise. The primary access to the Project site is located near the middle of Planning Area 1, which would minimize the number of vehicle trips adjacent to the Wildlife Movement Corridor (see Exhibit 3-4, Conceptual Site Plan). These factors would reduce potential indirect noise impacts on wildlife species to a less than significant level. Additionally, as discussed in Section 4.11, Noise, the primary noise source affecting the Project site is associated with traffic noise. Irvine Boulevard and Alton Parkway are the two closest arterial highways that would influence the noise levels on the Project site, including the Wildlife Movement Corridor. As shown in Tables 4.11-12 and 4.11-15, the Project's greatest contribution to the future noise levels is a 0.2 dBA increase, which is not perceptible. On-site noise sources would include Heating, Ventilation and Air Conditioning (HVAC) units and on-site vehicle travel. MM NOI-1 requires that prior to the issuance of each building permit it be demonstrated that the HVAC, and similar mechanical equipment that can operate continuously at nighttime and not exceed the nighttime noise limit of 50 dBA for a time period of 30 minutes at the nearest residential receptor, as well as the Wildlife Movement Corridor, and the Reserve Area. By achieving this noise standard Project related noise impacts on Wildlife Movement Corridor would be less than significant.

Native birds and raptors, both common and special status, have potential to nest in the vicinity of the Project site and could incur temporary short-term indirect impacts from construction

noise and long-term impacts from Project operation. Active nests of common or special status migratory bird species are protected by the MBTA and the *California Fish and Game Code*. In addition, active raptor nests, including common raptor species, are specifically protected by Section 3503.5 of the *California Fish and Game Code.* Note that Section 8.3.7 of the NCCP/HCP Implementing Agreement authorizes the participating landowners to take species covered by the permit; any such take will not be in violation of the MBTA. Compliance with DR BIO-3, which addresses the timeframe that construction could occur to avoid active nests, a requirement for pre-construction surveys and avoidance of active nests within a buffer zone, would ensure that construction impacts on active nests of species not covered by the NCCP/HCP are less than significant. In addition, the setbacks and radiant heat walls discussed above would reduce potential operational noise impacts on active nests protected by the MBTA and the *California Fish and Game Code* to a less than significant level.

Bird Strikes

A potential long-term, operational impact associated with the Project concerns bird strike mortality and injury. Ornithologists estimate that up to a billion birds are killed or injured annually by collisions with clear and reflective sheet glass and plastic (Klem 2009). It is thought that they cannot distinguish between the reflection on the glass/plastic surface and the natural landscape. A radiant heat wall design option includes tempered glass over the block wall. This has the potential to result in bird strikes given its proximity to natural open space areas and the observed movement of bird species (including coastal California gnatcatcher) between the NCCP/HCP Reserve and the Wildlife Movement Corridor. The loss of a federally or state-listed species due to bird strikes is potentially significant. Compliance with MM BIO-2, which includes a requirement that glass, if used above the radiant heat wall, be designed to minimize bird strikes, would ensure that potential impacts are less than significant.

Human Activity

Following Project construction, human activity on the Project site will increase. An increase in human activity may impact wildlife species as a result of unauthorized public access, illegal dumping, and domestic animal predation. The existing ten-foot-tall fence around the Wildlife Movement Corridor would inhibit unauthorized entry by residents and domestic pets. In addition, a 6-foot-tall perimeter radiant heat block wall is proposed at all locations with native habitat interface (i.e., along the northern boundary of the Project and adjacent to both sides of the Wildlife Movement Corridor). Therefore, this impact would be considered less than significant and no mitigation would be required.

Impact Conclusion: *The Project would directly impact marginally suitable habitat for special status species. With implementation of DR BIO-1, which includes a pre-construction burrowing owl survey, direct impacts would be considered adverse, but less than significant. The Project has the potential to indirectly impact species using open space adjacent to the Project boundary. With implementation of DR AES-1 and DR AES-2 (light shielding/screening) and DR HAZ-4 (building setbacks), potential lighting and noise impacts will be less than significant. Potential impacts on coastal California gnatcatcher and least Bell's vireo would be less than significant as a result of implementation of DR BIO-2 (construction-related minimization measures), MM BIO-1 (pre-construction surveys and noise abatement for least Bell's*

vireo), and MM BIO-2 (glass design to minimize bird strikes). Impacts on active nests of migratory birds and/or raptors will be less than significant because of the implementation of DR BIO-3 (construction activities limited to the non-nesting season or a pre-construction nesting/bird survey and implementation of buffers excluding work activities around active nests, if observed during the pre-construction survey). Therefore, the Project's potential impact on special status species would be less than significant impact with mitigation, pursuant to Threshold 4.4-1.

Threshold 4.4-2

Would the Project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Services?

Direct Impacts

No riparian habitat (i.e., southern willow scrub) or other sensitive natural communities identified in local or regional plans, policies, and regulations, or by the CDFW or USFWS occur in Planning Areas 1 and 2 or would be directly disturbed (i.e., removed, graded, etc.) by the Project. Ruderal vegetation and developed and disturbed areas would not be considered special status vegetation types. While these areas may provide marginal habitat for native plant and wildlife species, the loss of approximately 31.85 acres of this type of area is not considered significant under the applicable thresholds of significance and no mitigation would be required.

Riparian or other special status vegetation in the Wildlife Movement Corridor would not be directly disturbed by the Project. A portion of the runoff from Planning Area 1 would be directed into the Wildlife Movement Corridor via the existing storm drain outlet. Based on the current site design for Planning Area 1, there would be a slight increase in storm water runoff area to the Wildlife Movement Corridor (8.20 acres proposed versus an estimated 7.98 acres in the existing condition). This would result in a small increase in surface water within the Wildlife Movement Corridor. An increase in the available surface water is not considered an adverse impact and would be potentially beneficial to the riparian habitat within the Wildlife Movement Corridor; an increase in water could result in higher vegetative cover and mitigate the effects of drought. Compliance with DR HWQ-4 through DR HWQ-7 (see Section 4.9, Hydrology and Water Quality), which entails treatment of stormwater runoff, will ensure that water quality within the Wildlife Movement Corridor is not compromised. Therefore, potential impacts on riparian habitat or other special status vegetation in the Wildlife Movement Corridor would be less than significant.

Indirect Impacts

The indirect impact discussion below includes an assessment of the potential indirect effects of the Project's construction and operation on adjacent habitat addressed by Threshold 4.4-2.

Invasive Exotic Plant Species

Landscaping that includes the installation of non-native, invasive plant species (e.g., species listed in the California Invasive Plant Council's [Cal-IPC's] invasive plant inventory) can be

detrimental to surrounding native habitat. Invasive species have the potential to spread into the surrounding natural open space and displace native species, hybridize with native species (thereby impacting the genetic integrity of the native species), alter biological communities, or alter ecosystem processes. This would degrade the quality of the adjacent vegetation, including vegetation communities that provide suitable habitat for Threatened or Endangered species. The Project will include installation of landscaping plantings of species listed in the Community Plant Palette of the West Alton Parcel Development Plan. This plant palette does not include or allow the planting of invasive plant species that are considered to be highly or moderately invasive based on the Cal-IPC invasive plant inventory (see DR BIO-4). Thus, the Project would not result in the introduction of invasive species adjacent to sensitive habitat, including the FBI Property (NCCP/HCP Reserve Area) to the north or the Wildlife Movement Corridor. Therefore, impacts associated with invasive plant species would be less than significant.

Impact Conclusion: *The Project would not directly impact riparian habitat or any other sensitive natural community. The plant palette in the Development Plan excludes highly or moderately invasive plant species, thereby ensuring surrounding natural habitat is not degraded by invasive plants. Additionally, DR BIO-4 requires that landscape plans be evaluated by a qualified biologist to ensure each landscape plan is consistent with the plant palette in the Development Plan. Therefore, the potential impact on riparian habitat and other sensitive natural communities would be less than significant pursuant to Threshold 4.4-2.*

Threshold 4.4-3

Would the Project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Direct Impacts

Federally protected wetlands, as defined by Section 404 of the Clean Water Act, are not present in Planning Areas 1 and 2; however, 5.42 acres of wetland "waters of the U.S." are present in the Wildlife Movement Corridor. "Waters of the State" under the jurisdiction of the RWQCB and waters under the jurisdiction of the CDFW are not present in the Planning Areas 1 and 2. These waters are located within the Wildlife Movement Corridor. The Project will not have direct impacts on the Wildlife Movement Corridor. For example, the storm drains discharging into the Wildlife Movement Corridor and the existing stand-pipe outfall structure would not be modified by the Project. Therefore, impacts would be less than significant and no mitigation would be required.

Indirect Impacts

The indirect impact discussion below includes an assessment of the potential indirect effects of the Project's construction and operation on downstream water quality.

Water Quality

Impacts on drainages in the vicinity of the Project site (i.e., Borrego Wash) could occur as a result of changes in water quality. During construction, runoff carrying excessive silt or petroleum residues from construction equipment has the potential to impact water quality and, in turn, affect plant and wildlife species using Borrego Wash and downstream waters. As later discussed in Section 4.9, Hydrology and Water Quality, the Development Plan incorporates DR HWQ-4 through DR HWQ-7 to minimize potential water quality impacts associated with both construction activities, as well as long term operation of the project. Project-related construction activities are also regulated through the National Pollutant Discharge Elimination System (NPDES) program. Projects with construction activities that disturb one acre or more of land are required to obtain an NPDES permit from the SWRCB's Division of Water Quality. As part of the Project, Conceptual Water Quality Management Plans (WQMPs) have been developed for both Planning Areas 1 and 2. DR HWQ-4 requires more detailed WQMPs to be developed prior to issuance of grading and building permits that provide design information on the Best Management Practices (BMPs) that will be incorporated into Project. These BMPs include various measures to control on-site erosion; reduce sediment flows into storm water; control wind erosion; track soil and debris into adjacent roadways and off-site areas; and manage wastes, materials, wastewater, liquids, hazardous materials, stockpiles, equipment, and other site conditions in order to prevent pollutants from entering the storm drain system. A listing of the potential BMPs is provided in Appendix H-1. Inspections, reporting, and storm water sampling and analysis are also required to ensure that visible and non-visible pollutants are not discharged off-site. DR HWQ-5 requires compliance with the NPDES requirements; DR HWQ-6 incorporates the requirement for a Storm Water Pollution Prevention Plan (SWPPP); and DR HWQ-7 requires an erosion and sediment control plan. These requirements would reduce water quality impacts and effectively ensure that water quality protection, including low impact development principles, are considered in the earliest phases of a Project.

Compliance with regulatory requirements would minimize construction impacts through implementation of BMPs that would reduce construction-related pollutants. This would ensure that any impacts to downstream waters resulting from construction activities associated with the Project would be less than significant. In addition to the requirements of the NPDES General Construction Permit, the Uniform Building Code and grading permits include elements that also require reduction of erosion and sedimentation impacts during construction. Full compliance with applicable local, State, and federal regulations would reduce indirect water quality impacts on federally protected wetlands associated with Project construction to a less than significant level.

Impact Conclusion: *No waters, including federally protected wetlands, under the jurisdiction of the USACE, the RWQCB, or the CDFW would be directly impacted by the Project. The implementation of BMPs, which are outlined in DR HWQ-4 through DR HWQ-7 and compliance with applicable law, will ensure that indirect impacts on federally protected wetlands would be less than significant, pursuant to Threshold 4.4-3.*

Threshold 4.4-4

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?

Direct Impacts

Wildlife Movement

As discussed under Existing Conditions, to provide increased connectivity, the Orange County General Plan includes the concept of a wildlife movement corridor that would connect the Central and Coastal NCCP/HCP Reserves. Movement opportunities on the Project site are already provided for by the Wildlife Movement Corridor. The remainder of the Project site is expected to provide minimal movement opportunities due to the disturbed nature of the area proposed for development, the existing operations, and the presence of an existing exclusionary fencing separating the remaining area from the Wildlife Movement Corridor. The Wildlife Movement Corridor would not be impacted by the Project. Therefore, the Project would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, and no mitigation would be required.

The Project site is within the NCCP/HCP boundary; however, it is not located within a Habitat Reserve (Reserve) area, special linkage area, non-reserve open space area, or transportation corridor wildlife crossing. Therefore, the Project would not impact areas designated for wildlife movement in the NCCP/HCP and no mitigation would be required.

Wildlife Nursery Sites

The Project site does not appear to support a native wildlife nursery site. Suitable habitat for native fish species is not present on the Project site. Therefore, there would be no impact on this resource and no mitigation would be required.

Indirect Impacts

The indirect impact discussion below includes an assessment of the potential indirect effects of the Project's construction and operation as it relates to Threshold 4.4-4.

Lighting

As discussed above under Threshold 4.4-1, night lighting may impact the behavioral patterns of nocturnal and crepuscular (i.e., active at dawn and dusk) wildlife in the vicinity of the light source. Development of the Project would increase the number of nighttime light and glare sources on the Project site. However, the Wildlife Movement Corridor does not currently function as a regional movement corridor for wildlife and so an increase in light sources would not affect regional wildlife movement. Following development of the regional wildlife corridor, night lighting in the Project could deter wildlife from entering the corridor. As previously discussed, DR AES-1 and DR AES-2 are in place to ensure that outdoor lighting is not directed

toward adjacent natural open space. With the incorporation of these measures, indirect impacts on wildlife movement as a resulting of night lighting would be less than significant.

Noise

As discussed above under Threshold 4.4-1, temporary noise impacts during active construction have the potential to deter wildlife from the area. However, the Wildlife Movement Corridor does not currently function as a regional movement corridor for wildlife and so an increase in noise would not affect regional wildlife movement.

Following development of the regional wildlife corridor, any construction-related noise and the long-term, operational noise from the Project may deter wildlife from entering the corridor and could result in an indirect impact on coastal California gnatcatcher and least Bell's vireo utilizing the Wildlife Movement Corridor. As discussed under Threshold 4.4-1, with the incorporation of measures such as DR BIO-2 and MM BIO-1, potential construction impacts would be less than significant. As discussed above, there are several factors associated with Project design that would minimize potential noise impacts on the Wildlife Movement Corridor. The Fire Protection Plan requires building setbacks and installation of radiant heat walls (i.e., block walls) along wildland interface areas. Additionally, the Project eliminates Magazine Road as a continuous road adjacent to the Wildlife Movement Corridor. The primary access to the Project site is located near the middle of Planning Area 1, which would minimize the number of vehicle trips adjacent to the Wildlife Movement Corridor. These factors and others discussed above, would reduce e potential indirect impacts to established native resident or migratory wildlife corridors associated with noise to a less than significant level.

Human Activity

Following Project construction, human activity on the Project site is expected to increase. An increase in human activity may impact wildlife species as a result of unauthorized public access, illegal dumping, and domestic animal predation. The existing ten-foot-tall fence around the Wildlife Movement Corridor would inhibit unauthorized entry by residents and domestic pets. In addition, a 6-foot-tall perimeter radiant heat block wall is proposed along all wildland interface areas (i.e., the Wildlife Movement Corridor and the northern boundary of the project, which would inhibit entry into the adjacent FBI property). Therefore, this impact would be considered less than significant and no mitigation would be required.

Impact Conclusion: *The Project is not expected to directly impact a wildlife corridor. Following development of a regional wildlife movement corridor, indirect impacts are potentially significant. For all the reasons discussed above, the potential impact to wildlife movement would be less than significant with mitigation, pursuant to Threshold 4.4-4.*

Threshold 4.4-5

Would the Project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The County of Orange does not have any ordinances protecting biological resources, such as a tree ordinance. In 1994, the City of Irvine enacted the Urban Forestry Ordinance (Irvine Municipal Code, Section 5-7-401 et al.) to protect and enhance the existing urban forest resources. Although City ordinances are not applicable to the Project site for the reasons discussed elsewhere in this DEIR, an evaluation of the compliance with the City Ordinance is provided for informational purposes. The City ordinance protects trees that meet the following definition: (1) public trees in the right-of-way of public streets; (2) public trees located in and around public parks and other public facilities; (3) trees in common areas located in village edges and landscape or parking lot setbacks on arterial streets; (4) private trees on non-residential properties to the extent zoning ordinance requirements are effective; and (5) significant trees as defined in Section 5-7-404 of the City's Municipal Code (i.e., all aforementioned trees located within public or private landscapes and trees in eucalyptus windbreaks or in a remnant of a eucalyptus windbreak). The City ordinance also regulates topping and removal of trees. Based on the definitions provided in the ordinance, there are no trees that meet the City ordinance on the Project site.

Impact Conclusion: *The Project would not conflict with applicable local ordinances protecting biological resources. Therefore, there would be no impact, pursuant to Threshold 4.4-5.*

Threshold 4.4-6

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?

The Project site is within the boundaries of the Orange County Central/Coastal NCCP/HCP, the only potentially applicable NCCP/HCP, or other approved local, regional, or state HCP. The County was a participating agency in the development of the NCCP/HCP. The Project site occurs entirely within areas identified in the NCCP/HCP as approved for development. As discussed previously with respect to Thresholds 4.4-1 through 4.4-4, the Project would not directly impact a Reserve area, special linkage area, non-reserve open space area, or transportation corridor wildlife crossing.

The Project site does border an NCCP/HCP Reserve area to the north (i.e., the FBI property). Indirect impacts on the Reserve area were discussed with respect to Thresholds 4.4-1 through 4.4-4. Implementation of applicable construction-related minimization measures set forth in Section 7.5.3 of the NCCP/HCP EIR/EIS would ensure that the Project would be consistent with the NCCP/HCP and would be implemented consistent with the provisions and policies of the NCCP/HCP Implementation Agreement; therefore, no impact would occur. These measures are included as DR BIO-2.

Planning Areas 1 and 2 borders an area that will be placed in a conservation easement in the CDFW's favor (i.e., the Wildlife Movement Corridor). However, as indicated above, the Wildlife Movement Corridor was identified as mitigation for the Alton Parkway extension and is not a component of the NCCP/HCP. As discussed previously with respect to Thresholds 4.4-1 through 4.4-4, the Project would not directly impact this conservation easement. Indirect impacts on areas in a conservation easement were discussed with respect to Thresholds 4.4-1 through 4.4-4. Implementation of the measures discussed above would ensure that the Project would be consistent with the adopted local habitat conservation plan.

Impact Conclusion: *The Project will not conflict with provisions of the NCCP/HCP or a local habitat conservation plan. Therefore, there would be no impact, pursuant to Threshold 4.4-6.*

4.4.6 CUMULATIVE IMPACTS

The geographic scope for biological resources includes the Orange County Central/Coastal NCCP/HCP Planning Area. The NCCP/HCP was prepared by the County of Orange in cooperation with the CDFW and the USFWS in accordance with the provisions of the NCCP Act, CESA, FESA, and Section 1600 et seq. of the *California Fish and Game Code.* The NCCP/HCP provides for the conservation of designated State- and federally listed and unlisted species and associated habitats found within the NCCP/HCP study area. The NCCP/HCP is a voluntary, collaborative planning program involving landowners, local governments, State and federal agencies, environmental organizations, and interested members of the public. The purpose of the NCCP Program is to provide long-term, large-scale protection of natural vegetation communities and wildlife diversity while allowing compatible land uses and appropriate development and growth. The NCCP process was initiated to provide an alternative to "single species" conservation efforts. The shift in focus from single species, project-by-project conservation efforts to large-scale conservation planning at the natural community level was intended to facilitate regional and subregional protection of a suite of species that inhabit a designated natural community or communities.

Past projects in surrounding Orange County cities and unincorporated areas have converted undeveloped and agricultural land to urban uses resulting in area residential and employment population increases and associated impacts to biological resources. As part of the comprehensive NCCP/HCP evaluation of potential impacts on resources, the Habitat Reserve, a 37,000-acre reserve was developed to provide appropriate mitigation to the cumulative effects of regional development. The Reserve provides regional biological benefits that would be unlikely to occur with a piecemeal conservation strategy. The Nature Reserve was designed to prevent the incremental loss of native habitat and the fragmentation of ecosystems, as well as to compensate for impacts of individual projects. Establishment of the Reserve System will protect approximately 40 Identified Species, including three Target Species (gnatcatcher, Cactus wren, and orange-throated whiptail lizard), which are the focus of the NCCP planning, and use of the coastal sage scrub and related habitat. The implementation of the NCCP, dedication of lands, and endowment by the participating landowners mitigate impacts of proposed and future development on covered habitats and identified species.

The County of Orange and the City of Irvine are participants in the NCCP/HCP and the associated Implementation Agreement (IA), and would comply with all applicable NCCP/HCP and associated IA requirements. Both the Project and cumulative developments would occur in areas

designated under the NCCP/HCP for development. As such, any impacts to Covered Habitats, Identified Species and wildlife connections for such species are fully mitigated by the NCCP/HCP. Potential direct and indirect impacts are considered fully mitigated through the County's participation in and contribution to the NCCP/HCP Mitigation Program. The participation not only provides mitigation for coastal sage scrub and the coastal California gnatcatcher, but other special status species covered by the NCCP/HCP and Implementation Agreement as well. This participation addresses not only direct Project impacts but also cumulative impacts. In addition, while the NCCP/HCP was developed to provide protection and conservation of certain Target Species and other Identified Species and their habitats, the Reserve System will also provide habitat for species not covered by the NCCP/HCP. The amount of impacts resulting from development of the Project would be minimal when compared to the amount of habitat remaining as reserves in the Project region. Further, the vegetation in Planning Areas 1 and 2 is non-existent or consists of non-native species and the Project site provides only marginal habitat for non-covered species. Therefore, in light of the NCCP/HCP, cumulative biological impacts are mitigated to a level considered less than significant and would not be cumulatively considerable.

4.4.7 MITIGATION PROGRAM

Implementation of the following mitigation measures are required for the Project and would avoid or minimize impacts on biological resources discussed above.

Development Requirements

DR BIO-1 Per the *Staff Report on Burrowing Owl Mitigation* (CDFG 2012), the County or its designee shall ensure that a pre-construction survey for the burrowing owl is conducted by a qualified Biologist no less than 14 days prior to any ground disturbance for development of the Project site. The pre-construction survey will include the Project site plus a 500-foot buffer (if access is available). If no active burrows are found, no further mitigation would be required.

If an active burrow is observed outside the breeding season (September 1 to January 31) and it cannot be avoided, the burrowing owl shall be excluded from the burrow following methods described in CDFG 2012. One-way doors shall be used to exclude owls from the burrows. Once the burrow is unoccupied, as verified by site monitoring and scoping, the burrow shall be closed by a qualified Biologist who shall excavate the burrow by hand. If a burrow will be closed, the County or its designee shall contact CDFW to determine whether compensatory mitigation shall be required for the loss of the active burrow.

If an active burrow is observed outside the breeding season (September 1 to January 31) and it can be avoided, a protective buffer shall be placed around the burrow per CDFG 2012 guidelines. The buffer shall range from 160 feet to 1,640 feet depending on the level of impact and the time of year. The County or its designee shall contact the CDFW to determine whether a reduced buffer can be accommodated without adversely impacting occupied burrows.

If an active burrow is observed during the breeding season (February 1 to August 31), the active burrow shall be protected until nesting activity has ended. A protective buffer shall be placed around the active burrow per CDFG 2012

guidelines. The buffer shall range from 650 to 1,640 feet depending on the level of impact and the time of year. The County or its designee shall contact CDFW to determine whether a reduced buffer can be accommodated without adversely impacting occupied burrows. Construction shall be allowed to proceed when the qualified Biologist has determined that fledglings have left the nest. Additionally, the County or its designee shall contact CDFW to determine whether compensatory mitigation shall be required for the long-term loss of the nesting burrow due to construction of the Project.

Upon completion of the pre-construction burrowing owl survey, a Letter Report shall be prepared and submitted to the Manager of Building and Safety, or designee for review and approval prior to any ground disturbing activities. If an active burrow is observed, the Letter Report shall include a description of the protective buffer that has been designated and a summary of any correspondence with CDFW.

DR BIO-2 Prior to issuance of any grading permits for activities within 500 feet of coastal sage scrub habitat, the Manager of Building and Safety, or designee shall verify the Project Applicant is following the Construction-related Minimization Measures that are required by the NCCP/HCP, as identified below.

A. Prior to the commencement of clearing operations or other activities involving significant soil disturbance, all areas of coastal sage scrub habitat to be avoided under the provisions of the NCCP/HCP shall be identified with temporary fencing or other markers clearly visible to construction personnel. Additionally, prior to the commencement of grading operations or other activities involving disturbance of coastal sage scrub, a survey will be conducted to locate gnatcatchers and cactus wrens within 100 feet of the outer extent of projected soil disturbance activities and the locations of any such species will be clearly marked and identified on the construction plans.

B. Following the completion of initial clearing activities, all areas of coastal sage scrub habitat to be avoided by construction equipment and personnel will be marked with temporary fencing or other appropriate markers that are clearly visible to construction personnel. No construction access, parking, or equipment storage shall be permitted within such marked areas.

C. In areas bordering the NCCP Reserve System or Special Linkage/Special Management areas containing significant coastal sage scrub identified in the NCCP/HCP for protection, vehicle transportation routes shall be restricted to a minimum number during construction consistent with project construction requirements. Waste dirt or rubble shall not be deposited on adjacent coastal sage scrub identified in the NCCP/HCP for protection. Pre-construction meetings involving the Monitoring Biologist, Construction Supervisors, and Equipment Operators shall be conducted and documented to ensure maximum practicable adherence to these measures.

D. Coastal sage scrub identified in the NCCP/HCP for protection and located within the likely dust drift radius of construction areas will be periodically sprayed with water to reduce accumulated dust on the leaves as recommended by the monitoring Biologist.

DR BIO-3 In order to avoid impacts on nesting birds and raptors (common or special status), the County or its designee shall ensure that vegetation clearing shall be conducted during the non-breeding season (i.e., generally between September 16 and February 14 for migratory birds; July 1 and January 31 for nesting raptors) to the extent feasible. If Project timing requires that vegetation clearing occur between February 1 and September 15 (incorporating the typical breeding season for migratory birds and raptors), then a pre-construction nesting bird/raptor survey shall be conducted by a qualified Biologist within three days prior to vegetation clearing. If vegetation clearing would occur during the raptor nesting season, the survey shall also include areas within 500 feet of the Project impact area to determine the presence or absence of active raptor nests. If no active nests are found, no further mitigation would be required.

If an active nest is located within or adjacent to the construction area and the Biologist determines that work activities may impact nesting, the Biologist shall determine an appropriate buffer to protect the nest. The size of the buffer shall be based on site features, the sensitivity of the species, and the type of construction activity in order to prevent disruption of nesting activity. No construction activities shall be allowed in the buffer zone until the Biologist determines that nesting activity has ended. Construction may proceed within the buffer once the Biologist determines that nesting activity has ceased and fledglings have left the nest.

Upon completion of the pre-construction nesting bird survey, a Letter Report shall be prepared and submitted to the Manager of Building and Safety, or designee for review and approval prior to any ground disturbing activities. If an active nest is observed, the Letter Report shall include a description of the protective buffer that has been designated.

DR BIO-4 In conjunction with Level I, II, or III reviews, landscape plans shall be reviewed by a qualified Biologist and approved by the Manager of Building and Safety, or designee to ensure that no plants identified on the California Invasive Plant Council's (Cal-IPC's) invasive plant inventory as high or moderate invasive plants are included in the plant palette.

<u>Mitigation Measures</u>

MM BIO-1 Prior to the issuance of any grading permits for activities within 500 feet of riparian habitat, if grading and/or construction activities are scheduled to occur during the breeding season for the least Bell's vireo (March 15 to September 15), the Director of Community Development shall verify that the following requirements regarding least Bell's vireo are shown on the grading and/or building permit plans:

A. No clearing, grubbing, grading, or other construction shall occur between March 15 and September 15, until the following requirements have been met to the satisfaction of the Manager of Building and Safety, or its designee:

i) The project certified-Biologist shall survey all riparian areas that would be subject to construction noise levels exceeding 60 A-weighted decibels (dBA) hourly average for least Bell's vireo. Pre-construction surveys shall be conducted by a qualified Biologist once per week within suitable habitat beginning four weeks prior to construction (or the week of March 15 if construction is in progress) and continuing through September 15 or until 10 consecutive visits have had negative survey results. Surveys shall be conducted between dawn and 11:00 AM during suitable weather conditions as outlined in the U.S. Fish and Wildlife Service (USFWS) survey protocol for the species. If a pre-construction focused survey is not conducted, all riparian habitat shall be considered occupied.

ii. Between March 15 and September 15, no construction activities shall occur within any portion of the site where construction activities would result in noise levels exceeding 60 dB(A) hourly average (or at the current existing noise level) at the edge of occupied least Bell's vireo habitat. An analysis showing that noise generated by construction activities shall not exceed 60 db(A) (or current existing noise level) at the edge of riparian habitat shall be completed by an acoustician deemed qualified by the Manager of Building and Safety, or its designee (e.g., possessing a noise engineer license with experience monitoring noise levels with listed animal species). OR

iii. No less than two weeks prior to the commencement of construction activities (or by March 15 if construction is in progress), under the direction of a qualified Acoustician, noise attenuation measures shall be implemented to ensure noise levels from construction activities will not exceed 60 dB(A) (or at the current existing noise level) at the edge of habitat occupied or potentially occupied by the least Bell's vireo. Concurrent with construction and the noise attenuation measures, noise monitoring shall be conducted at the edge of riparian habitat to ensure that noise levels do not exceed 60 dB(A) hourly average (or current existing noise level). If noise attenuation measures implemented are determined to be inadequate by a qualified Acoustician or project Biologist, then the associated construction activities shall cease until such time that adequate noise attenuation is achieved or until the end of the breeding season (September 16).

B. If pre-construction surveys demonstrate that the least Bell's vireo is not present, the project Biologist shall submit a report with substantial evidence to the Manager of Building and Safety, or its designee that demonstrates noise attenuation measures are not necessary between March 15 and September 15. The report shall describe the methodology

and results of the 10 consecutive negative pre-construction survey visits. If evidence indicates the potential is high for least Bell's vireo to be present based on prior focused survey(s) or site conditions, the Manager of Building and Safety, or its designee shall require implementation of measures in item A above.

MM BIO-2 In compliance with the *Fire Behavior Analysis Report and Fuel Modification Design Criteria*, the County or its designee shall install radiant heat walls adjacent to the NCCP/HCP Reserve and Wildlife Movement Corridor. Two design options are provided in the *Fire Behavior Analysis Report and Fuel Modification Design Criteria*. One option permits the wall design to include a four-foot tempered glass panel to be installed on the top of the wall. If this design is to be implemented, to minimize bird strikes against glass, the Manager of Building and Safety or its designee shall review the wall design as part of the Level I, II, or III Review, and/or ministerial permit process (e.g. grading permit), to ensure the approved design plans incorporate measures to minimize the risk of bird strikes, such as: (1) the use of opaque or uniformly textured/patterned/etched glass; (2) angling of glass downward so that the ground instead of the surrounding habitat or sky is reflected; (3) installation of one-way film that results in opaque or translucent covering when viewed from either side of the glass; (4) installation of a uniformly dense dot pattern created as ceramic frit on both sides of the glass; and/or (5) installation of a striped or grid patterns of clear UV-reflecting and UV-absorbing film applied to both sides of the glass. *It should be noted that single decals (e.g., falcon silhouettes or large eye patterns) are ineffective and shall not be used unless the entire glass surface is uniformly covered with the objects or patterns (Klem 1990).*

4.4.8 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Potential impacts related to biological resources would be reduced to levels considered less than significant with implementation of the proposed mitigation measures. No significant unavoidable impacts to biological resources would result from implementation of the Project.

4.4.9 REFERENCES

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4.5 CULTURAL AND SCIENTIFIC RESOURCES

This section evaluates the Project's potential to have adverse effects on archaeological and paleontological resources. Information in this section is based upon the *Phase I Cultural Resources Assessment for the West Alton Parcel Development Plan* (Phase I CRA) prepared by BonTerra Psomas (BonTerra Psomas 2015, updated 2016). The BonTerra Psomas report is included as Appendix E of this EIR.

4.5.1 REGULATORY SETTING

State

California Public Resources Code (Section 21083.2 and 21084.1)

CEQA requires a lead agency to determine whether a project would have a significant effect that would cause a substantial adverse change in the significance of a historical resource or a unique archaeological resource. California Public Resources Code (PRC) Sections 21083.2 and 21084.1 deal with the definitions of unique and non-unique archaeological resources and historical resources.[1]

Unique Archaeological Resource

The CEQA statutes (PRC Section 21083.2 (g)) define 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.

Section 21083.2 directs the lead agency to determine whether the project may have a significant effect on unique archaeological resources. If the lead agency determines that the project may have a significant effect on unique archaeological resources, the environmental impact report shall address the issue of those resources. CEQA requires the lead agency to consider whether the project will have a significant effect on unique archaeological resources and to avoid unique

[1] As discussed in Section 2.3.2, there are no buildings located on the Project site. The development immediately adjacent to the site consists of IRWD water storage facilities and a business park, which was constructed after 1965 and would not be considered historic. No impacts to historical resources are expected from the Project; therefore, the evaluation of historic resources was focused out of this EIR. However, pursuant to Section 21084.1, an archaeological site can be considered a historic resource. Therefore, the definition of historic resource is provided.

archaeological resources when feasible or mitigate any effects to less-than-significant levels per PRC Section 21083.2.

Historical Resource

A "historical resource" is defined in Section 21084.1 of the State CEQA Statutes and Section 15064.5(a) of the Guidelines, as a resource listed in or determined to be eligible for listing in the California Register of Historical Resources (CRHR) (PRC, Section 21084.1); a resource included in a local register of historical resources (14 *California Code of Regulations* [CCR], Section 15064.5(a)(2)); or any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant (14 CCR Section 15064.5(a)(3)).

The criteria for listing resources in the CRHR, which were expressly developed to be in accordance with previously established criteria developed for listing in the NRHP (per the criteria listed in the *Code of Federal Regulations* [CFR], Title 36, Section 60.4) are stated below.

> The quality of significance in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California is present in any object, building, structure, site, area, place, record, or manuscript that possesses integrity of location, design, setting, materials, workmanship, feeling and association and that:
>
> (a) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage; or
>
> (b) Is associated with the lives of persons important in our past; or
>
> (c) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
>
> (d) Has yielded, or may be likely to yield, information important in prehistory or history.

Section 5024.1 of the PRC, Section 15064.5 of the State CEQA Guidelines (14 CCR), and Sections 21083.2 and 21084.1 of the CEQA Statutes were used as the basic guidelines for the cultural resources study. PRC 5024.1 requires evaluation of historical resources to determine their eligibility for listing in the CRHR. The purposes of the CRHR are to maintain listings of the State's historical resources and to indicate which properties are to be protected from substantial adverse change.

Substantial adverse change in the significance of a historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired.

The significance of a historical resource is materially impaired when a project:

- 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 of Historical Resources; or

- Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources...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
- 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 of Historical Resources as determined by a lead agency for purposes of CEQA.

California Health and Safety Code (Sections 7050.5, 7051, and 7054)

These sections of the *California Health and Safety Code* collectively address the illegality of interference with human burial remains (except as allowed under applicable sections of the California Public Resources Code). These sections also address the disposition of Native American burials in archaeological sites and protect such remains from disturbance, vandalism, or inadvertent destruction. Procedures to be implemented are established for (1) the discovery of Native American skeletal remains during construction of a project; (2) the treatment of the remains prior to, during, and after evaluation; and (3) reburial.

Section 7050.5 of the *California Health and Safety Code* specifically provides for the disposition of accidentally discovered human remains. Section 7050.5 states that, if human remains are found, no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains shall occur until the County Coroner (Coroner) has determined the appropriate treatment and disposition of the human remains.

California Public Resources Code (Section 5097.98)

Section 5097.98 of the PRC states that, if the Coroner determines that remains are of Native American origin, the Coroner must notify the Native American Heritage Commission within 24 hours which, in turn, must identify the person or persons it believes to be the most likely descended from the deceased Native American. The descendant(s) shall complete their inspection within 48 hours of being granted access to the site. The designated Native American representative would then determine, in consultation with the property owner, the disposition of the human remains. This section of the *California Public Resources Code* has been incorporated into Section 15064.5(e) of the State CEQA Guidelines.

California Public Resources Code (Section 5097.5)

Section 5097.5 of the *California Public Resources Code* limits the excavating, removal, destruction or defacing of any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site situated on lands owned or under the jurisdiction of the state, or any city, county, district, authority or public corporation, or any agency thereof.

4.5.2 METHODOLOGY

CEQA requires a lead agency to determine whether a project would have a significant effect that would cause a substantial adverse change in the significance of a historical resource or a unique archaeological resource. The cultural resource analysis in this section provides that

documentation and is based on the record searches and a consideration of the issues described below.

Cultural Resources Records Search

A cultural resources records search was conducted for the Project at the South Central Coastal Information Center (SCCIC) at California State University, Fullerton on February 25, 2015. An update to the record search was conducted by the SCCIC on November 3, 2016 to verify and confirm that no changes have occurred in the interim. Based on the updated search, while five additional cultural resources studies were undertaken within ½-mile of the Project site and one of the studies included a small portion of the Projects site, none identified any cultural resources on or within ½-mile of the Project site. The SCCIC is the designated branch of the California Historical Resources Information System (CHRIS) for the Project area and houses records concerning archaeological and historic resources in Los Angeles, Ventura, San Bernardino, and Orange Counties. The review consisted of an examination of the U.S. Geological Survey's (USGS) El Toro and Tustin, California 7.5-minute quadrangle maps to determine if any cultural resources studies have been conducted on or within a ½-mile radius of the parcel. The records search provided data on recorded archaeological and built environment resources on or within ½ mile of the Project site. Sources consulted at the SCCIC included archaeological records, Archaeological Determinations of Eligibility, historic maps, and the Historic Property Data File (HPDF) maintained by the California Office of Historic Preservation. The HPDF contains listings for the CRHR and/or the NRHP, California Historical Landmarks, and California Points of Historical Interest.

Paleontological Literature Review

The literature review included an examination of the geologic maps for the Project site. The literature review encompasses the entire Project footprint and included a one-mile buffer around the Project site. The review included previous geologic mapping of the area. In addition to the reviewed published geologic maps, technical reports provided the basis from which the regional and Project-specific geology was derived for this Project.

Relevant published literature and unpublished manuscripts regarding the geology and paleontology of central Orange County were also reviewed for this Project. In the process of conducting the background literature review, existing paleontological resource data (including such published resources as books, journals, and geologic maps, as well as information available via the internet on government websites) were consulted. Additionally, an online database search was conducted to identify previous paleontological resource assessments conducted within the boundaries of the Project site and the surrounding areas.

Paleontological Resources Records Search

A paleontological resources records search and literature review was conducted by staff of the Los Angeles County Natural History Museum (LACNHM) on March 26, 2015.

Native American Sacred Lands File Review

An inquiry was made on March 16, 2015, of the Native American Heritage Commission (NAHC) to request a review of the Sacred Lands File database regarding the possibility of Native American cultural resources and/or sacred places in the Project vicinity that are not documented on other databases. The NAHC responded on April 22, 2015, and provided a list of Native American groups and individuals who may have knowledge regarding Native American cultural resources not formally listed on any database. Tribes and individuals were mailed an informational letter on April 23, 2015, which describes the Project and requests any information regarding resources that may exist on or near the Project site. No responses have been received to date.

Cultural and Paleontological Resources Survey

An archaeological survey of the Project site was conducted on February 27, 2015. A paleontological resources survey of the Project site was conducted on May 5, 2015. During the surveys, the Project site was accessed via Irvine Boulevard. Where possible, transects were walked at 15-meter (50-foot) intervals.

4.5.3 EXISTING CONDITIONS

Prehistory

To understand Native American cultures prior to European contact, archaeologists have devised chronological frameworks that endeavor to correlate the observable technological and cultural changes in the archaeological record to distinct periods. These chronological frameworks have not been fully accepted because the development of an overall chronological framework for the region is hindered by the lack of a sufficient number of sites with distinct stratigraphic layers of cultural sequences that could be dated by absolute dating methods. Since results from archaeological investigations in this region have yet to be synthesized into an overall chronological framework, most archaeologists tend to follow a chronology adapted from a scheme developed by William J. Wallace in 1955 and modified by others. Although the beginning and ending dates of the different horizons or periods may vary, the general framework of prehistory in this region consists of the following four periods:

- **Horizon I: Early Man or Paleo-Indian Period (11,000 BCE[2] to 7,500 BCE).** This early stage of human occupation is commonly referred to as the Paleo-Indian period today. At inland archaeological sites, the surviving material culture of this period is primarily lithic, consisting of large, extremely well made stone projectile points and tools such as scrapers and choppers. Encampments were probably temporary, located near major kills or important resource areas.
- **Horizon II: Milling Stone Assemblages (7,500 BCE to 1,000 BCE).** The Milling Stone Period was named for the abundant millingstone tools associated with sites of this period. These tools, the mano and metate, were used to process small, hard seeds from plants associated with shrub-scrub vegetation communities. An annual round of seasonal

[2] BCE stands for "Before Common Era" and CE stands for "Common Era". These alternative forms of "BC" and "AD", respectively, are used throughout this document.

migrations was likely practiced, with movements coinciding with ripening vegetal resources and the periods of maximal availability of various animal resources. In addition to gathering activities, evidence suggests that a diversity of subsistence activities, including hunting of various game animals, were practiced during this period of time.

- **Horizon III: Intermediate Cultures (1,000 BCE to 750 CE).** The Intermediate Period is identified by a mixed strategy of plant exploitation, terrestrial hunting, and maritime subsistence strategies. Evidence of increased mortar and pestle use during this time period is present. The mano and metate continued to be in use on a reduced scale, but the greatly intensified use of the mortar and pestle signaled a shift away from a subsistence strategy based on seed resources to that of the acorn. It is probably during this time period that the acorn became the food staple of the majority of the indigenous tribes in Southern California. This subsistence strategy continued until European contact. Material culture generally became more diverse and elaborate during this time period and includes steatite containers, perforated stones, bone tools, ornamental items, and asphalt adhesive.
- **Horizon IV: Late Prehistoric Cultures (750 CE to 1769 CE).** During the Late Prehistoric Period, exploitation of many food resources, particularly marine resources among coastal groups, continued to intensify. The material culture in the Late Prehistoric Horizon increased in complexity in terms of the abundance and diversity of artifacts being produced. Evidence recovered from this period of time suggests a greater use of the bow and arrow. Shell beads, ornaments, and other elements of material culture continue to be ornate, varied, and widely distributed, the latter evidence suggestive of elaborate trade networks.

Ethnography

Gabrielino/Tongva

At the time of European contact, this part of Orange County was the home of the Gabrielino. The Gabrielino and their descendants are those people who became associated with Mission San Gabriel Arcángel, which was established in south-central Los Angeles County on September 8, 1771, in what has ever since been called the San Gabriel Valley. Today, these people are sometimes referred to as the *Tongva,* although the term apparently originally (*i.e.*, before the arrival of Euro-Americans) referred to the inhabitants of the San Gabriel Valley only. In either case, the inhabitants of Santa Catalina Island and San Clemente Island are often included as being parts of this tribe, as are the Fernandeño, who inhabited most of the San Fernando Valley. Note that the Eastern Gabrielino refers to those who lived south of the San Gabriel Mountains, mainly in the San Gabriel Valley, while the Western Gabrielino refers to those who lived along the western coast of Los Angeles County, from Malibu to Palos Verdes, and includes the people living in the San Fernando Valley.

The ancestral Gabrielino arrived in the Los Angeles Basin probably before 500 BCE as part of the so-called Shoshonean (Takic speaking) Wedge from the Great Basin region and gradually displaced the indigenous peoples, probably Hokan speakers. Large, permanent villages were established in the fertile lowlands along rivers and streams and in sheltered areas along the coast. Eventually, Gabrielino territory encompassed the watersheds of the Los Angeles, San Gabriel, Rio Hondo, and Santa Ana Rivers (which includes the greater Los Angeles Basin) to perhaps as far south as Aliso Creek, as well as portions of the San Fernando, San Gabriel, and San

Bernardino Valleys. Gabrielino territory also included the islands of San Clemente, San Nicholas, and Santa Catalina. Recent studies suggest the population may have numbered as many as 10,000 individuals at their peak in the Pre-Contact Period.

The subsistence economy of the Gabrielino was one of hunting and gathering. The surrounding environment was rich and varied, and the natives were able to exploit mountains, foothills, valleys, deserts, and coasts. As was the case for most native Californians, acorns were the staple food (by the Intermediate Horizon), supplemented by the roots, leaves, seeds, and fruit of a wide variety of flora (*i.e.*, cactus, yucca, sage, and agave). Fresh and saltwater fish, shellfish, birds, insects, and large and small mammals were exploited.

A wide variety of tools and implements were employed by the Gabrielino to gather, collect, and process food resources. The most important hunting tool was the bow and arrow. Traps, nets, blinds, throwing sticks, and slings were also employed. Fish were an important resource and nets, traps, spears, harpoons, hooks, and poisons were utilized to catch them. Ocean-going plank canoes and tule balsa canoes were used for fishing and for travel by those groups residing near the Pacific Ocean.

The processing of food resources was accomplished in a variety of ways: nuts were cracked with hammer stone and anvil; acorns were ground with mortar and pestle; and seeds and berries were ground with mano and metate. Yucca, an important resource in many areas, was eaten by the natives and exploited for its fibers.

Strainers, leaching baskets and bowls, knives, bone saws, and wooden drying racks were also employed. Food was consumed from a variety of vessels. Catalina Island steatite was used to make ollas and cooking vessels.

Gabrielino houses were circular domed structures of willow poles thatched with tule. They were actually quite large and could, in some cases, hold 50 individuals. Other structures served as sweathouses, menstrual huts, and ceremonial enclosures.

Kroeber considered the Gabrielino:

> . . . to have been the most advanced group south of Tehachapi, except perhaps the Chumash. They certainly were the wealthiest and most thoughtful of all the Shoshoneans of the State, and dominated these civilizations wherever contacts occurred.

Juaneño/Acjachemen

During the Late Prehistoric and Contact Periods, the Project area was located also within the Juaneño territory. As with the Gabrielino, whose name signifies their mission association, the name Juaneño designates those peoples that fell under the control of the Mission at San Juan Capistrano. Specifically, it denotes the indigenous Native Americans living in and near the San Juan and San Mateo Creek Drainages, who called themselves the Acjachemen.

During the Pre-Contact Period, the Acjachemen population is thought to have numbered upwards of 3,500. It is known that 1,138 local Native Americans, consisting primarily of Acjachemen but including Gabrielino, coastal and interior Luiseño, Serrano, and Cahuilla, resided

at Mission San Juan Capistrano in the year 1810. The Mission's death register shows as many as 1,665 native burials in its cemetery by this time, a number in addition to those who died unrecorded at the remaining villages from natural causes and introduced infectious diseases.

Overall, the Acjachemen territory consisted of the eastern Santa Ana Mountains to the coast and southward to San Juan Capistrano. The majority of the known ethnographic village sites are located primarily in this region. To this day, the San Juan Capistrano area has seen continuous habitation by the Juaneño people.

The Juaneño lived in structured villages, populated variously by between 35 and 300 people, consisting of a single lineage to multiple clans in larger settings. While each village unit maintained economic and social ties to neighboring villages, they also maintained a well-defined resource area.

The Juaneño exploited a wide variety of resources for their dietary needs. These consisted primarily of plant foods, including seeds, nuts, fruits, tubers, and greens. Marine resources constituted the largest sources of meat and consisted mostly of shellfish and fish. Marine resources were collected from open water, bay, and estuary habitats. Birds and mammals made up most of the remainder of the diet. Many common bird species and most small rodents were exploited where available. Seasonal rounds of exploitation formed the basis for the successful procurement of various food types as evident by the settlement patterns still identifiable today from the remains of simple campsites to complex village sites.

Marine Corps Air Station El Toro

The Project site is within the northern boundary of the Marine Corps Air Station (MCAS) El Toro. Although the MCAS EL Toro vicinity had been used for agriculture or ranching throughout much of the 19th and early 20th centuries, all known historic period cultural resources on the Project site are related to military use of the facility. Construction of the MCAS El Toro began in August 1942, after condemnation of 2,323 acres of the Irvine Ranch. Runways were completed by December of that year, and squadron hangars, barracks, and bachelor officer's quarters soon thereafter. After World War II, the facility was retained as a fully operational Marine Corps Air Station, and many of the buildings were rehabilitated or transformed to permanent or semi-permanent status. The most extensive construction at the facility took place in 1954, with the arrival of the 3rd Marine Air Wing, the mainstay of activities at the facility. Hundreds of new families arrived, and much of the construction during 1954 was for housing. During the Vietnam conflict, the hangar facilities were modernized, and major new barrack construction was initiated to handle increasing numbers of personnel. Activity again increased during the 1980s, and recently MCAS El Toro was used as a staging area for Marines en route to regional conflicts worldwide. MCAS El Toro was still quite active and continued to develop until 1993, when it was included in the base closure recommendations. Though a part of MCAS El Toro, the Project site was not directly used for air operations. It was located in the flight impact zones associated with the air field. At the time the Airport Environs Land Use Plan restricted the types and intensity of uses on the Project site.

Resource Description

Archaeological Resources

According to the literature review conducted on February 25, 2015, 21 cultural resources studies have been undertaken within ½ mile of the Project site. Six of these studies included at least a portion of the Project site; two included the entire parcel. None of these studies resulted in the identification of any cultural resources on the Project site.

The SCCIC literature review revealed that 11 cultural resources sites have been recorded within ½ mile of the Project site. None of the recorded resources are located closer than ¼ mile from the Project site. However, during mass grading for the wildlife corridor on the Project site in 2010 and 2011, cultural resources monitors from Ultrasystems, Inc. discovered seven stone cooking features at average depths of 12 feet. Each feature was excavated by hand, diagrammed, and sampled as warranted. These monitors concluded that the features were remnants of prehistoric yucca roasting pits (O'Neil 2012). The features have not been formally recorded on California Department of Parks and Recreation (DPR) 523 forms; therefore, they are not depicted on the Project site maps at the SCCIC.

Paleontological Resources

The entire Project area has surficial deposits composed of younger Quaternary alluvium, primarily derived as alluvial fan deposits from the hills to the east. These deposits typically do not contain significant vertebrate fossils, at least in the uppermost layers, but they may be underlain by Older Quaternary deposits.

The closest fossil vertebrate locality from similar older Quaternary deposits is LACM 7867, northwest of the Project area near the intersection of C Street and 5th Street, which produced fossil specimens of pocket gopher (*Thomomys*) at a depth of 25 feet below ground surface (bgs). The next closest vertebrate fossil from these deposits is LACM 7713, which is located west-southwest of the Project area on the western side of State Route (SR) 133 at the southern end of the interchange with Interstate (I) 405, which produced a fossil specimen of ground sloth (*Mylodontidae*) from unstated but shallow depth.

4.5.4 THRESHOLDS OF SIGNIFICANCE

In accordance with the County's Environmental Analysis Checklist and Appendix G of the CEQA Guidelines, the Project would result in a significant impact to cultural and scientific resources if it would:

Threshold 4.5-1 Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5.

Threshold 4.5-2 Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

Threshold 4.5-3 Disturb any human remains, including those interred outside of dedicated cemeteries.

4.5.5 IMPACT ANALYSIS

Threshold 4.5-1

Would the Project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section15064.5?

As discussed under the Regulatory Setting, a historic resource can include a resource identified in a local register of historical resources or any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant. For this Project, there are no buildings located on the Project site and the development immediately adjacent to the Project site would not be considered historic. Therefore, there are no impacts to historic architectural resources. Therefore, the analysis focuses on potential impacts to archaeological resources, which can also be considered a historic resource.

The results of the SCCIC records search indicate that 11 previously recorded archaeological sites have been identified within ½ mile of the Project site. None of the recorded resources are located closer than ¼ mile from the Project site. An update to the record search was conducted by the SCCIC on November 3, 2016 to verify and confirm that no changes have occurred in the interim. Based on the updated search, while five additional cultural resources studies were undertaken within ½-mile of the Project site and one of the studies included a small portion of the Projects site, none identified any cultural resources on or within ½-mile of the Project site. However, as discussed above, during mass grading for the wildlife corridor on the Project site in 2010 and 2011, cultural resources monitors from Ultrasystems, Inc. discovered and excavated a series of roasting pits within the wildlife corridor (O'Neil 2012). The features have not been formally recorded on DPR 523 forms; therefore, they are not depicted on the Project site maps at the SCCIC. They are not considered an existing archaeological resource since they have been removed. However, based on the discovery of these roasting pits, it is reasonable to assume that additional roasting pits or other archaeological material may be located on the Project site and could be unearthed during Project construction.

On February 27, 2015, a BonTerra Psomas Senior Archaeologist undertook a pedestrian survey of the Project site. The Project site was accessed via Irvine Boulevard. Planning Area 1, immediately east of the wildlife corridor, was visually inspected and determined to consist entirely of fill materials that had been previously graded. Therefore, no survey was needed for that parcel. Immediately to the north and west of the wildlife corridor, the Project site includes a business storing potted plants and a mulch plant, covered mostly with large piles of mulched wood, trailers, vehicles, and assorted other equipment related to the business. Access to the western portion of the Project site was through the main gate to the mulch plant. The approximate western half of that portion of the Project site was clear of vegetation, piles, and equipment and could be surveyed completely. The survey began in the far western end of that portion of the Project site just past a retention basin. The survey progressed eastward from there until the western edge of the mulch plant was reached. Ground visibility was excellent and no artifacts, either historic or prehistoric, were observed.

The intensive pedestrian survey of the Project site did not result in the discovery of any previously unrecorded archaeological resources as defined in CEQA Guidelines Section 15064.5. Given the above-referenced information regarding the discovery of yucca roasting pits at a depth

of approximately 12 feet below grade during the construction of the Wildlife Movement Corridor, the potential exists that unknown unique or historic archaeological resources may be discovered during construction activities. Implementation of Mitigation Measure (MM) CULT-1, requiring a qualified archaeologist to observe grading activities, would reduce potential impacts to a level considered less than significant.

Impact Conclusion: *Pursuant to Threshold 4.5-1, the Project has a low potential to cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 based on the survey information and due to previous development on the Project site. Implementation of MM CULT-1 would reduce any potential impacts to less than significant levels for Threshold 4.5-1 should buried resources be discovered as part of grading activities.*

Threshold 4.5-2

Would the Project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

According to Figure E-2 of the Cultural Resources Element of the *City of Irvine General Plan,* the Project site is located within the "low" paleontological sensitivity zone. On May 5, 2015, a BonTerra Psomas Senior Paleontologist undertook a combination of windshield and pedestrian survey of the Project site. The Project site was accessed via Irvine Boulevard. No paleontological resources were observed.

The paleontological resources survey of the Project site revealed no unique paleontological resources or sites. Similar to archaeological resources, there is a potential that ground-disturbing activities associated with construction would encounter previously unknown unique paleontological resources. This could result in a significant impact to paleontological resources; however, MM CULT-2 requires that a County-certified Paleontologist be retained to observe grading activities. With implementation of this mitigation measure, impacts to paleontological resources would be less than significant.

Additionally, during the survey of the Project site no unique geologic features were observed. The Project area is underlain by alluvium eroding from the Santa Ana Mountains. The late Pleistocene-early Holocene sediments are ubiquitous in the region, and they are not unique geologic features. The Project would not impact any unique geological features. As no impacts would occur related to unique geologic features, no mitigation is required.

Impact Conclusion: *Pursuant to Threshold 4.5-2, the Project has a low potential to directly or indirectly destroy a unique paleontological resource or site. However, implementation of MM CULT-2 would reduce potential impacts to less than significant levels for Threshold 4.5-2 should unknown buried resources be discovered as part of grading activities. Additionally, due to lack of unique geologic features on the Project site, no impacts to such features would occur and no mitigation is required.*

Threshold 4.5-3

Would the Project disturb any human remains, including those interred outside of dedicated cemeteries?

Based on the results of the records search and the field survey, human remains are not likely to be found on the Project site. Due to the level of past disturbance on the Project site, it is not expected that human remains, including those interred outside of dedicated cemeteries, would be encountered during ground-disturbing activities associated with the Project. The NAHC Sacred Lands File search conducted for the Project did not identify the presence of Native American cultural resources on the Project site. However, based on the resources uncovered during the construction of the Wildlife Movement Corridor, there is the potential for unknown resources, including burials, to be discovered during Project construction.

If human remains were found, those remains would require proper treatment, in accordance with applicable laws. Sections 7050.5–7055 of the *California Health and Safety Code* describe the general provisions for human remains. Specifically, Section 7050.5 of the *California Health and Safety Code* describes the protocols to be followed in the event that human remains are accidentally discovered during excavation of a site. In addition, the requirements and procedures set forth in Section 5097.98 of the *California Public Resources Code* would be implemented. If human remains are found during excavation, construction activities must stop in the vicinity of the find and in any area that is reasonably suspected to overlie adjacent remains until the Coroner has been notified; the remains have been investigated; and appropriate recommendations have been made for the treatment and disposition of the remains. Following compliance with State regulations, which detail the appropriate actions necessary in the event human remains are encountered (refer to MM CULT-3), potential impacts would be less than significant.

Impact Conclusion: *Pursuant to Threshold 4.4-3, Project activities are not expected to disturb human remains. However, if human remains are encountered during grading activities, implementation of MM CULT-3 would reduce potential impacts to human remains to a less than significant level.*

4.5.6 CUMULATIVE IMPACTS

Archaeological and paleontological resources impacts are site-specific with regard to any given resource. Impacts that may be considered cumulative simply relate to the loss of cultural resources in general over time throughout the region with the implementation of the cumulative projects and regional growth. As identified in Figure E-1 of the City's General Plan, there are 19 historical/archaeological landmarks identified within the City; however none is located on the Project site. Further, the Project site is located within the "low" paleontological sensitivity zone, as identified in Figure E-2 of the City's General Plan, Cultural Resources Element. As indicated above, the Project would not have any direct or indirect impacts on historic architectural resources; therefore, there would be no potential cumulative impact on these resources.

The Project, in conjunction with cumulative development, could lead to accelerated degradation of previously unknown archaeological (pre-historic and historic) and paleontological resources. However, each development proposal would undergo environmental review and would be

subject to similar resource protection requirements as the Project. If there is a potential for significant impacts on archaeological or paleontological resources, an investigation would be required to determine the nature and extent of the resources and to identify appropriate mitigation measures, including requirements such as those identified in this section. The Project includes measures to identify, recover, and/or record applicable archaeological and paleontological resource that may occur within the Project limits, resulting in less than significant impacts.

Discovery of human remains are also site-specific. Similar to archaeological and paleontological resources, all proposed developments would undergo the same resource protection requirements in case of discovery of human remains. Although unlikely to occur, potential impacts associated with human remains would be reduced to a less than significant level with adherence to existing State law.

Therefore, implementation of the Project would have no significant cumulative impacts associated with archaeological and paleontological resources as well as human remains.

4.5.7 MITIGATION PROGRAM

Development Requirements

No applicable development requirements pertaining to cultural resources have been identified for the proposed Project.

Mitigation Measures

MM CULT-1 **Archaeological Observation and Salvage.** Prior to the issuance of any grading permit in which native soil is disturbed, the County or its designee shall provide written evidence to the Manager of Building & Safety, or designee, that the County or its designee has retained a County-certified archaeologist to observe grading activities and to salvage and catalogue archaeological resources as necessary. The archaeologist shall be present at the pre-grade conference, shall establish procedures for archaeological resource surveillance, and shall establish, in cooperation with the County or its designee, procedures for temporarily halting or redirecting work to permit the sampling, identification, and evaluation of the artifacts as appropriate. If the archaeological resources are found to be significant, the archaeological observer shall determine appropriate actions, in cooperation with the County or its designee, for exploration and/or salvage.

Prior to the release of the grading bond, the County or its designee shall obtain approval of the archaeologist's follow-up report from the Manager of Building & Safety, or designee. The report shall include the period of inspection, an analysis of any artifacts found, and the present repository of the artifacts. The archaeologist shall prepare excavated material to the point of identification. The County or its designee shall offer excavated finds for curatorial purposes to the County of Orange, or its designee, on a first refusal basis. These actions, as well as final mitigation and disposition of the resources, shall be subject to the approval of the Manager of Building & Safety, or designee. The County or its designee shall

pay curatorial fees if an applicable fee program has been adopted by the Board of Supervisors and such fee program is in effect at the time of presentation of the materials to the County of Orange or its designee, all in a manner meeting the approval of the Manager of Building & Safety, or designee.

MM CULT-2 **Paleontological Observation and Salvage.** Prior to the issuance of any grading permit in which native soil is disturbed, the County or its designee shall provide written evidence to the Manager of Building & Safety, or designee, that the County or its designee has retained a County-certified paleontologist to observe grading activities and to salvage and catalogue fossils as necessary. The paleontologist shall be present at the pre-grade conference; shall establish procedures for paleontological resource surveillance; and shall establish, in cooperation with the County or its designee, procedures for temporarily halting or redirecting work to permit sampling, identification, and evaluation of the fossils. If the paleontological resources are found to be significant, the paleontologist shall determine appropriate actions, in cooperation with the County or its designee, to ensure proper exploration and/or salvage.

Prior to the release of the grading bond, the County or its designee shall submit the paleontologist's follow up report for approval by the Manager of Building & Safety, or designee. The report shall include the period of inspection, a catalogue and analysis of the fossils found, and the present repository of the fossils. The County or its designee shall prepare excavated material to the point of identification and shall offer excavated finds for curatorial purposes to the County of Orange, or its designee, on a first refusal basis. These actions, as well as final mitigation and disposition of the resources, shall be subject to approval by Manager of Building & Safety, or designee. The County or its designee shall pay curatorial fees if an applicable fee program has been adopted by the Board of Supervisors and such fee program is in effect at the time of presentation of the materials to the County of Orange or its designee, all in a manner meeting the approval of the Manager of Building & Safety, or designee.

MM CULT-3 **Human Remains.** If human remains are encountered during ground-disturbing activities, Section 7050.5 of the *California Health and Safety Code* states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition of the materials pursuant to Section 5097.98 of the *California Public Resources Code.* The provisions of Section 15064.5 of the California Environmental Quality Act Guidelines shall also be followed. The County Coroner must be notified of the find immediately. If the remains are determined to be prehistoric, the Coroner shall notify the Native American Heritage Commission (NAHC). The NAHC will determine and notify a Most Likely Descendent (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The descendent must complete the inspection within 24 hours of notification by the NAHC. The MLD may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials. These requirements shall be included as notes on the contractor specification and verified by the Development Services Department, prior to issuance of grading permits.

4.5.8 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Project-specific and cumulative impacts to archaeological and paleontological resources associated with the Project would be less than significant. No significant unavoidable impacts would occur.

4.5.9 REFERENCES

BonTerra Psomas. 2015 (June), updated 2016 (November). Phase I Cultural Resources Assessment for the *West Alton Parcel* Development Plan. Santa Ana, CA: BonTerra Psomas.

Irvine, City of. 2015a (current through). *City of Irvine General Plan.* Irvine, CA: the City. http://www.cityofirvine.org/community-development/current-general-plan.

———. 2015b (August 15). Memo: General Plan Supplement No. 9. Irvine, CA the City. https://alfresco.cityofirvine.org/alfresco/guestDownload/direct?path=/Company%20Home/Shared/CD/Planning%20and%20Development/General%20Plan/Supplement%209%20package.pdf.

KTGY. 2016 (November). *West Alton Parcel Development Plan.* Irvine, CA: KTGY.

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4.6 GEOLOGY AND SOILS

This EIR section describes existing geologic and soil conditions in the Project area; identifies associated potential geotechnical impacts related to development in accordance with the proposed West Alton Parcel Development Plan (Project); and sets forth measures designed to mitigate identified significant adverse impacts. Information in this section is based upon the *Preliminary Geotechnical Investigation, West Alton Parcel Former El Toro Marine Corps Air Station, Irvine, California* (Preliminary Geotechnical Investigation) prepared by Leighton and Associates, Inc. (Leighton and Associates, Inc. 2014 [revised 2015]). The Leighton and Associates, Inc. report is included as Appendix F to this EIR.

Section 4.6.5, Impact Analysis, discusses the impacts of Project implementation as a whole. It does not separately analyze short-term construction impacts and long-term operational impacts. This approach reflects the fact that, while geotechnical impacts may be encountered and must be addressed during construction (e.g., liquefaction, ground failure), these impacts would only affect the Project once it is operational. Therefore, short-term construction impacts and long-term operational impacts are considered together as part of Project implementation.

4.6.1 REGULATORY SETTING

Federal

International Building Code

The International Building Code (IBC) is the national model building code providing standardized requirements for construction. The IBC replaced earlier regional building codes (including the Uniform Building Code) in 2000 and established consistent construction guidelines for the nation. The 2012 IBC is the most recent edition and was incorporated into the 2012 California Building Code that currently applies to all structures being constructed in California. The national model codes are therefore incorporated by reference into the building codes of local municipalities (e.g., the California Building Code discussed below). The California Building Code includes building design and construction criteria that take into consideration the State's seismic conditions.

State

California Building Code

The California Building Code (also known as the "California Building Standards Code" or CBC) is promulgated under the *California Code of Regulations* (CCR), Title 24 (Parts 1 through 12) and is administered by the California Building Standards Commission (CBSC). The national model code standards adopted into Title 24 apply to all occupancies in California except for modifications adopted by State agencies and local governing bodies. The 2013 CBC is the current CBC and is based on the 2012 IBC, discussed above. The California Building Code may be adopted wholly or with revisions by State and local municipalities.

Title 24, as adopted by the County of Orange (County), sets forth the fire, life safety, and other building related regulations applicable to any structure fit for occupancy statewide for which a

building permit is sought. Title 24 establishes general standards for the design and construction of buildings, including provisions related to seismic safety. The CBC provides standards that must be met to safeguard life or limb, health, property, and public welfare by regulating and controlling the design, construction, quality of materials, use and occupancy, location, and maintenance of all buildings and structures in its jurisdiction. Chapter 18 of the California Building Code, Soils and Foundations, specifies the level of soil investigation required by law in California. Requirements in Chapter 18 apply to building and foundations systems and consider reduction of potential seismic hazards.

Alquist-Priolo Earthquake Fault Zoning Act of 1972

The Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act) was adopted by the State of California in 1972 in order to mitigate surface fault rupture hazards along known active faults (*California Public Resources Code* [PRC] Section 2621 et seq.). The purpose of the Alquist-Priolo Act is to reduce the threat to life and property—specifically from surface fault rupture—by preventing the construction of buildings used for human occupancy on the surface trace of active faults. Under the Alquist-Priolo Act, the California Geological Survey (CGS) has defined an "active" fault as one that has had surface displacement during the past 11,000 years (Holocene time). This law directs the State Geologist to establish Earthquake Fault Zones (known as "Special Studies Zones" prior to January 1, 1994) to regulate development in designated hazard areas. In accordance with the Alquist-Priolo Act, the State has delineated "Earthquake Fault Zones" along identified active faults throughout California. City and County jurisdictions must require a geologic investigation to demonstrate that a proposed development project, which includes structures for human occupancy, is adequately set back (generally at least 50 feet) from an active fault prior to permitting (CGS 2011).

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act (SHMA) was passed in 1990 and directs the State of California Department of Conservation Division of Mines and Geology (CDMG) to identify and map areas subject to earthquake hazards such as liquefaction, earthquake-induced landslides, and amplified ground shaking (PRC Sections 2690–2699.6). Passed by the State legislature after the 1989 Loma Prieta Earthquake, the SHMA is aimed at reducing the threat to public safety and minimizing potential loss of life and property in the event of a damaging earthquake event. Seismic Hazard Zone Maps are a product of the resultant Seismic Hazards Mapping Program and are produced to identify Zones of Required Investigation; most developments designed for human occupancy in these zones must conduct site-specific geotechnical investigations to identify the hazard and to develop appropriate mitigation measures prior to permitting by local jurisdictions.

The SHMA establishes a statewide public safety standard for the mitigation of earthquake hazards. The California Geological Survey's (CGS') Special Publication 117, Guidelines for Evaluating and Mitigating Seismic Hazards in California, provides guidance for the evaluation and mitigation of earthquake-related hazards for projects in designated zones of required investigations.

4.6.2 METHODOLOGY

The technical analyses supporting the impact conclusions in this section were completed by Leighton and Associates, Inc. as presented in the Preliminary Geotechnical Investigation. The Preliminary Geotechnical Investigation included site reconnaissance; a percolation study; review of published geologic and seismic data related to the Project area; and review of pertinent geotechnical reports for the Project site. Field exploration consisted of cone penetrometer test (CPT) soundings at 8 locations to depths of 50 to 75 feet below existing ground surface (bgs). Hollow stem auger borings and test pits conducted by Leighton and Associates, Inc. during prior explorations of the former MCAS El Toro applicable to the Project were reviewed and included as an appendix to the Preliminary Geotechnical Investigation (Appendix F of this EIR).

The data and conclusions from the Preliminary Geotechnical Investigation were compared to the Thresholds of Significance set forth below in Section 4.6.4 to determine potential significance impacts. The California Building Code and the *County Grading Manual*[1] provides the standards that need to be met to ensure impacts are reduced to less than significant. A significant impact would occur if through the recommendations of the Preliminary Geotechnical Investigation and sound construction practices, these standards could not be achieved.

4.6.3 EXISTING CONDITIONS

Site Topography

The Project site is roughly triangular in shape and includes a northern development area and a southern development area bisected by an east-west wildlife movement corridor. The Project site is located west of Borrego Canyon Wash, east of Irvine Boulevard, and south of open hillside space. The ground surface varies from approximately 423 feet above mean sea level (msl) at the northwestern corner to approximately 510 feet above msl at the southeastern corner of the Project site.

Geologic Materials

The Project site is located in the eastern portion of the 'Tustin Plain' along the southeastern margin of the Los Angeles Basin, a large, structural depression within the Peninsular Ranges geomorphic province of California. The Tustin Plain, a complex alluvial fan emanating from the Santa Ana Mountains and San Joaquin Hills, is comprised of relatively flat-lying, unconsolidated to semi-consolidated clastic sediments that are approximately 1,000 to 1,100 feet thick. Beneath the Project site, the near-surface, unconsolidated, relatively fine-grained sediments are Holocene age (<11,000 years old) and consist of predominately youthful alluvial fan deposits. These sediments, in turn, are underlain at depth by sedimentary bedrock of Tertiary age.

[1] [1] Completion of geotechnical reports in compliance with the County *Grading Manual* is identified as a Design Requirement (DR) in Section 4.6.8 of this EIR and in the Development Plan, Appendix C. The 1993 *Grading Manual* provides detailed compilation of rules, procedures, and interpretations necessary to carry out the provisions of the *OC Grading and Excavation Code*. The *Grading Manual* contains provisions on of what needs to be addressed in geotechnical studies. Evaluation of the grading plans in compliance with the requirements of the Grading Manual would ensure the Project is in compliance with the OC Grading and Excavation Code.

In general, alluvial materials were generated from mass wasting of the uplifted sandstone and siltstone bedrock located north-northeasterly of the Project site. These materials are interbedded and interfingered strata containing lenses of silty sands, clayey sands and sands. Minor interbedded gravelly sands are also present. As erosion and transport of sediment occurred in the Santa Mountains, these materials were deposited in a generally north-northeast to south-southwesterly direction. The locations of the on-site soils are depicted on Exhibit 4.6-1, Regional Geology Map.

The Preliminary Geotechnical Investigation identifies that artificial man-made fills (Afu) are present within portions of the Project site. Fill material is present due in part to past agricultural activities on the Project site, and construction of Magazine Road and the detention basin located in the southeasterly portion of the Project site, north of Magazine Road, and a small stormwater basin located in the northwest corner of Planning Area 1. In areas explored with borings, up to 3.5 feet of artificial fill was encountered.

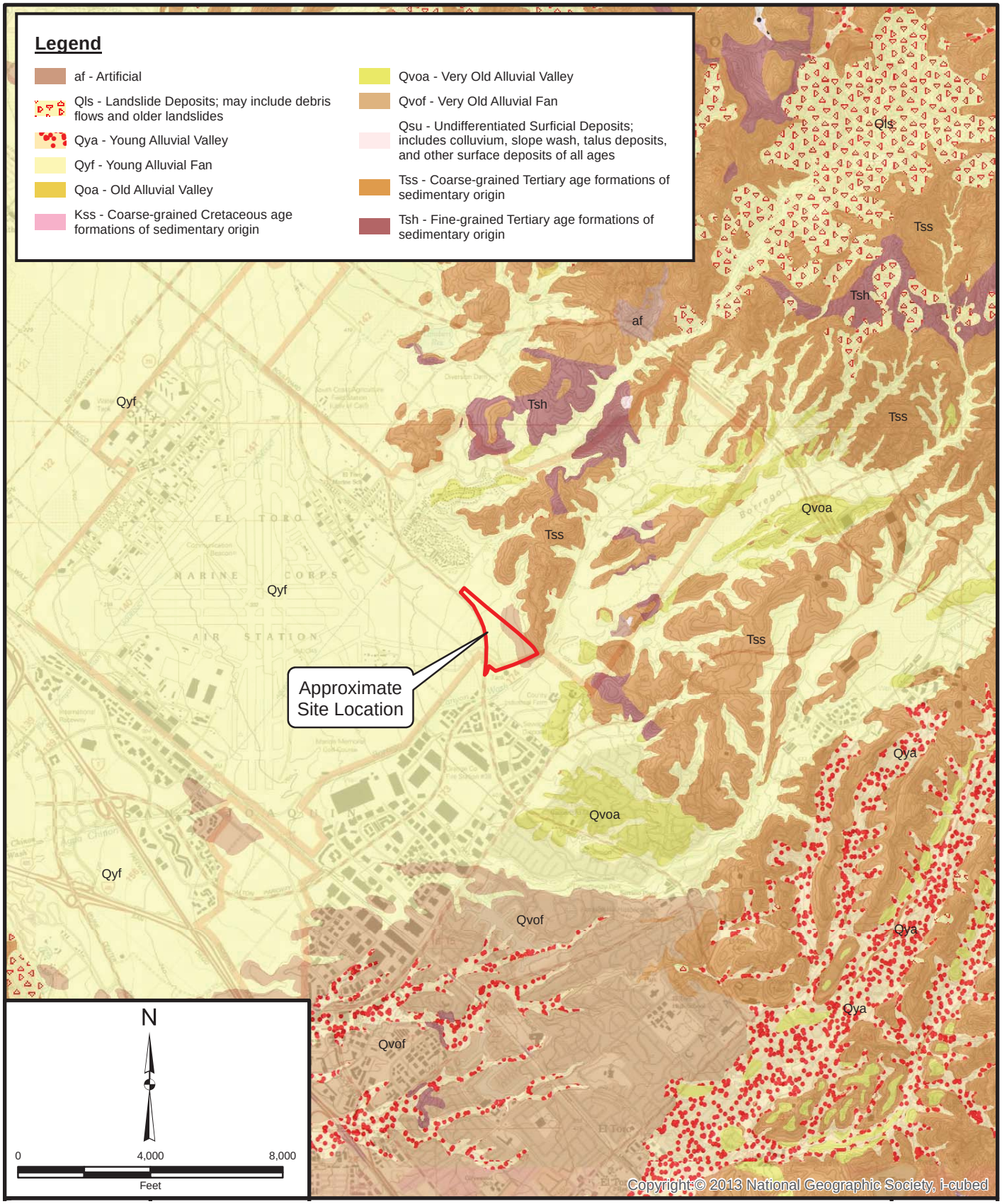
Young alluvial fan deposits (Qyf) were encountered on the Project site, located near the mouth of Borrego Canyon Wash. The deposits predominantly consist of interbedded, channelized to massive, loose to medium dense, unconsolidated well graded sands with minor rounded gravels, silty sands, and clayey sands with layers of stiff to very stiff sandy silts. The deposits include laterally discontinuous sandy-silty clay at depths of approximately five and eight feet bgs.

Very old alluvial fan deposits (Qvof) were encountered underlying the young alluvial fan deposits to the maximum depth explored of 75 feet bgs and consist predominantly of dense to very dense sand, silty sand, and gravel and stiff to hard sandy silt, silty clay, and clay.

Tertiary Topanga Formation (Tt) bedrock was not encountered during field exploration; however, it is mapped on the hillsides adjacent to the northeastern boundary of the Project site. Tt predominantly consists of hard, moderately cemented sandstone with pebbley to conglomerate interbeds and occasional siltstone facies. When present, the Topanga formation underlies very old alluvial deposits and may be difficult to rip and excavate. The Topanga Formation may be encountered during excavations for any subterranean structures in the northeast portion of the Project site.

Faulting and Seismicity

As with all of Southern California, the Project site lies in a seismically active region. The Preliminary Geotechnical Investigation determines that there are no known active or potentially active faults traversing the Project site, and the Project site is not included within an Alquist-Priolo Earthquake Fault Zone. There are, however, a number of active and potentially active regional faults that are considered capable of generating strong ground motion at the Project site. The closest active faults to the Project site are the San Joaquin Hills Blind Thrust and the Newport-Inglewood Fault Zone located approximately 2.4 miles and 12.0 miles from the Project site, respectively. The San Andreas Fault, which is the largest active fault in California, is approximately 42.6 miles northeast of the Project site. Refer to Exhibit 4.6-2 for a regional fault map.



Source: West Alton Parcel Development Plan, 2015

Regional Geology Map

Exhibit 4.6-1

West Alton Parcel Development Plan EIR

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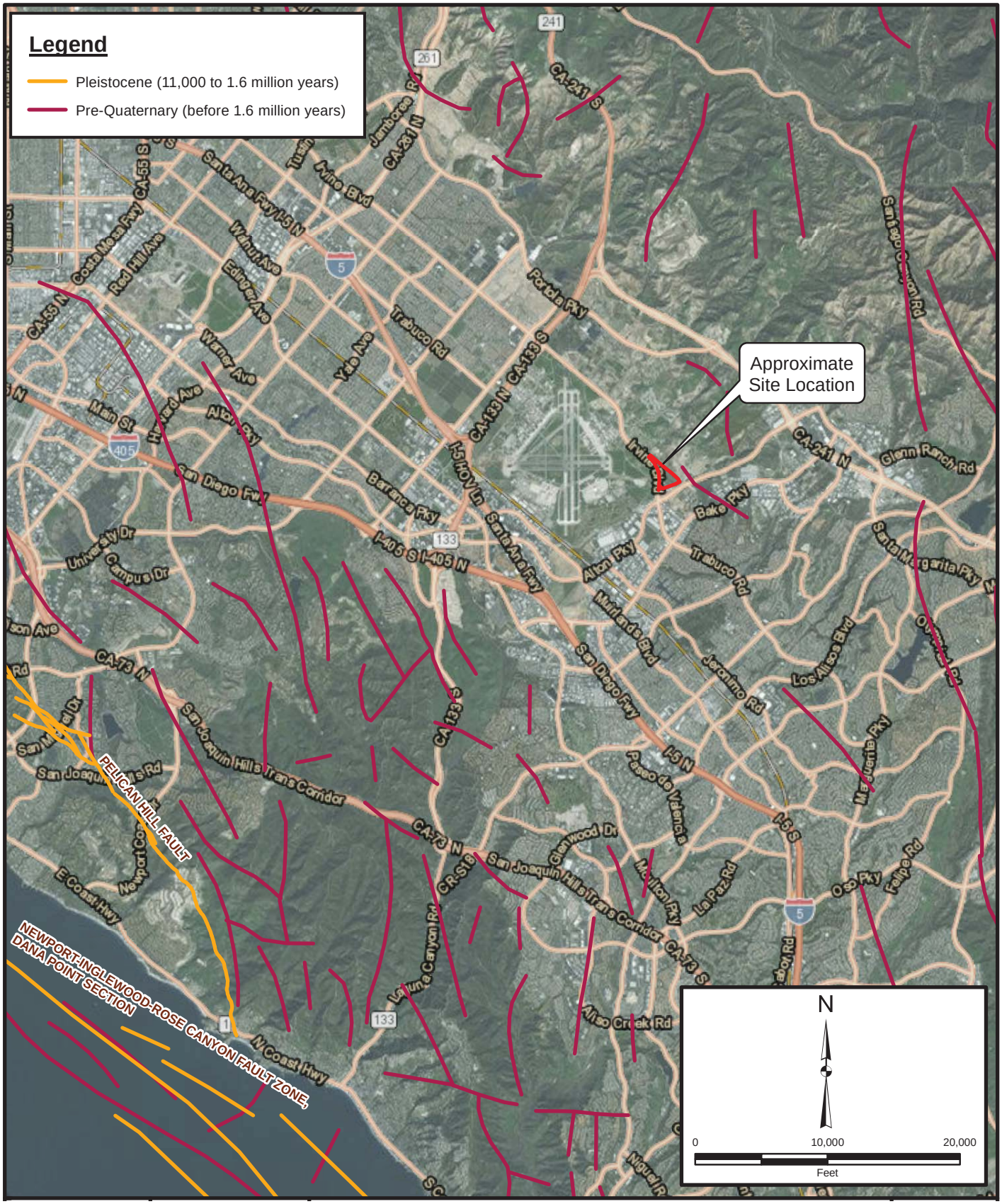

Source: West Alton Parcel Development Plan, 2015

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Regional Fault Map

Exhibit 4.6-2

West Alton Parcel Development Plan EIR

Groundwater

Within the Project site, groundwater was not encountered in any current or past explorations advanced to a maximum depth of 75 feet bgs. Due to the coarse-grained and unconfined nature of the young alluvials sediments on the Project site, the areas near mouths of canyons and washes are interpreted to be intake areas for recharge aquifers beneath the Tustin Plain. Based on a review of the Seismic Hazard Report for the Tustin and El Toro Quadrangles prepared by the California Division of Mines and Geology, the historic high groundwater was reported to be 40 feet bgs (Leighton and Associates, Inc. 2014).

4.6.4 THRESHOLDS OF SIGNIFICANCE

In accordance with the County's Environmental Analysis Checklist the Project would result in a significant impact to geology and soils if it would:

Threshold 4.6-1 Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

(i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

(ii) Strong seismic ground shaking.

(iii) Seismic-related ground failure, including liquefaction.

Threshold 4.6-2 Result in substantial soil erosion or the loss of topsoil.

Threshold 4.6-3 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.

Threshold 4.6-4 Be located on expansive soils, as defined in Table 18-1-B of the California Building Code (1994), creating substantial risks to life or property.

4.6.5 IMPACT ANALYSIS

As discussed in Section 4.0, Impact Analysis Introduction, the Development Plan identifies a number of development requirements which serve to minimize potential impacts (the development requirements are incorporated in Appendix C of the Development Plan). The inclusion of these requirements as appropriate, will be verified during the development review and/or ministerial permit process (e.g., building permit). The development requirements also include others measures that will reduce or avoid potentially significant Project impacts. The County intends to implement the development requirements as part of the Project and has included the development requirements in the Development Plan for that purpose. These measures are listed in Sections 4.6.7 and 4.9.7, Mitigation Program for Geology and Soils and Hydrology and Water Quality, respectively, because these measures will be tracked as part of the Mitigation Monitoring and Reporting Program.

Threshold 4.6-1

Would the Project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

- ***i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42?***
- ***ii) Strong seismic ground shaking?***
- ***iii) Seismic-related ground failure, including liquefaction?***

As with most of Southern California, the Project site may experience strong ground shaking from a major earthquake on active regional faults in the Southern California area. As previously discussed, the Preliminary Geotechnical Investigation determines that there are no known active or potentially active faults traversing the Project site and that the Project site is not included in an Alquist-Priolo Earthquake Fault Zone. Since there are no known active or potentially active faults traversing the Project site, the potential for surface fault rupture of a known earthquake fault on the Project site is less than significant and no mitigation is required.

However, because the Project site is located in a seismically active region, as is all of Southern California, the Preliminary Geotechnical Investigation reported that the Project site would likely experience strong ground shaking during the life of any project developed thereon. The Preliminary Geotechnical Investigation indicates that seismic design should be performed in accordance with the 2013 CBC; however, at the discretion of the designing Structural Engineer, a more stringent design may be performed using a Site Specific Response Spectra. The County's *Grading Manual* requires the preparation of a geotechnical report in conjunction with the issuance of a grading permit. Specifically, Appendix B of the County's *Grading Manual* provides technical guidelines for soil and geology reports to those seeking a grading permit. Appropriate site-specific design-level geotechnical investigations would be required and specific design measures, in accordance with applicable building codes, would be incorporated consistent with the requirements of the Orange County *Grading Manual*. Recognizing the regulatory framework of State and local building requirements, and the obligations established by the development requirements, potential impacts related to seismic ground shaking would be less than significant.

Potential secondary seismic effects of strong seismic ground shaking at the Project site include liquefaction and landslides. Liquefaction is defined as the transformation of a granular material from a solid state into a liquid state with vibration (most commonly seismic shaking) in the presence of water. It is a phenomenon that tends to occur in areas with shallow groundwater and where the soils are composed of loose (low-density), saturated, fine- to medium-grained, cohesionless soils. As described previously, young alluvial deposits exist on the Project site which, when saturated, have the potential to be susceptible to liquefaction. Accordingly, a site-specific liquefaction analysis was performed for the Project site using the historic high groundwater level of 40 feet bgs (Leighton and Associates, 2014). The results indicate that the potential for liquefaction and liquefaction induced settlement at the Project site is low (Leighton and Associates, 2014). This result is consistent with the State of California Seismic Hazard Zones Map for the El Toro Quadrangle, which show that the Project site is not located in an area that has been identified by the State as being potentially susceptible to liquefaction (Leighton and

Associates, Inc. 2014). Exhibit 4.6-3, Seismic Hazard Map, shows the Project's location in relation to liquefaction susceptibility zones and landslide hazard zones. The Project site is not located in an area designed as susceptible to liquefaction or a landslide hazard zone.

The Preliminary Geotechnical Investigation indicates that the potential for liquefaction and liquefaction induced settlement at the Project site is low. The Preliminary Geotechnical Investigation indicates that the Project site is suitable for development of the Project, provided that it incorporates all engineering recommendations from Section 5.0, General Recommendations, of the Preliminary Geotechnical Investigation (see Appendix F of this EIR). The General Recommendations include issues such as removal and recompaction of highly compressible/collapsible materials, slope stability and shoring requirement, surface drainage, seismic design, and design requirements. These issues would all be included as part of the preparation of supplemental geotechnical studies and incorporation of all recommendations defined therein as part of the final Project design (refer to DR GEO-1).

Lateral spreading is a phenomenon in which large blocks of intact, non-liquefied soil move downslope on a liquefied soil layer. Lateral spreading is often a regional event. For lateral spreading to occur, the liquefiable soil zone must be laterally continuous, unconstrained laterally, and free to move along sloping ground. Due to the low susceptibility for liquefaction and laterally confined topography of the Project site, the potential for lateral spreading is considered low (Leighton and Associates, Inc. 2014).

The Preliminary Geotechnical Report (Leighton and Associates, Inc. 2014) indicates that no landslides are known to be located on the Project site. As shown in Exhibit 4.6-3, the Project site is not located in a landslide hazard zone. Thus, the potential for landslides is considered low. As stated above, the Project would be required to conform to the applicable CBC and the requirements of DR GEO-1, which would require preparation of additional geotechnical studies and incorporation of all recommendations defined therein as part of the final Project design. Therefore, there would be less than significant impacts related to unstable soils.

Impact Conclusion: *The Project site is not included in an Alquist-Priolo Earthquake Fault Zone and there are no known active or potentially active faults traversing the Project site. Impacts associated with surface fault rupture are less than significant, pursuant to Threshold 4.6-1. The Project site is in a seismically active area that would likely experience strong ground shaking during the life of any project developed thereon. However, conformance with existing regulations (applicable CBC) and DR GEO-1 would reduce potentially significant impacts associated with seismic shaking and seismic ground failure in the form of liquefaction, seismically induced settlement, and lateral spreading to a less than significant level.*

Threshold 4.6-2

Would the Project result in substantial soil erosion or the loss of topsoil?

Ground disturbance, including over-excavation, utility trenching, and foundation excavation during construction activities on exposed soils could lead to erosion and topsoil loss during heavy rains. Development projects that are one acre or more are required to comply with the National Pollutant Discharge Elimination System (NPDES) Construction General Permit,

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Source: West Alton Parcel Development Plan, 2015

Seismic Hazard Map

Exhibit 4.6-3

West Alton Parcel Development Plan EIR

discussed further in Section 4.9, Hydrology and Water Quality. In compliance with the NPDES permit, erosion potential during construction of the Project would be managed with Best Management Practices (BMPs) implemented on the Project site as part of a Storm Water Pollution Prevention Plan (SWPPP) during construction activities to minimize erosion impacts. DR HWQ-4 through DR HWQ-7 presented in Section 4.9, Hydrology and Water Quality, describe the County requirements for complying with the NPDES Construction General Plan Permit and preparation of an Erosion and Sediment Control Plan prior to issuance of a grading or building permit.

Implementation of sediment-control measures would prevent eroded soils from entering downstream waters and would minimize sediments and loose soils from entering roadways and other adjacent areas during construction. There would be less than significant short-term construction impacts related to substantial soil erosion or loss of topsoil through compliance with the NPDES Construction General Permit and preparation of an Erosion and Sediment Control Plan, set forth in DR HWQ-4 through DR HWQ-7 presented in Section 4.9, Hydrology and Water Quality, and no mitigation is required. The potential for erosion and topsoil loss during construction of the Project would be less than significant and no mitigation is required.

Impact Conclusion: *Grading activities would increase the potential for soil erosion and loss of top soil. With the incorporation of construction BMPs as described in Section 4.9, Hydrology and Water Quality, implementation of DR HWQ-4 through DR HWQ-7 in Section 4.9, Hydrology and Water Quality and compliance with applicable laws, Project impacts on soil erosion and loss of topsoil would be less than significant, pursuant to Threshold 4.6-2.*

Threshold 4.6-3

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?

There are a variety of natural soil characteristics that have the ability to adversely affect development of a site and for which specific engineering measures must be implemented. For the Project site, soil engineering characteristics investigated in the Preliminary Geotechnical Report include slope stability, landslides, liquefaction, lateral spreading, subsidence, and unstable soils such as expansive soils and corrosive soils. Liquefaction and lateral spreading are addressed under 4.6-1 above, and expansive soils are addressed under Threshold 4.6.4 below.

Slope Stability

As indicated above under Threshold 4.6-1, there are no landslides located on the Project site or observed during field review conducted for the Preliminary Geotechnical Report. As previously indicated, in areas explored with borings, up to 3.5 feet of artificial fill was encountered. Artificial fill and undocumented soil are not considered suitable for the proposed Project because it could affect slope stability; and therefore, would be removed and replaced as compacted fill, consistent with DR GEO-1. Additionally, the Preliminary Geotechnical Report identified that during unrelated work conducted by Leighton on the El Toro Marine Base during the 2005-2006 rainy season, localized debris flows were observed as thin deposits, less than 1-foot thick of sand soils originating from off-site and impacting a small portion of the Project site and beyond Irvine

Boulevard. The appropriate disposition of the artificial fill and materials from the debris flow is a component of standard engineering practices and is addressed by the CBC. As required by DR GEO-1, the Project would comply with the current CBC, OC Grading and Excavation Code, and standard design, earthwork construction and engineering practices that implement recommendations from Section 5.0, General Recommendations, of the Preliminary Geotechnical Investigation. Therefore, Project impacts regarding the potential for surficial slope instabilities or off-site debris flows impacting the Project site are considered low and less than significant.

Collapse/Subsidence

Collapse, also referred to as settlement, occurs when loose to moderately dense, unsaturated granular soils, separate due to liquefaction. As discussed above under Threshold 4.6-1, the potential for liquefaction induced settlement at the Project site is low.

Subsidence is the sinking of the earth's surface in response to geologic or man-induced causes. In Southern California, subsidence can be induced by mining or by extracting water or petroleum. The Project does not include any of these activities; therefore, the potential for subsidence is considered low (Leighton and Associates, Inc. 2014).

Corrosive Soils

Corrosion is a chemical process whereby buried construction materials in contact with certain types of soils are attacked by either oxidation, reduction, or other soil-induced chemical reactions. Laboratory testing of site soils by Leighton and Associates, Inc. in 2001 for previous studies indicated the corrosion potential of buried concrete is "negligible". Thus, Project impacts would be less than significant; however, consistent with DR GEO-1 additional tests would be conducted of near-surface soils during future site evaluations to further evaluate the corrosion potential of the Project site and to identify specific design measures to address corrosive soil conditions if any are unexpectedly discovered.

Impact Conclusion: *The Project site is not located in an area with documented landslides and the potential for collapse/subsidence and soil corrosion is low. However, conformance with existing regulations (current CBC) and DR GEO-1 would reduce potentially significant impacts associated with unstable soils/site conditions and any impacts associated with landslides, collapse/subsidence, or corrosion would be less than significant. Similarly, liquefaction, seismically induced settlement, and lateral spreading (Threshold 4.6-1) would be reduced to a less than significant level with conformance with existing regulations (current CBC) and DR-GEO-1.*

Threshold 4.6-4

Would the Project be located on expansive soils, as defined in Table 18-1-B of the California Building Code (1994), creating substantial risks to life or property?

There are a variety of natural soil characteristics that have the ability to adversely affect development of a site and for which specific engineering measures must be implemented. For the Project site, soil engineering characteristics investigated in the Preliminary Geotechnical

Investigation include liquefaction, compressibility/settlement, expansive soils, and corrosive soils. Liquefaction is addressed under Threshold 4.6-1 above.

Expansive soils are materials that, when subject to a constant load, are prone to expand when exposed to water. Foundations constructed on these soils are subject to uplifting forces caused by the swelling. On the Project site, the on-site near-surface soils consist predominantly of intermittent and laterally discontinuous stratigraphy characterized as silty sand, sandy silt, and clay. The on-site near-surface soils are generally considered to have a low to medium potential for expansion depending on whether sandy or interbedded clay soils are encountered. The Preliminary Geotechnical Investigation recommends that, due to the variance in expansion potential of on-site soils that is anticipated, a low to medium expansion potential should be assumed and additional testing should be conducted on samples of near-surface soils during future site evaluations. This testing would be required consistent with DR GEO-1. The Project would comply with the current CBC, *OC Grading and Excavation Code*, and standard engineering practices, such as proper foundation design and would implement engineering recommendations from Section 5.0, General Recommendations, of the Preliminary Geotechnical Investigation, including preparation of supplemental geotechnical studies and incorporation of all recommendations defined therein as part of the final Project design (refer to DR GEO-1).

Impact Conclusion: *Based on the Preliminary Geotechnical Investigation (Leighton and Associates, Inc. 2014), the Project site soil has low to medium expansion potential. Consistent with DR GEO-1 more detailed evaluation of near-surface soils would be conducted and appropriate design measures imposed. Compliance with these measures would ensure impacts associated with expansive soils would be less than significant, pursuant to Threshold 4.6-4.*

4.6.6 CUMULATIVE IMPACTS

Geology and soils impacts are generally site-specific and there is typically little, if any, cumulative relationship between the development of a project and development within a larger cumulative area (e.g., city-wide development). For example, development at the Project site would not alter geologic events or soil features/characteristics (such as ground shaking, seismic intensity, or settlement) at other locations; therefore, the proposed Project would not directly affect the level of intensity at which a seismic event or geologic hazard on an adjacent site is experienced. However, development of the proposed Project and future development in the City of Irvine (City) may expose more persons to seismic hazards.

The Project and any other development projects would be required to comply with the applicable State and local agency grading manuals and ordinances. As with the Project, future development would also be required to have site-specific geotechnical investigations prepared to identify the geologic and seismic characteristics on a site and to provide recommendations for engineering design and construction to ensure the structural integrity of proposed development; these recommendations would be incorporated into project design. Compliance of individual projects with the recommendations of the applicable geotechnical investigation would prevent cumulatively significant hazards associated with seismic conditions, unstable soils, landslide potential, lateral spreading, liquefaction, soil collapse, expansive soil, soil erosion, and other geologic issues. Therefore, the Project's contribution to cumulative geology and soils impacts would be less than significant.

4.6.7 MITIGATION PROGRAM

The Preliminary Geotechnical Investigation recommended design-level testing and evaluation for inclusion in the Project specifications. The recommendations pertained to earthwork and grading; existing utilities and foundations; removal and recompaction; fill materials and placement; slope stability; excavation stability and shoring requirements; trench backfill; and surface drainage. The development requirements s require preparation of a geotechnical report that includes the information required by the County *Grading Manual* and compliance with the *OC Grading and Excavation Code*. Appendix B of the County *Grading Manual* provides the technical guidelines for soil and geology reports and includes all the content contained in the Preliminary Geotechnical Investigation recommendations. Therefore, with completion of design level geotechnical reports in compliance with the County *Grading Manual* and construction per *OC Grading and Excavation Code*, which requires implementation of standard engineering practices, and applicable building code, impacts would be less than significant and no mitigation measures are required.

Development Requirements

The following development requirements would be applicable to the proposed Project and would help to avoid or minimize geologic and soil-related impacts:

DR GEO-1 Prior to the issuance of a grading permit, the County, or its designee, shall submit a geotechnical report to the Manager of Building & Safety, or designee, for approval. The report shall include the information and be in the form as required by the County Grading Manual. All grading proposed on the Project site must be consistent with the OC Grading and Excavation Code.

In addition, DR HWQ-4 through DR HWQ-7 presented in Section 4.9, Hydrology and Water Quality, related to storm water and erosion management plans, would be applicable to the issue of geology and soils.

Mitigation Measures

No applicable mitigation measures have been identified for geology and soils.

4.6.8 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Direct and cumulative impacts to geology and soils associated with the Project would be less than significant. No significant unavoidable impacts would occur.

4.6.9 REFERENCES

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4.7 GREENHOUSE GAS EMISSIONS

This section addresses greenhouse gas (GHG) emissions anticipated from construction and operation of the proposed Project and its potential global climate change impacts. The Project's estimated construction and operational GHG emissions were calculated by using the California Emissions Estimator Model (CalEEMod, Version 2013.2.2); the inputs and data for the Project are included in Appendix G.

4.7.1 BACKGROUND

Global Climate Change and Greenhouse Gases

Climate change is a recorded change in the Earth's average weather measured by variables such as wind patterns, storms, precipitation, and temperature. Historical records show that global temperature changes have occurred naturally in the past, such as during previous ice ages. The year 2014 ranks as Earth's warmest year since 1880, and the ten warmest years in the instrumental record, with the exception of 1998, have now occurred since 2000. The average global temperature has risen about 1.4 degrees Fahrenheit (°F) (0.8 degree Celsius [°C]) since 1880 (NASA 2015).

The global atmospheric concentration of carbon dioxide (CO_2) has increased from a pre-industrial (roughly 1750) value of about 280 parts per million (ppm) to a peak of 407.70 ppm in May 2016; the October 2015 concentration was 398.29 ppm. The increase is primarily due to fossil fuel use, although a number of other factors, including land use change, also contribute. The annual CO_2 concentration growth rate during the ten-year period between 1995 and 2005 was larger than the growth rate from the beginning of continuous direct measurements in 1960 to 2005 (ESRL 2016).

Greenhouse Gases

GHGs are global pollutants and are therefore unlike criteria air pollutants such as ozone (O_3), particulate matter (PM10 and PM2.5), and toxic air contaminants (TACs), which are pollutants of regional and local concern (see Section 4.3, Air Quality, of this EIR). While pollutants with localized air quality effects have relatively short atmospheric lifetimes (generally on the order of a few days), GHGs have relatively long atmospheric lifetimes, ranging from one year to several thousand years. Long atmospheric lifetimes allow for GHGs to disperse around the globe. Therefore, GHG effects are global, as opposed to the local and/or regional air quality effects of criteria air pollutant and TAC emissions.

GHGs, as defined under California's Assembly Bill (AB) 32, include CO_2, methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6.). GHGs vary widely in the power of their climatic effects; therefore, climate scientists have established a unit called global warming potential (GWP). The GWP of a gas is a measure of both potency and lifespan in the atmosphere as compared to CO_2. For example, as CH_4 and N_2O are approximately 25 and 298 times (respectively) more powerful than CO_2 in their ability to trap heat in the atmosphere, they have GWPs of 25 and 298, respectively (CO_2 has a GWP of 1). Carbon dioxide equivalent (CO_2e) is a quantity that enables all GHG emissions to be considered

as a group despite their varying GWP. The GWP of each GHG is multiplied by the prevalence of that gas to produce CO_2e.

General Environmental Effects of Global Climate Change

Executive Order (EO) S-3-05 mandates the preparation of biennial science assessment reports on climate change impacts and adaptation options for California. EO S-13-08 directs the California Natural Resources Agency (CNRA) to develop a State Climate Adaptation Strategy and to provide State land use planning guidance related to sea level rise and other climate change impacts. Current reports resulting from these directed actions are the *Climate Action Team Report to the Governor and Legislature* and the *California Climate Adaptation Strategy* (CalEPA 2010; CNRA 2009). These studies report that global warming in California is anticipated to impact resources, including, but not limited to, those discussed below.

- **Public Health.** Many Californians currently experience the worst air quality in the nation, and climate change is expected to make matters worse. Higher temperatures would increase the frequency, duration, and intensity of conditions conducive to air pollution formation. If global background O_3 levels increase as predicted under some scenarios, it may become impossible to meet local air quality standards. Air quality could be further compromised by more frequent wildfires, which emit fine particulate matter that can travel long distances. Rising temperatures and more frequent heat waves would increase the risk of death from dehydration, heat stroke/exhaustion, heart attack, stroke, and respiratory distress. Climate change may also increase asthma rates and the spread of infectious diseases and their vectors, as well as challenge food and water supplies. Children, the elderly, people with chronic heart or lung disease, outdoor workers, people who exercise outdoors, and the economically disadvantaged would be particularly vulnerable to these changes. In addition, more frequent extreme weather events could also result in increased injuries and deaths from these phenomena.
- **Energy.** Increasing mean temperature and more frequent heat waves will drive up demand for cooling in summer; this new energy demand will only be partially offset by decreased demand for heating in winter. Hydropower, which currently provides 15 percent of in-state generation, would be threatened by declining snowpack, which serves as a natural reservoir for hydropower generation in the spring and summer. Winter storms, earlier snowmelt, and greater runoff may combine to cause flooding, which could, in turn, damage transmission lines and cause power outages.
- **Water Resources.** Rising temperatures, less precipitation, and more precipitation falling as rain instead of snow could severely diminish snowpack. Because the Sierra Nevada snowpack provides most of California's available water, this potential loss would increase the risk of summer water shortages and would hamper water distribution and hydropower generation. The diminished snowpack would also nearly eliminate all skiing and other snow-related recreation. Rising sea levels would push salt water into California's estuaries, wetlands, and groundwater aquifers, threatening the water quality and reliability in the Sacramento/San Joaquin River Delta—a major California fresh water supply. Extreme precipitation and flooding could also damage water quality by creating sudden increases in runoff. Moreover, warming would increase evapotranspiration rates from plants, soil, and open water surfaces, which would result in greater demand for irrigation. Overall, climate change would reduce California's water supplies even as its growing population requires additional resources.

- **Sea Level and Flooding.** Sea level at California's coasts is expected to rise by 11 to 18 inches above 2000 levels by 2050 and by 23 to 55 inches by 2100. If realized, these increases would create more frequent and higher storm surges; would erode some coastal areas; and would increase pressure on existing levees. These increases would create a greater risk of flooding in previously untouched inland areas. Consequently, continued development in vulnerable coastal areas would put more people and infrastructure at risk.
- **Agriculture.** Although higher CO_2 levels can stimulate plant production and increase plant water-use efficiency, in the long-term, climate change would reduce the quantity and quality of agricultural products Statewide. As temperatures rise, farmers will face greater water demand for crops and a less reliable water supply, as well as increased competition from urban water users. Sea level rise may cause saltwater intrusion in the Delta region, making it difficult to raise certain crops. Rising temperatures will likely aggravate O_3 pollution, interfering with plant growth and making plants more susceptible to disease and pests. In addition, warming would reduce the number of colder hours needed for fruit and nut production; would shift pest and weed ranges; would alter crop-pollinator timing; and would increase the frequency of droughts, heat waves, and floods. Higher average temperatures would also increase mortality and decrease productivity in livestock.
- **Forestry.** California timber production has declined over the past few decades due, in part, to warming and increased wildfires. While further warming may increase production for some species in some locations, climate change is expected to reduce overall forest growth. Increasing average temperatures and drought frequency would result in more wildfires and greater burned areas, while less frequent and more intense rainfall would increase soil erosion and landslides. Higher temperatures and less water would force many tree species to shift their ranges; those that run out of livable habitat may die out. Pests, diseases, and invasive species may also colonize new areas, further challenging forest health and biodiversity.
- **Ecosystems.** Rising average temperatures would subject plants and animals to greater thermal stress, causing some species to adapt or shift their ranges, while others may face extinction. Invasive species may also shift their ranges, threatening native species. Changing temperatures would alter the timing of plant flowering and insect emergence, damaging species' abilities to reproduce. Changing precipitation patterns would impact aquatic and riparian ecosystems by reducing snow pack, stream flow, and groundwater, while increasing the frequency of droughts, floods, and wildfires. As sea levels rise, some coastal habitats may be permanently flooded or eroded, and saltwater intrusion into freshwater resources may threaten terrestrial species. Changes in ocean circulation and temperature, ocean acidification, and increased runoff and sedimentation would threaten pelagic species. In sum, continued global warming would alter natural ecosystems and threaten California's biological diversity.

4.7.2 REGULATORY SETTING

Federal

U.S. Environmental Protection Agency Findings

On December 7, 2009, the U.S. Environmental Protection Agency (USEPA) Administrator signed two distinct findings regarding GHGs under Section 202(a) of the Clean Air Act (CAA). The findings state:

- **Endangerment Finding:** The Administrator finds that the current and projected concentrations of the six key well-mixed greenhouse gases—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6)—in the atmosphere threaten the public health and welfare of current and future generations.
- **Cause or Contribute Finding:** The Administrator finds that the combined emissions of these well-mixed greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas pollution which threatens public health and welfare.

These findings do not themselves impose any requirements on industry or other entities. However, this action is a prerequisite to finalizing the USEPA's proposed GHG emission standards for light-duty vehicles (USEPA 2015). A light-duty vehicle is defined any motor vehicle with a gross vehicle weight of 6,000 pounds or less (CARB 2015a).

Light-Duty Vehicle Greenhouse Gas Emissions Standards and Corporate Average Fuel Economy Standards

The USEPA and the Department of Transportation's National Highway Traffic Safety Administration (NHTSA) have been working together on developing a National Program of regulations to reduce GHG emissions and to improve the fuel economy of light-duty vehicles. On April 1, 2010, the USEPA and NHTSA announced a joint Final Rulemaking establishing standards for 2012 through 2016 model year vehicles. This was followed up on October 15, 2012, when the agencies issued a Final Rulemaking with standards for model years 2017 through 2025. The rules require these vehicles to meet an estimated combined average emissions level of 295 grams of CO_2 per mile by 2012, decreasing to 250 grams per mile by 2016, and finally to an average industry fleet-wide level of 163 grams per mile in model year 2025. The 2016 standard is equivalent to 35.5 miles per gallon (mpg) and the 2025 standard is equivalent to 54.5 mpg if the levels were achieved solely through improvements in fuel efficiency. The agencies expect, however, that a portion of these improvements will occur due to air conditioning technology improvements (i.e., they will leak less) and due to the use of alternative refrigerants, which would not contribute to fuel economy. These standards would cut GHG emissions by an estimated 2 billion metric tons and 4 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2017–2025). The combined USEPA GHG standards and NHTSA Corporate Average Fuel Economy (CAFE) standards resolve previously conflicting requirements under both federal programs and the standards of the State of California and other states that have adopted the California standards (USEPA 2010; USEPA and NHTSA 2012).

State

The California Air Resources Board (CARB), a part of the California Environmental Protection Agency (CalEPA), is responsible for the coordination and administration of both federal and State air pollution control programs in California. There are numerous State plans, policies, regulations, and laws related to GHGs and global climate change. Following is a brief discussion of the plans, policies, and regulations most relevant to the Project.

Clean Car Standards (Assembly Bill 1493)

AB 1493, adopted September 2002, also known as Pavley I, requires the development and adoption of regulations to achieve the maximum feasible reduction of GHGs emitted by noncommercial passenger vehicles, light-duty trucks, and other vehicles used primarily for personal transportation in the State. Although setting emissions standards on automobiles is solely the responsibility of the USEPA, the CAA allows California to set State-specific emission standards on automobiles if the State first obtains a waiver from the USEPA. The USEPA granted California that waiver on July 1, 2009. The emission standards have become increasingly more stringent through the 2016 model year. California is also committed to further strengthening these standards beginning in 2017 to obtain a 45 percent GHG reduction from 2020 model year vehicles (CARB 2009).

Executive Order S-3-05

On June 1, 2005, Governor Arnold Schwarzenegger signed EO S-3-05, which proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce snowpack in the Sierra Nevada Mountains; could further exacerbate California's air quality problems; and could potentially cause a rise in sea levels. In an effort to avoid or reduce the impacts of climate change, EO S-3-05 establishes a goal of a reduction in GHG emissions to the year 2000 level by 2010, to year 1990 levels by 2020, and to 80 percent below 1990 levels by 2050.

The California Global Warming Solutions Act of 2006 (Assembly Bill 32)

In furtherance of the goals established in EO S-3-05, the California Legislature adopted the public policy position that global warming is "a serious threat to the economic well-being, public health, natural resources, and the environment of California" (*California Health and Safety Code,* Section 38501). Further, the State Legislature determined that:

> the potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra Nevada snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious disease, asthma, and other human health-related problems.

The State Legislature also stated that:

> Global warming will have detrimental effects on some of California's largest industries, including agriculture, wine, tourism, skiing, recreational and

> commercial fishing, and forestry. It will also increase the strain on electricity supplies necessary to meet the demand for summer air-conditioning in the hottest parts of the State (*California Health and Safety Code,* Section 38501).

These public policy statements became law with the enactment of AB 32, the California Global Warming Solutions Act of 2006, signed by Governor Arnold Schwarzenegger in September 2006. AB 32 is now codified as Sections 38500 through 38599 of the *California Health and Safety Code.*

AB 32 requires that Statewide GHG emissions be reduced to 1990 levels by 2020. This reduction is to be accomplished through an enforceable Statewide cap on GHG emissions that was phased in starting in 2012. AB 32 directs CARB to establish this Statewide cap based on 1990 GHG emissions levels; to disclose how it arrived at the cap; to institute a schedule to meet the emissions cap; and to develop tracking, reporting, and enforcement mechanisms. Emissions reductions under AB 32 are to include carbon sequestration projects and best management practices that are technologically feasible and cost effective.

CARB has been assigned to carry out and develop the programs and requirements necessary to achieve the goals of AB 32. Under AB 32, CARB is also responsible for adopting regulations requiring the reporting and verification of Statewide GHG emissions to monitor and enforce compliance with the established standards. AB 32 allows CARB to adopt market-based compliance mechanisms to meet the specified requirements. Finally, CARB is ultimately responsible for monitoring compliance and enforcing any rule, regulation, order, emission limitation, emission reduction measure, or market-based compliance mechanism adopted.

The first action under AB 32 resulted in the adoption of a report listing early-action GHG emission reduction measures on June 21, 2007. The early actions include three specific GHG control rules. On October 25, 2007, CARB approved an additional six early-action GHG reduction measures under AB 32. The three original early-action regulations meeting the narrow legal definition of "discrete early action GHG reduction measures" consist of the following:

1. A low-carbon fuel standard to reduce the "carbon intensity" of California fuels
2. Reduction of refrigerant losses from motor vehicle air conditioning system maintenance to restrict the sale of "do-it-yourself" automotive refrigerants
3. Increased methane capture from landfills to require broader use of state-of-the-art methane capture technologies

The additional six early-action regulations, which were also considered "discrete early action GHG reduction measures", consist of the following:

1. Reduction of aerodynamic drag, and thereby fuel consumption, from existing trucks and trailers through retrofit technology
2. Reduction of auxiliary engine emissions of docked ships by requiring port electrification
3. Reduction of PFC emissions from the semiconductor industry
4. Reduction of propellants in consumer products (e.g., aerosols, tire inflators, and dust removal products)
5. Requirements that all tune-up, smog check, and oil change mechanics ensure proper tire inflation as part of overall service in order to maintain fuel efficiency

6. Restriction on the use of SF_6 from non-electricity sectors if viable alternatives are available

As required under AB 32, on December 6, 2007, CARB approved the 1990 GHG emissions inventory, thereby establishing the emissions limit for 2020. The 2020 emissions limit was set at 427 million metric tons (MMT) of CO_2e. In addition to the 1990 emissions inventory, CARB also adopted regulations requiring mandatory reporting of GHGs for the large facilities that account for 94 percent of GHG emissions from industrial and commercial stationary sources in California. About 800 separate sources fall under the new reporting rules and include electricity-generating facilities, electricity retail providers and power marketers, oil refineries, hydrogen plants, cement plants, cogeneration facilities, and other industrial sources that emit CO_2 in excess of specified thresholds. As discussed in more detail below, CARB has also adopted a GHG scoping plan and an update to the same.

Senate Bill 1368

In September 2006, Governor Schwarzenegger signed Senate Bill (SB) 1368, which requires the California Energy Commission (CEC) to develop and adopt regulations for GHG emission performance standards for the long-term procurement of electricity by local, publicly owned utilities. These standards must be consistent with the standards adopted by the California Public Utilities Commission (CPUC). This effort will help protect energy customers from financial risks associated with investments in carbon-intensive generation by allowing new capital investments in power plants whose GHG emissions are as low as or lower than new combined-cycle natural gas plants by requiring imported electricity to meet GHG performance standards in California and by requiring that the standards be developed and adopted in a public process.

Executive Order S-1-07

Issued on January 18, 2007, EO S-1-07 sets a declining Low Carbon Fuel Standard for GHG emissions measured in CO_2e grams per unit of fuel energy sold in California. The target of the Low Carbon Fuel Standard is to reduce the carbon intensity of California passenger vehicle fuels by at least 10 percent by 2020. The carbon intensity measures the amount of GHG emissions in the life cycle 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 is 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 is anticipated to lead to the replacement of 20 percent of the fuel used in motor vehicles with alternative fuels by 2020.

Senate Bill 97 and Amendments to the California Environmental Quality Act Guidelines

SB 97 directed the CNRA to adopt amendments to the California Environmental Quality Act (CEQA) Guidelines that require evaluation of GHG emissions or the effects of GHG emissions by January 1, 2010. The CNRA has done so, and the amendments to the State CEQA Guidelines, in a new Section 15064.4, entitled Determining the Significance of Impacts from greenhouse gas emissions, provide that:

a) The determination of the significance of greenhouse gas emissions calls for a careful judgment by the lead agency consistent with the provisions in Section 15064. A lead agency should make a good-faith effort, based on available information, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project. A lead agency shall have discretion to determine, in the context of a particular project, whether to:

   1) Use a model or methodology to quantify greenhouse gas emissions resulting from a project, and which model or methodology to use. The lead agency has discretion to select the model it considers most appropriate provided it supports its decision with substantial evidence. The lead agency should explain the limitations of the particular model or methodology selected for use; or

   2) Rely on a qualitative analysis or performance based standards.

b) A lead agency should consider the following factors, among others, when assessing the significance of impacts from greenhouse gas emissions on the environment:

   1) The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;

   2) Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project;

   3) The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such requirements must be adopted by the relevant public agency through a public review process and must reduce or mitigate the project's incremental contribution of greenhouse gas emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

The guideline amendments also add a new Section 15126.4(c), Mitigation Measures Related to Greenhouse Gas Emissions.

The amended guidelines establish two new guidance questions regarding GHG emissions in the environmental checklist set forth in Appendix G of the State CEQA Guidelines:

- Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
- Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

The adopted amendments do not establish a GHG emission threshold, instead allowing a lead agency to develop, adopt, and apply its own thresholds of significance or those developed by other agencies or experts. The CNRA also acknowledges that a lead agency may consider compliance with regulations or requirements implementing AB 32 in determining the significance of a project's GHG emissions Generally, this State CEQA Guidelines section requires

lead agencies to consider feasible means—supported by substantial evidence and subject to monitoring or reporting—of mitigating the significant effects of GHG emissions. Potential measures to mitigate the significant effects of GHG emissions are identified, including examples such as those outlined in Appendix F, Energy Conservation, of the State CEQA Guidelines.

California Air Resources Board Climate Change Scoping Plan

In 2008, CARB approved a Climate Change Scoping Plan as required by AB 32. The Climate Change Scoping Plan proposes a "comprehensive set of actions designed to reduce overall carbon GHG emissions in California, improve our environment, reduce our dependence on oil, diversify our energy sources, save energy, create new jobs, and enhance public health" (CARB 2008). The Climate Change Scoping Plan has a range of GHG reduction actions that include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms such as a cap-and-trade system, and an AB 32 implementation regulation to fund the program.

The Climate Change Scoping Plan calls for a "coordinated set of solutions" to address all major categories of GHG emissions. Transportation emissions will be addressed through a combination of higher standards for vehicle fuel economy; implementation of the Low Carbon Fuel Standard; and greater consideration for reducing trip length and generation through land use planning and transit-oriented development. A California cap-and-trade program that links with other Western Climate Initiative partner programs would create a regional market system and caps sources contributing 85 percent of California's GHG emissions. Buildings, land use, and industrial operations will be encouraged and, sometimes, required to use energy more efficiently. Utility energy supplies will change to include at least 33 percent of renewable energy sources in the energy mix through implementation of the Renewables Portfolio Standard (RPS). This will be complemented with emphasis on local generation, including rooftop photovoltaics and solar hot water installations. Additionally, the Climate Change Scoping Plan emphasizes opportunities for households and businesses to save energy and money by increasing energy efficiency. It indicates that substantial savings of electricity and natural gas will be accomplished by "improving energy efficiency by 25 percent" (CARB 2008).

In the 2008 Scoping Plan, CARB also developed a forecast of 2020 emissions in a business-as-usual scenario (2020 BAU), which is an estimate of the emissions expected to occur in the year 2020 if none of the foreseeable measures included in the Scoping Plan were implemented. This target was 596 million metric tons of carbon dioxide equivalent ($MMTCO_2e$). The 2020 GHG emissions target of 427 $MMTCO_2e$ required the reduction of 169 $MMTCO_2e$, or about 28.5 percent from the 2020 BAU forecast.

The Climate Change Scoping Plan identifies a number of specific issues relevant to the Project, including those listed below (CARB 2008).

- The potential of using the green building framework as a mechanism that could enable GHG emissions reductions in other sectors (e.g., electricity, natural gas), noting that green buildings "exceed minimum energy efficiency standards, decrease consumption of potable water, reduce solid waste during construction and operation, and incorporate sustainable materials. Combined, these measures can also contribute to healthy indoor air quality, protect human health, and minimize impacts to the environment".

- The importance of increasing the supply and utilization of green power and lower carbon intensity energy sources. Broadly defined, this includes implementation of the utility-based RPS, which requires that, by 2017, 20 percent of the available energy supplies are from renewable energy sources, such as use of solar hot water heating; support for the Million Solar Roofs Program; and increased use of combined heat and power.
- The importance of supporting the Department of Water Resources' work to implement the Governor's objective to reduce per capita water use by 20 percent by 2020. Specific measures to achieve this goal include water use efficiency, water recycling, and reuse of urban runoff. The Climate Change Scoping Plan notes that water use requires significant amounts of energy, including approximately $^{1}/_{5}$ of Statewide electricity.
- Encouragement of local governments to set quantifiable emissions reduction targets for their jurisdictions and use their influence and authority to encourage reductions in emissions caused by energy use, waste and recycling, water and wastewater systems, transportation, and community design.

First Update to the Climate Change Scoping Plan

In 2014, CARB approved the First Update to the Climate Change Scoping Plan (First Update or 2013 Update) (CARB 2014a). The First Update identifies opportunities to leverage existing and new funds to further drive GHG emission reductions through strategic planning and targeted low carbon investments; defines CARB's climate change priorities for the next five years; and sets the groundwork to reach California's long-term climate goals set forth in EO S-3-05 (CARB 2015d).

The First Update states that California is on track to meet the near-term 2020 GHG limit and is well-positioned to maintain and continue reductions beyond 2020 as required by AB 32. The set of actions the State is taking is driving down GHG emissions and is moving the State steadily in the direction of a cleaner energy economy.

The First Update identifies nine sectors and corresponding sector-specific actions. The sectors are energy; transportation, land use fuels, and infrastructure; agriculture; water; waste management; natural and working lands; short-lived climate pollutants; green buildings; and cap-and-trade regulation.

As previously discussed, in the 2008 Scoping Plan, CARB established the 1990 Statewide GHG emissions level, which is also the 2020 GHG emissions target at 427 $MMTCO_2e$ and forecasted 2020 BAU emissions to be 596 $MMTCO_2e$. Based on new information and analysis, the First Update recalculated the 2020 BAU condition at 509 $MMTCO_2e$ and the 1990 emissions level at 431 $MMTCO_2e$.[1] Thus, under the First Update, achieving the recalculated 1990 emissions level of 431 $MMTCO_2e$ will require a reduction of 78 $MMTCO_2e$ or an approximately 15.3 percent reduction (compared to a 28.5 percent reduction as set forth in the 2008 Scoping Plan). Table 4.7-1 shows the expected reductions to meet the 2020 emissions target.

[1] In 2013, CARB revised GHG calculations to use the GWP values from the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report (AR4). Previous calculations used the GWPs from the second assessment report (SAR).

TABLE 4.7-1
MEETING THE 2020 EMISSIONS TARGET

Category	2020 ($MMTCO_2e$)
AB 32 Baseline 2020 Forecast Emissions (2020 BAU)	509
Expected Reductions from Sector-Based Measures	
Energy	25
Transportation	23
High-GWP	5
Waste	2
Cap-and-Trade Reductions	23*
2020 Limit	431

$MMTCO_2e$: million metric tons of carbon dioxide equivalent; AB: Assembly Bill; 2020 BAU: 2020 business-as-usual; GWP: global warming potential.

* Cap-and-Trade emission reductions depend on the emission forecast

Source: CARB 2014a.

As shown in Table 4.7-1, the Cap-and-Trade reduction is flexible. The estimated emission reductions attributed to the Cap-and-Trade Program depend on the emissions forecast. For example, if the emissions forecast increases, the reductions associated with the Cap-and-Trade Program will increase.

Second Update to the Climate Change

On April 29, 2015, Governor Brown issued EO B-30-15 identifying a goal of establishing a mid-term GHG reduction target for California of 40 percent below 1990 levels by 2030. CARB was directed to update the AB 32 Scoping Plan to reflect the 2030 target and, therefore, is moving forward with the update process. The 2030 Target Scoping Plan Update Concept Paper was released on June 17, 2016 for public comment (CARB 2016). Public workshops occurred in summer of 2016 to solicit comments on modeling efforts and scenarios for achieving the 2030 target. Once the scenarios are fully developed, there will be a Draft Scoping Plan with CEQA and economic analyses for public review and comment. The first Board hearing on the Draft Scoping Plan is planned for November 2016 with a second Board hearing planned for spring 2017.

Senate Bill 375

Signed September 30, 2008, SB 375 provides for a new planning process to coordinate land use planning and Regional Transportation Plans (RTPs) and funding priorities in order to help California meet the GHG reduction goals established in AB 32. SB 375 requires Metropolitan Planning Organizations (MPOs), including the Southern California Association of Governments (SCAG), to incorporate a Sustainable Communities Strategy (SCS) in their RTPs that will achieve GHG emission reduction targets set by CARB. There are two mutually important facets to SB 375: reducing vehicle miles traveled (VMT) and encouraging more compact, complete, and efficient communities for the future. SB 375 also includes provisions for exemptions from or streamlined CEQA review for projects classified as transit priority projects (SCAG 2012).

On September 23, 2010, CARB adopted most of the SB 375 targets for the regional MPOs, including the 2020 target for SCAG, the designated MPO for the Project site. On February 24, 2011, CARB adopted the 2035 target for SCAG. The targets are an 8 percent reduction in GHG emissions from automobiles and light trucks per capita by 2020 and a 13 percent reduction by 2035. See additional discussion of the SCAG plan under Local Regulations.

Advanced Clean Cars

In January 2012, CARB approved the Advanced Clean Cars (ACC) program, an emissions-control program for model years 2017 through 2025. The program combines the control of smog, soot, and GHGs with requirements for greater numbers of zero-emission vehicles. By 2025, when the rules will be fully implemented, the new automobiles will emit 34 percent fewer global warming gases and 75 percent fewer smog-forming emissions (CARB 2015b). The program also requires car manufacturers to offer for sale an increasing number of zero-emission vehicles (ZEVs) each year, including battery electric, fuel cell, and plug-in hybrid electric vehicles.

In December 2012, CARB adopted regulations allowing car manufacturers to comply with California's GHG emissions requirements for model years 2017 through 2025 through compliance with the USEPA GHG requirements for those same model years (CARB 2012).

Executive Order B-30-15

On April 29, 2015, Governor Brown signed EO B-30-15, which establishes a goal of "[a] new interim statewide greenhouse gas emission reduction target to reduce greenhouse gas emissions to 40 percent below 1990 levels by 2030 . . . in order to ensure California meets its target of reducing greenhouse gas emissions to 80 percent below 1990 levels by 2050" (COOG 2015). As noted above, EO B-30-15 also directs CARB to update the *Climate Change Scoping Plan* to express the 2030 target in terms of million metric tons of carbon dioxide equivalent.

Senate Bill 350

SB 350, signed October 7, 2015, is the Clean Energy and Pollution Reduction Act of 2015. SB 350 implements some of the goals of EO B-30-15 and expands on the RPS established by Senate Bill X1 2 signed into law on April 12, 2011. The objectives of SB 350 are as follows:

(1) To increase from 33 percent to 50 percent, the procurement of our electricity from renewable sources.

(2) To double the energy efficiency savings in electricity and natural gas final end uses of retail customers through energy efficiency and conservation (California Legislative Information 2015).

The text of SB 350 sets a December 31, 2030, target for 50 percent of electricity to be generated from renewable sources.

Senate Bill 32/Assembly Bill 197

SB 32, signed September 8, 2016, implements a goal of EO B-30-15. Under SB 32, in "adopting rules and regulations to achieve the maximum technologically feasible and cost-effective greenhouse gas emissions reductions," CARB must ensure that statewide greenhouse gas

emissions are reduced to 40 percent below the 1990 level by 2030. SB 32's findings state that CARB will "achieve the state's more stringent greenhouse gas emission reductions in a manner that benefits the state's most disadvantaged communities and is transparent and accountable to the public and the Legislature." AB 197, a companion to SB 32, adds two members to the CARB and requires measures to increase transparency about GHG emissions, climate policies, and GHG reduction actions.

Energy Efficiency Standards for Residential and Nonresidential Buildings

The Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24, Part 6 of the *California Code of Regulations* [CCR]) were established in 1978 in response to a legislative mandate to reduce California's energy consumption. The current applicable standards are the 2013 Standards, effective July 1, 2014. The 2016 Code was published on July 1, 2016, and will go into effect on January 1, 2017 (CBSC 2015).

California Green Building Standards Code

The 2013 California Green Building Standards Code (24 CCR 11) is a code with mandatory requirements for new residential and nonresidential buildings (including buildings for retail, office, public schools, and hospitals) throughout California. The code is Part 11 of the California Building Standards Code in Title 24 of the *California Code of Regulations* and is also known as the CALGreen Code (CBSC 2015). The 2016 Code will go into effect on January 1, 2017.

The development of the CALGreen Code is intended to (1) reduce GHG emissions from buildings; (2) promote environmentally responsible, cost-effective, and healthier places to live and work; (3) reduce energy and water consumption; and (4) respond to the Governor's directives. In short, the code is established to reduce construction waste; make buildings more efficient in the use of materials and energy; and reduce environmental impacts during and after construction. The CALGreen Code contains requirements for construction site selection, storm water control during construction, construction waste reduction, indoor water use reduction, material selection, natural resource conservation, site irrigation conservation, and more. The code provides for design options allowing the designer to determine how best to achieve compliance for a given site or building condition. The code also requires building commissioning, which is a process for verifying that all building systems (e.g., heating and cooling equipment and lighting systems) are functioning at their maximum efficiency.

California Air Pollution Control Officers Association

The California Air Pollution Control Officers Association (CAPCOA) is the association of Air Pollution Control Officers representing all 35 local air quality agencies throughout California. CAPCOA is not a regulatory body but has been an active organization in providing guidance in addressing the CEQA significance of GHG emissions and climate change as well as other air quality issues.

The August 2010 CAPCOA publication entitled *Quantifying Greenhouse Gas Mitigation Measures, A Resource for Local Government to Assess Emission Reductions from Greenhouse Gas Mitigation Measures* provides guidance on the quantification of project-level mitigation of GHGs associated with land use, transportation, energy use, and other related project areas (CAPCOA 2010). The guidance includes detailed procedures about the approaches to assessing and calculating the

GHG emissions reductions associated with project design features and mitigation measures. This publication's methods are used in the CalEEMod computer model that is used to calculate GHG emissions.

Regional

Southern California Association of Governments

As previously discussed, SB 375 specifically required MPOs, including SCAG, to incorporate an SCS in their RTPs that will achieve GHG emission reduction targets set by CARB. SCAG's first-ever SCS is included in its *2012–2035 Regional Transportation Plan/Sustainable Communities Strategy* (RTP/SCS). The document was adopted by SCAG in April 2012. The goals and policies of the RTP/SCS that reduce VMT focus on transportation and land use planning that include building infill projects, locating residents closer to where they work and play and designing communities so there is access to high quality transit service. The 2012–2035 RTP/SCS is expected to reduce per capita transportation emissions by 9 percent by 2020 and by 16 percent by 2035. In June 2012, CARB accepted SCAG's determination that the Final RTP/SCS would meet the region's GHG reduction target.

SCAG's SCS is now included in its 2016–2040 RTP/SCS. The document was adopted by SCAG on April 7, 2016. The 2016–2040 RTP/SCS is expected to reduce per capita transportation emissions by 8 percent by 2020 and by 18 percent by 2035 (SCAG 2016). On June 28, 2016, CARB accepted SCAG's determination that the Final RTP/SCS would meet the region's GHG reduction target.

South Coast Air Quality Management District

The Project site lies within the boundaries of the South Coast Air Quality Management District (SCAQMD). The SCAQMD is bound by the Ventura County/Los Angeles County border to the northwest, the Mojave Desert Air Basin to the north, the Riverside County border to the east, and the San Diego County-Riverside County border to the south.

The portion of the Project site under the jurisdiction of the SCAQMD lies within the South Coast Air Basin (SoCAB). The mission of the SCAQMD is to undertake all necessary steps to protect public health from air pollution, with sensitivity to the impacts of its actions on the community and businesses through a comprehensive program of planning, regulation, compliance assistance, enforcement, monitoring, technology advancement, and public education (SCAQMD 2015).

Beginning in April 2008, the SCAQMD convened a Working Group to provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents. The Working Group was scheduled to meet once per month. On December 5, 2008, the SCAQMD Governing Board adopted its staff proposal for an interim CEQA GHG significance threshold of 10,000 metric tons of CO_2 equivalent per year ($MTCO_2e$/year) for industrial projects where the SCAQMD is the lead agency. The policy objective for establishing this significance threshold is to capture projects that represent approximately 90 percent of GHG emissions from new sources and to avoid Environmental Impact Report (EIR)-level analysis for relatively small impacts (SCAQMD 2008).

In September 2010, the Working Group proposed extending the 10,000 $MTCO_2e$/year screening threshold currently applicable to industrial projects where the SCAQMD is the lead agency, described above, to other lead agency industrial projects. For all other projects, SCAQMD staff proposed a multiple tier analysis to determine the appropriate threshold to be used. The draft proposal suggests the following tiers: Tier 1 is any applicable CEQA exemptions, Tier 2 is consistency with a GHG reduction plan, Tier 3 is a screening value or bright-line, Tier 4 is a performance-based standard, and Tier 5 is GHG mitigation offsets.[2] According to the presentation given at the September 28, 2010, Working Group meeting, SCAQMD staff proposed a Tier 3 draft threshold of 1,400 to 3,500 $MTCO_2e$/year depending on whether the project was commercial, mixed use, or residential. For the Tier 4 draft threshold, SCAQMD staff presented a percent emission reduction target option but did not provide any specific recommendation for a numerical target; instead, it referenced the San Joaquin Valley Air Pollution Control District (SJVAPCD) approach. The percent reduction target is based on consistency with AB 32 as it was based on the same numeric reductions calculated in the Scoping Plan to reach 1990 levels by 2020. The second Tier 4 option is to utilize efficiency targets: 2020 targets are 4.8 $MTCO_2e$/year per service population (SP) for project-level thresholds where SP is project residents plus employees and 6.6 $MTCO_2e$/year per SP for a plan-level threshold (SCAQMD 2010a). Targets for 2035 are 3.0 $MTCO_2e$/year per SP for project-level thresholds and 4.1 $MTCO_2e$/year per SP for plan-level thresholds. The Working Group has not convened since the fall of 2010. As of the publication of this EIR, the proposal to establish a GHG threshold for developments like the Project has not been considered or approved for use by the SCAQMD Board, but the methodology has been used by lead agencies to evaluate GHG impacts under CEQA.

4.7.3 METHODOLOGY

Project emissions were calculated by using CalEEMod Version 2013.2.2 (SCAQMD 2013). CalEEMod is a computer program accepted by the SCAQMD that can be used to estimate criteria pollutant and GHG emissions associated with land development projects in California. CalEEMod has separate databases for specific Counties and air districts. The Orange County database was used for the proposed Project. The model calculates emissions of CO_2, CH_4, and N_2O and combines these emissions to calculate CO_2e. For this analysis, the results are expressed in $MTCO_2e$/year. Please see Section 4.3, Air Quality, of this EIR for discussion of the CalEEMod inputs, adjustments, outputs, and other characteristics.

CalEEMod does not include emissions reductions for vehicle emissions improvements that will occur under the ACC regulation. Therefore, a manual reduction in mobile emissions was made based on CARB's Low Emission Vehicle (LEV) III database model (LEV3 Tool), which was used to estimate the Statewide ACC emissions reduction factors. The ACC emission reduction was estimated at 1 percent based on review of the LEV III data (CARB 2014b).

[2] A bright-line is a single value, applicable to all projects of one type, regardless of size. Thus, a bright-line is different from performance standards or efficiency standards that are generally based on a per-unit basis.

4.7.4 EXISTING CONDITIONS

Existing Greenhouse Gas Emissions

The Project consists of land presently used as a green waste operation and a container nursery and Magazine Road. To be conservative, the following assumes that there are no current sources of emissions on the Project site.

Global, National, State, and Regional Contributions to Greenhouse Gas Emissions

Table 4.7-2 compares the magnitude of GHG emissions on the global, national, State, and regional (i.e., Orange County) scales. It shows the relative estimated quantities of GHG emissions from worldwide to Orange County. CO_2e emissions are commonly expressed as $MTCO_2e$. Larger quantities of emissions, such as on the State or world scale, are expressed in $MMTCO_2e$. Metric tons may also be stated as "tonnes". The CO_2e for a gas is derived by multiplying the tons of the gas by the associated GWP, such that $MMTCO_2e$ = (million metric tons of a GHG) x (GWP of the GHG). For example, the GWP for CH_4 is 21. This means that emissions of 1 million metric ton of CH_4 are equivalent to the emissions of 21 million metric tons of CO_2.

TABLE 4.7-2
COMPARISON OF WORLDWIDE GREENHOUSE GAS EMISSIONS

Area and Data Year	Annual GHG Emissions ($MMTCO_2e$)
World (2012)	46,049
United States (2014)	6,870
California (2014)	442
Orange County (2011)	21

GHG: greenhouse gas; $MMTCO_2e$: million metric tons of carbon dioxide equivalent.
Source: WRI 2016; USEPA 2016; CARB 2015c; SCAG 2011.

The United States contributes approximately 14.72 percent of worldwide GHG emissions per year; California contributes approximately 0.96 percent; and the County contributes approximately 0.05 percent. The most common GHG is CO_2, which constitutes approximately 84 to 85 percent of all GHG emissions in the United States and California. The primary contributors to California GHG emissions are (1) transportation, (2) electric power production from both in-state and out-of-state sources, and (3) industrial uses.

4.7.5 THRESHOLDS OF SIGNIFICANCE

Because the magnitude of global GHG emissions is extremely large when compared with the emissions of typical development projects, it is accepted as very unlikely that any individual development project would have GHG emissions of a magnitude to directly impact global climate change. CAPCOA's CEQA and Climate Change Report states, "GHG impacts are exclusively cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective" (CAPCOA 2008). As noted by the CNRA, "Due to the global nature of GHG emissions and their potential effects, GHG emissions will typically be addressed in a cumulative impacts

analysis" (CNRA 2009). Therefore, the analysis presented in this section represents the cumulative impact analysis for the Project related to GHG emissions.

Specifically, Section 15064.4 of the State CEQA Guidelines discusses the significance evaluation for GHG emissions. Section 15064.4(a) recognizes that the "determination of the significance calls for a careful judgment" by the lead agency that is coupled with lead agency discretion to determine whether to (1) use a model or methodology and/or (2) rely on a qualitative analysis or performance-based thresholds. Section 15064.4(b) further states that a lead agency should consider the following nonexclusive list of factors when assessing the significance of GHG emissions:

1. The extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting;
2. The extent to which project emissions exceed a threshold of significance that the lead agency determines applies to the project; and
3. The extent to which the project complies with regulations or requirements adopted to implement a Statewide, regional, or local plan for the reduction or mitigation of GHG emissions.

In accordance with the County's Environmental Analysis Checklist and Appendix G of the State CEQA Guidelines, the Project would result in significant GHG impacts if it would:

Threshold 4.7-1 Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.

Threshold 4.7-2 Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

As described in Section 4.7.2, there are no applicable, adopted quantitative GHG thresholds. In its recent decision, *Center for Biological Diversity v. Department of Fish and Wildlife,* 62 Cal. 4th 204 (2015) (*Newhall*), the Court evaluated the California Department of Fish and Wildlife's (CDFW's) analysis of potential impacts caused by GHG emissions contained in the EIR for the proposed land development called Newhall Ranch. In the EIR for that project, the CDFW analyzed GHG emissions under AB 32, using the BAU comparison as its sole criterion of significance.

In *Newhall*, the California Supreme Court concluded that a finding of consistency with meeting Statewide emission reduction goals is a legally permissible criterion of significance when analyzing potential impacts of GHG emissions under CEQA. However, the Court found that the EIR's conclusion that the project's emissions would be less than significant under that criterion was not supported by substantial evidence.

The Supreme Court in the Newhall Ranch case also favorably identified regional or localized targets or thresholds for GHG reductions based on AB 32's Statewide goal as potentially viable methods for assessing a new land use project's GHG contribution. The Court then identified potential options for lead agencies evaluating cumulative significance of a proposed land use development's GHG emissions in future CEQA documents.

The approach to the analysis of the Project's GHG emissions, with respect to the options identified by the Court, is as follows:

1. *Business As Usual (BAU) Model*: The BAU analysis is not used given the concerns raised by the Court and the existence of a methodology developed by the air quality district for the region where the Project site is located as discussed below.

2. *Compliance With Regulatory Programs Designed To Reduce Greenhouse Gas Emissions*: Compliance with State and regional programs designed to reduce GHG emissions, specifically, the First Update to the AB 32 Scoping Plan and the SCAG RTP/SCS, which in this EIR is addressed under Threshold 4.6-2.

3. *Local Climate Action Plan or Other "Geographically Specific Greenhouse Gas Emission Reduction Plans"*: This method is not used for the Project because a Climate Action Plan approved for CEQA tiering that is applicable to the Project site does not exist.

4. *Regional Sustainable Community Strategy (SCS)*: Qualitative consistency with the 2016-2040 RTP/SCS is demonstrated under Threshold 4.6-2. As stated above, the Court indicated that additional quantitative analysis is not necessarily needed.

5. *Numerical GHG Significance Thresholds*: In the analysis of impacts under Threshold 4.6-1, the County uses the SCAQMD "efficiency" threshold. SCAQMD, which has jurisdiction over the Project site, developed the "efficiency" threshold and it is very similar to the numerical thresholds proposed by Bay Area Air Quality Management District (BAAQMD), which the Court considered favorably.

In addition, citing the goals established by EOs S-3-05 and B-30-15, the Court cautioned that those EIRs taking a goal-consistency approach to CEQA significance may "in the near future" need to consider a project's effects on meeting emissions reduction targets beyond 2020. Thus, a discussion of Project consistency with the goals established by EOs S-3-05 and B-30-15 is included in the analysis under Threshold 4.7-2. In addition, in light of the September 2016 adoption of SB 32, the analysis under Threshold 4.7.1 includes a discussion of potentially significant Project impacts post-2020.

The analysis under Threshold 4.7-1 discloses the extent to which the Project increases GHG emission levels relative to existing GHG emission levels. For the Project's quantitative analysis, the SCAQMD project-level efficiency target will be used. An efficiency threshold evaluates impact on a per-project unit basis, rather than as a single quantitative limit, sometimes called a bright-line threshold. For the SCAQMD GHG efficiency threshold, the project unit is Service Population (SP), which is the sum of residents and employees. The efficiency threshold is used rather than the bright-line threshold because the latter threshold does not consider the size of a project and therefore penalizes larger projects even though they may be more GHG efficient because of economy of scale, mixed-use composition or other factors.

SCAQMD developed the 2020 and 2035 efficiency thresholds following the same methodology used by BAAQMD (SCAQMD 2010a). The BAAQMD used an SP-based approach and determined that if a plan demonstrates it could meet the criteria, it would,

> . . . accommodate growth in a manner that would not hinder the State's ability to achieve AB 32 goals, and thus, would be less than significant for GHG emissions and their contribution to climate change. The efficiency metric would not penalize well-planned communities that propose a large amount of development. Instead,

> the SP-based GHG efficiency metric acts to encourage the types of development that BAAQMD and OPR [the Office of Planning and Research] support (i.e., infill and transit-oriented development) because it tends to reduce GHG and other air pollutant emissions overall, rather than discourage large developments for being accompanied by a large mass of GHG emissions. Plans that are more GHG efficient would have no or limited mitigation requirements to help them complete the CEQA process more readily than plans that promote GHG inefficiencies, which will require detailed design of mitigation during the CEQA process and could subject a plan to potential challenge as to whether all feasible mitigation was identified and adopted. This type of threshold can shed light on a well-planned general plan that accommodates a large amount of growth in a GHG-efficient way (BAAQMD 2010).

For a project-level analysis, the SCAQMD efficiency targets are 4.8 $MTCO_2e$/SP/year for 2020 and 3.0 $MTCO_2e$/SP/year for 2035. The 2020 project-level efficiency target was established by SCAQMD based on the AB 32-generated projections for land use sectors. SCAQMD utilized the projected 1990 GHG Land Use Sectors GHG Emissions target of 295,530,000 $MTCO_2e$ to determine the appropriate efficiency targets. The SP used for the project-level threshold also uses the projected employment for just land use sources instead of the total Statewide employment used in the BAU analysis.

The planned year for completion of the proposed Project is 2022; therefore, the following analysis uses a straight line interpolation between the 2020 project-level efficiency value of 4.8 $MTCO_2e$/SP/year and the 2035 value of 3.0 identified by SCAQMD. With its anticipated 2022 completion date, the straight line interpolation discloses a 4.56 $MTCO_2e$/SP/year efficiency target for the Project. Although not applicable to the Project, for information disclosure purposes, note that the SCAQMD efficiency target is also the preferred threshold identified in the City of Irvine CEQA Manual.

With the adoption of SB 32, an evaluation of the Project's 2030 GHG emissions was also conducted. No metrics or methodology for achieving the SB 32 targets existed at the time of the preparation of the DEIR. Nonetheless, SCAQMD established its 2035 efficiency threshold based on the same GHG reduction that SB 32 established for 2030 (reduce GHG emissions by 40 percent below the 1990 levels). As the SCAQMD's targeted reduction was specifically designed for this region and is consistent with the newly signed SB 32, the following uses the SCAQMD efficiency thresholds to determine the significance of the Project's GHG contributions. However, consistent with the timeline identified by SB 32, rather than achieving the 40 percent reduction in GHG emissions below the 1990 levels by 2035 this EIR evaluated the Project against the SCAQMD's efficiency targets as of 2030. Therefore, the 2030 efficiency threshold used in this EIR for plans is 4.1 $MTCO_2e$/year per service population and an efficiency threshold at the project level is 3.0 $MTCO_2e$/year per service population.

4.7.6 IMPACT ANALYSIS

As discussed in Section 4.0, Impact Analysis Introduction, of this EIR, the Development Plan identifies a number of development requirements that serve to minimize potential impacts (the development requirements are in Appendix C of the Development Plan). The inclusion of these requirements, as appropriate, will be verified during the development review and/or ministerial permit process (e.g., building permit). The development requirements also include other

measures that will reduce or avoid potentially significant Project impacts. The County intends to implement the development requirements as part of the Project and has included the development requirements in the Development Plan for that purpose. These measures are listed in Section 4.7.8, Mitigation Program because these measures will be tracked as part of the Mitigation Monitoring and Reporting Program.

Threshold 4.7-1

Would the Project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Short-Term Construction Impacts

Construction activities would result in the temporary generation of GHGs through worker vehicles and off-road and on-road construction equipment. The Project is proposed to begin construction in 2018, with Project being operational in 2022. The details of phasing, selection of construction equipment, and other input parameters are described in Section 4.3, Air Quality, of this EIR.

Because construction activity impacts are relatively short-term, they contribute a relatively small portion of the total lifetime GHG emissions of a project. In addition, GHG emission-reduction measures for construction equipment are relatively limited. Therefore, as originally proposed by the SCAQMD, it has become current practice that construction emissions are amortized over a project lifetime (typically 30 years) so that GHG-reduction measures will address construction GHG emissions as part of the operational GHG-reduction strategies (SCAQMD 2008). That method is used in this analysis.

The results of the CalEEMod calculations for GHGs from Project construction are shown in Table 4.7-3. The construction of the Project would result in estimated GHG emissions of approximately 5,973 $MTCO_2e$, or annual GHG emissions of 199 $MTCO_2e$ when amortized over 30 years.

TABLE 4.7-3
ESTIMATED CONSTRUCTION ANNUAL GREENHOUSE GAS EMISSIONS

Year	Emissions ($MTCO_2e$)
2018	210
2019	1,691
2020	2,041
2021	2,092
Total	**6,034**
Annual Construction Emissions Amortized over 30 Years	***201***

$MTCO_2e$: metric tons of carbon dioxide equivalent.
Calculations in Appendix G.

Because construction emissions are amortized over a 30-year project lifetime, the level of significance for construction emissions related to the Project is included in the section on "Long-Term Operational Impacts", and a separate significance finding for construction emissions is not necessary.

Long-Term Operational Impacts

Operational GHG emissions for the Project were calculated in accordance with the methods described above and in Section 4.3, Air Quality, of this EIR. Mobile source input for trip generation was taken from the Project's *Transportation Impact Analysis* located in Appendix L of this EIR.

Model inputs include Project-specific data for water use and CalEEMod default data for electricity, natural gas, and solid waste. Additionally, the analysis incorporates a 50 percent reduction for solid waste, consistent with the requirements of AB 939 (see Section 4.16, Utilities, regarding AB 939). The CalEEMod model includes data to calculate emissions reductions based on Project-specific characteristics and mitigation measures (MMs). As described in Section 4.7.3, reductions in mobile emissions result from the inclusion of affordable housing and for ACC; the latter is a manual calculation following the CalEEMod calculation.

Project design would comply with California Building Code requirements for energy efficiency (Development Requirement [DR] GHG-1) and green building (DR GHG-2). At a minimum, the Project must comply with the 2016 codes (effective January 1, 2017) so the GHG analysis was done on that basis. . Analysis by the California Energy Commission concludes that the 2016 Code would be at least 28 percent more efficient for residential Title 24 electric and gas applications than the 2013 Code (CEC 2015b). The Project would incorporate solar energy generation (DR GHG-3) and Energy Star or equivalent appliances (DR GHG-4). DR GHG-3 requires total solar generation for the entire Project equivalent to 1.25 kilowatts (kW) per dwelling unit; for GHG analysis, it is estimated that solar generation would be 1,592,550 kilowatt hours (kWh) per year. The model accounts for the use of recycled water for irrigation.

The results of the calculations are shown in Table 4.7-4; CalEEMod data sheets are included in Appendix G of this EIR. The total operational GHG emissions at Project buildout are estimated at 7,007 $MTCO_2e$/year.

TABLE 4.7-4
ESTIMATED PROJECT BUILDOUT (2022) OPERATIONAL ANNUAL GREENHOUSE GAS EMISSIONS

Source	Emissions $MTCO_2e$/year	Percent of Total
Area	16	0.2
Energy	822	11.7
Mobile*	5,925	84.6
Solid Waste	84	1.2
Water	160	2.3
Annual GHG Emissions	7,007	

$MTCO_2e$/year: metric tons of carbon dioxide equivalent per year; GHG: greenhouse gas(es).
* A one percent reduction in mobile emissions was calculated manually for Advanced Clean Cars.

Table 4.7-5 shows that the total estimated annual GHG emissions for the Project would be 7,208 $MTCO_2e$/year at buildout, which is the sum of the amortized construction emissions from Table 4.7-3 and the operational emissions from Table 4.7-4. The estimated Project population and SP is 1,598. Table 4.7-5 also shows the calculated GHG efficiency to be 4.51 $MTCO_2e$/SP/year.

TABLE 4.7-5
ESTIMATED TOTAL PROJECT BUILDOUT (2022)
ANNUAL GREENHOUSE GAS EMISSIONS

Source	Emissions $MTCO_2e$/year
Construction (amortized) (from Table 4.7-3)	201
Operations (from Table 4.7-4)	7,007
Total Annual GHG Emissions	**7,208**
Service population	1,598
GHG efficiency ($MTCO_2e$/SP/year)	**4.51**
Interpolated SCAQMD-recommended project-level efficiency threshold	4.56
Exceed threshold?	***No***

$MTCO_2e$/year: metric tons of carbon dioxide equivalent per year; GHG: greenhouse gas; SP: service population; SCAQMD: South Coast Air Quality Management District.

As shown in Table 4.7-5, the Project's estimated GHG emissions efficiency at buildout (2022) would be less than the interpolated SCAQMD project-level efficiency threshold.

In addition to the projected Project buildout analysis, an analysis was prepared for the Project's compliance with the recently enacted SB 32, which sets a target for statewide GHG emissions of 40 percent below 1990 levels by the year 2030. Estimated Project GHG emissions in 2030 are provided below. Table 4.7-6 provides the estimated Project operational emissions and Table 4.6-7 provides the total emissions (operational and the amortized construction emissions). In the absence of adopted or recommended significance thresholds for SB 32, as noted above, the analysis utilizes the 2035 efficiency thresholds identified by the SCAQMD but measures the Project's compliance with that threshold as of 2030. Thus, consistent with the target identified in SB 32, the EIR includes a quantitative analysis of whether the Project generates GHG emissions that may have a significant impact using SCAQMD's region specific methodology developed to achieve a 40 percent reduction in GHG emissions from 1990 levels. For purposes of the 2030 evaluation, this 40 percent reduction, results in an efficiency threshold for plans of 4.1 $MTCO_2e$/year and an efficiency threshold at the project level of 3.0 MTCO2e/year.

In implementing this good-faith effort at informed decision making, the EIR's analysis considered the work of the SCAQMD GHG CEQA Significance Threshold Stakeholder Working Group. In response to comments from the Working Group regarding the efficiency thresholds, SCAQMD staff responded it may be likely that projects can achieve the 2035 efficiency threshold because cleaner vehicle fleets will achieve meaningful GHG reductions. Consequently, it was noted that fleet turnover plus a small increment of GHG reductions from land use projects could potentially achieve the 2035 efficiency threshold (SCAQMD 2010b).

TABLE 4.7-6
ESTIMATED 2030 OPERATIONAL
ANNUAL GREENHOUSE GAS EMISSIONS[3]

Source	Emissions $MTCO_2e$/year	Percent of Total
Area	16	0.2
Energy	702	10.6
Mobile*	5669	85.8
Solid Waste	84	1.3
Water	133	2.0
Annual GHG Emissions	6,604	

$MTCO_2e$/year: metric tons of carbon dioxide equivalent per year; GHG: greenhouse gas(es).
* A one percent reduction in mobile emissions was calculated manually for Advanced Clean Cars.

TABLE 4.7-7
ESTIMATED TOTAL (2030)
ANNUAL GREENHOUSE GAS EMISSIONS

Source	Emissions $MTCO_2e$/year
Construction (amortized) (from Table 4.7-3)	201
Operations (from Table 4.7-6)	6,604
Total Annual GHG Emissions	**6,805**
Service population	1,598
GHG efficiency ($MTCO_2e$/SP/year)	**4.26**
SCAQMD-recommended project-level significance threshold	3.0
Exceed threshold?	***Yes***

$MTCO_2e$/year: metric tons of carbon dioxide equivalent per year; GHG: greenhouse gas; SP: service population; SCAQMD: South Coast Air Quality Management District.

As Table 4.7-7 illustrates, when the estimated Project GHG emissions in 2030 are compared to the efficiency thresholds, the Project exceeds the project level efficiency threshold. Therefore, using the available efficiency thresholds, the Project's 2030 GHG impacts would be considered significant.

As previously noted, the quantitative analysis demonstrates that the Project would have a less than significant impact when measured against the AB 32 standards. However, CARB and the air districts have not established protocols for quantifying and assessing consistency with SB 32,

[3] It should be noted, that the Project 2030 GHG emissions would be less than 2022 GHG emissions because there would be more renewable content in the SCE electric power in 2030 than in 2022 and the vehicles associated with Project trips would be "cleaner" (i.e. have lower GHG emissions in 2030 than in 2022). The emissions associated with water delivery would also be slightly reduced compared to 2022 because of more efficient energy for water delivery.

which was signed into law on September 8, 2016. The above analysis is a good faith effort to identify the Project's ability to meet the 2030 target by using the SCAQMD project level significance threshold developed to achieve a 40 percent reduction in GHG compared to the 1990 GHG emission levels mandated by AB 32 for 2035. As also discussed below with respect to Threshold 4.7.2, the Project includes design elements, such as inclusion of solar, the density of the proposed residential uses, and the proximity to existing and proposed employment, visitor serving, cultural, commercial, and open space uses, which would serve to minimize Project GHG emission impacts.

In furtherance of achieving GHG emission reductions, the Project would be required to comply with the applicable Title 24 Energy Efficiency Standards for Residential and Nonresidential Buildings (DR GHG-1) and the applicable California Green Building Standards (CALGreen) Code (DR GHG-2). In addition, the Project has incorporated solar electrical generation at an average of 1.25 kilowatts per dwelling unit (DR GHG-3) and has requirements for Energy Star appliances (DR GHG-4). MM GHG-1 and MM GHG-2 have been incorporated into the Project to obtain additional GHG emissions reductions. MM GHG-1would require, at the parking structure and parking areas of 30 or more parking spaces devoted to common area parking, preferential parking for alternative-fueled vehicles, bicycle parking, and electric vehicle charging facilities. MM GHG-2 would provide information to encourage Project residents to commute by means other than solo fossil-fueled vehicles. Although implementation of MM GHG-1 and MM GHG-2 would reduce Project-related VMT and long-term emissions of mobile source pollutants, reasonable estimates of the amount of emissions reductions are not feasible. It should also be noted that DR AQ-4 and DR AQ-5 would provide some level of reduction of GHG emissions. DR AQ-4 provides measures to reduce impacts during construction and DR AQ-5 places restrictions on fireplaces in the residential units. However, even with these feasible GHG reduction strategies, the Project impacts from GHG emissions would be significant and unavoidable because the 40 percent below 1990 levels threshold would not be achieved.

Impact Conclusion: *Pursuant to Threshold 4.7-1, the Project's GHG emissions would exceed the SCAQMD-recommended project-level efficiency threshold. Implementation of DRs GHG-1 through DR GHG-4, DR AQ-4 and DR AQ-5, and MM GHG-1 and MM GHG-2 would reduce the GHG emissions though not to a level of less than significant. Therefore, the Project will have significant and unavoidable GHG impacts.*

Threshold 4.7-2

Would the Project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Applicable Plans and Regulations

The California Legislature adopted the public policy position that global warming is "a serious threat to the economic well-being, public health, natural resources, and the environment of California" (*California Health and Safety Code,* Section 38501). Further, the State Legislature has determined that:

> The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from

> the Sierra Nevada snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious disease, asthma, and other human health-related problems.

These public policy statements became law with the enactment of AB 32 in September 2006. AB 32 is now codified as Sections 38500–38599 of the *California Health and Safety Code*. Thus, the principal State plan and policy adopted for the purpose of reducing GHG emissions has been AB 32. However, as previously discussed, on September 8, 2016, SB 32 was signed into law. SB 32 identifies a new legislatively mandated target for GHG reductions. Unlike for AB 32, implementing regulations and guidance specific to SB 32 does not yet exist. SB 32 is discussed later in this section.

The quantitative goal of AB 32 is to reduce Statewide GHG emissions to 1990 levels by the year 2020. Statewide plans and regulations, including, but not limited to, light-duty vehicle GHG emissions standards, ACC standards. Low Carbon Fuel Standard, RPSs, Energy Efficiency Standards for Residential and Nonresidential Buildings, and California Green Building Standards, are being implemented. The Project must comply with all those applicable regulatory measures adopted to implement AB 32. Further, as noted above, at buildout (2022) the Project emissions are less than the interpolated SCAQMD efficiency threshold. Therefore, the Project would not conflict with the plans and regulations adopted to achieve AB 32's goals.

AB 32 also implemented the policy statement of EO S-3-05 that called for a reduction in GHG emissions to the year 2000 level by 2010, to year 1990 levels by 2020, and to 80 percent below 1990 levels by 2050. As described in Section 4.7.2, actions to achieve these reductions are specified in the Climate Change Scoping Plan. The current scoping plan is the First Update, adopted in 2014. As previously described, the First Update identifies nine sectors and corresponding sector-specific actions. The lead agencies identified for these actions are almost exclusively State agencies, including CARB, CEC, CPUC, California Department of Transportation (Caltrans), and many others. One action is shared by Caltrans and regional transportation agencies.

Although implementation of the Scoping Plan is assigned at the State level, discussions in the Achieving Success chapter of the First Update highlight important actions that are relevant to the proposed Project (CARB 2013).

- In the Expanding Climate Actions discussion, the First Update emphasizes, “The choices that we make—where we live, how we travel, what we purchase—have significant impacts on energy use and GHG emissions. Individuals and businesses play critical roles in addressing climate change. . . . Through policies implemented under AB 32, California is offering consumers more choices”. Among the examples of choices:
    - **Alternatives to driving:** Those who want an alternative to driving or vehicle ownership are finding more alternatives, as local governments design their communities to accommodate more walking, biking, and public transportation.

      The proposed Project would be located within walking and/or biking distance to employment, commercial business, recreation, cultural uses, a high school and transportation. Currently, the Orange County Transportation Authority (OCTA) bus service is provided to the east of the Project site on Alton Parkway and Irvine

Boulevard. Bus service includes line 480, which is a shuttle to Irvine Station, allowing future residents of the Project to use Metrolink, Amtrak, and other OCTA bus lines for commuting, trips to Anaheim Stadium, and more.

The proposed Project would encourage bicycling and walking by providing bicycle parking facilities at parking lots and common parking area of 20 or more spaces (MM GHG-1). The proposed Project would require operators of residential facilities to post bus, Metrolink and Amtrak schedules and ride-sharing information in conspicuous places (MM GHG-2). As documented in the Development Plan, the Project's design of the street and other pathway networks also encourages biking and walking. Thus, the proposed Project would provide substantial alternatives to driving and would be consistent with the First Update and AB 32.

- **Fuels:** Drivers can now pick from fossil or bio-based gasoline and diesel, ethanol, electricity, natural gas, renewable natural gas, or hydrogen.

  The proposed Project would encourage the use of alternative-fueled vehicles by providing preferential parking for low-emitting and fuel-efficient vehicles at residential and parking facilities (MM GHG-1). The proposed Project would also encourage the use of electric vehicles by providing electric charging facilities at parking structures and parking areas of 20 or more spaces (MM GHG-1). Thus, the proposed Project would provide alternatives in fuel choices and would be consistent with the First Update and AB 32.

- **Energy in the home:** Homes and appliances are more energy efficient, delivering more comfort for less cost. Consumers have more control over how and when they use energy, how much it costs, and where it comes from. Developers of new homes can pick among an array of energy options, including various levels of efficiency and solar.

  The proposed Project would provide energy-efficient residences with the provision of solar-generated electrical power (DR GHG-3) and Energy Star or equivalent appliances (DR GHG-4). Thus, the proposed Project would be consistent with the energy efficiency goals included in the First Update and AB 32.

The First Update addresses strategies and investments that will result in reduced VMT. As discussed in Section 4.12, Population and Housing, of this Draft EIR, the City of Irvine and Orange County are "jobs-rich" areas. The proposed Project, by locating residential development in a jobs-rich area, would facilitate relatively short commute distances and reduced VMT when compared to similar development in an area where the jobs/housing balance in not jobs-rich. Therefore, the Project would be consistent with, and would not conflict with, the implementation of these specific elements of the First Update to the AB 32 Scoping Plan.

As described above, SB 375 aligns regional transportation planning efforts, regional GHG reduction targets, and land use and housing allocations. SB 375 is being addressed at the State and regional levels, and the principles of SB 375 are incorporated in the adopted SCAG 2016–2040 RTP/SCS. SB 375 encourages compact, complete, and efficient communities for the future. As demonstrated by the Project site's location and the design and uses contemplated by the Development Plan, the proposed Project would be a compact, efficient community, located in

proximity to jobs and services, that would not conflict with implementation of the overall goals of SB 375 or the RTP/SCS.

Though the Project is not specifically identified in the growth projections utilized in the current version of the SCAG RTP/SCS, the RTP/SCS policies include building infill projects; locating residents closer to where they work and play; and designing communities so there is access to high quality transit service. For all the reasons described above, and as reflected in the Development Plan, the proposed Project includes all of those attributes and would not conflict with the policies of the SCAG RTP/SCS.

Regulations adopted for the purpose of reducing GHG emissions applicable to the Project include (1) California's Title 24, Part 6 Energy Efficiency Standards for Residential and Nonresidential Buildings and (2) California's Title 24, Part 11 California Green Building Standards Code (CALGreen Code). The focus of the 2016 Building Energy Efficiency Standards includes updating residential requirements to move closer to California's zero net energy goals (CEC 2015b).

The 2016 Energy Efficiency Code improvements for residential buildings include:

- High-performance attics: extra insulation at the roof deck in addition to ceiling insulation will reduce the attic temperature by 35 degrees or more during hot summer days.
- High-performance walls: builders can choose from many different assemblages to reduce heating and cooling needs in the home year round.
- Lighting: installation of high quality lighting with controls that nearly halve the energy required for lights in new homes.
- Water heating: installation of tankless water heaters that reduce use by about 35 percent.

As noted previously, analysis by the CEC concludes that the 2016 Code is 28 percent more efficient for residential Title 24 electric and gas applications than the current 2013 Code (CEC 2015a). The proposed Project must comply with those and all other requirements of law intended to implement AB 32.

Furthermore, the Project would include DRs GHG-3 and GHG-4 and MMs GHG-1 and GHG-2, which would provide renewable energy, improve energy efficiency, and encourage the use of alternative transportation modes to the single-driver fossil-fueled vehicle. Implementation of these measures would result in additional GHG emissions reductions.

In summary, the Project design and location, the fact that the Project must comply with the energy efficiency and CALGreen requirements established in the California Building Code, and incorporation of DRs GHG-3 and GHG-4 and MMs GHG-1 and GHG-2 would provide Project elements that are consistent with AB 32 and the implementing legislative and regulatory efforts associated with the same.

The Second Update to the AB 32 Scoping Plan is currently in the conceptual planning stage. The Second Update will focus on GHG reduction targets for 2030, as specified in EO B-30-15 and now SB 32, and the path to meet 2050 GHG emissions goals. As previously noted, SB 350 implements some of the 2030 targets in the areas of renewable energy and energy efficiency. At the time of preparation of this EIR, no plans, policies, or regulations that are specific to SB 32 and applicable to the Project have been adopted. CARB and the air districts have not had time to develop

protocols for quantifying and assessing consistency with SB 32. The analysis for Threshold 4.7-1 applies SCAQMD's project-level efficiency threshold designed to achieve a GHG reduction of 40 percent below 1990 levels for the 2030 analysis. Under that analysis, the Project emissions would exceed the significance threshold for GHG emissions. Although consistent with CEQA's mandate of making a good-faith effort of evaluating Project impacts, CARB has the responsibility for adopting regulations pertaining to SB 32's GHG emissions reduction targets. In the future, CARB may identify approaches to GHG reduction that would not place a substantial burden on individual projects and instead utilize measures such as increased reliance on renewable energy or cleaner vehicle fleets to achieve the required reductions. It is anticipated that recommendations for appropriate measures will be developed as part of the Second Update to the Scoping Plan. Even though many aspects of the Project are consistent with the state's plans for reducing the GHG impacts of new development, in light of the Threshold 4.7-1 analysis and in the absence of a clear direction by CARB regarding SB 32, this analysis finds there is the potential that the Project would result in significant impacts due to a conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

Consistency with Executive Orders S-3-05 and B-30-15

Governor Schwarzenegger's EO S-3-05, as previously discussed, sets a goal of a reduction of GHG emissions to 2000 levels by 2010, to 1990 levels by 2020, and to 80 percent below 1990 levels by 2050. AB 32 was enacted after EO-S-3-05 was signed. The Legislature declined to include the Executive Order's 2050 goal in AB 32, and again declined to use the EO's goal in adopting SB 375 and SB 32. EO B-30-15, as previously discussed, sets a new interim statewide goal for greenhouse gas emission reduction target of reducing greenhouse gas emissions to 40 percent below 1990 levels by 2030. This measure is intended to ensure California meets the goal set out in EO S-3-05 of reducing greenhouse gas emissions to 80 percent below 1990 levels by 2050. SB 350 was signed into law and, as noted above, it requires the state to double energy efficiency savings in electricity and natural gas by retail customers by 2030 and raises the RPS so that half of the state's electricity must be procured from renewable sources by 2030. Subsequently, SB 32 adopted the 2030 target identified in EO B-30-15. Thus, the 2020 target is the core of AB 32 (discussed above) and the 2030 target is the core of SB 32. The 2050 target remains just a goal of EO S-3-05 and not a binding mandate.

CARB's Scoping Plan to implement AB 32 looked beyond 2020 to assess whether implementing the Scoping Plan would achieve the State's long-term climate goals and determined that it would:

> Governor Schwarzenegger's Executive Order S-3-05 calls for an 80 percent reduction below 1990 greenhouse gas emission levels by 2050. This results in a 2050 target of about 85 $MMTCO_2e$ (total emissions), as compared to the 1990 level (also the 2020 target) of 427 $MMTCO_2e$. Climate scientists tell us that the 2050 target represents the level of greenhouse gas emissions that advanced economies must reach if the climate is to be stabilized in the latter half of the 21st century. Full implementation of the Scoping Plan will put California on a path toward these required long-term reductions. Just as importantly, it will put into place many of the measures needed to keep us on that path. (CARB 2008)

According to the 2013 Scoping Plan Update, additional actions will be needed to continue reducing emissions and to meet the 2050 goals in the face of anticipated population and economic growth (CARB 2013):

> Through AB 32 and related measures, California has a very certain trajectory of declining emissions to 2020. Beyond 2020, California's emissions are likely to continue to gradually decline through 2030, due to existing programs. However, the scale of reductions is less than is needed after 2020, and without additional actions, emissions are likely to begin increasing again in the 2030s, when population and economic growth begin to outweigh emission reductions from current policies . . . Achieving the highly efficient, low carbon economy necessary to reach the 2050 target will require aggressive development and deployment of the cleanest technologies.

Further, impacts from off-site transportation and on-site energy usage will be affected by broader policies, such as those related to increases in electric vehicle and mass transit usage as well as decreases in electricity demand and the amount of carbon associated with electricity generation. While there is no specific plan for reaching the 2050 goals of EO S-3-05, the Project will not impede the policies described by CARB's Scoping Plan Update or other future laws or policies that will help achieve these goals. Because the Project will reduce emissions consistent with AB 32 and continue to incorporate additional emissions reducing measures as may be required by law, it is not inconsistent with EO S-3-05.

There are several studies that have been completed, or which are in process, which discuss methods for achieving the cuts in California's GHG emissions level that might be required to meet the goals identified in SB 32 and the Executive Orders. These studies include those provided by E3 (E3 2016) and summarized in a presentation provided by E3 under a study conducted for the CARB regarding modeled scenarios to achieve deep emissions cuts in the United States (E3 2015), a report by the California Center for Science and Technology (CCST) on emission reductions in California (CCST 2012), a Caltrans report that studies solely GHG emission reductions from the transportation sector in California, and a study published in *Science* that analyzes the technologies required by 2050 for an 80 percent reduction in 1990 emissions levels in California (Williams et al. 2012). In general, these studies have similar conclusions. The cuts in GHG emissions needed to meet the goals identified in the Executive Orders can only be reached with substantial changes in electricity production, transportation fuels, and industrial processes.

Both the *Science* and CCST studies also acknowledge that meeting the 2050 goals will require technologies that have not yet been proven. Thus, great uncertainty exists as to the standards that would apply to an individual project level GHG emission estimate for 2030 or 2050.

As described above, the Second Update to the AB 32 Scoping Plan, currently in the conceptual planning stage, will focus on GHG reduction targets for 2030, and the path to meet 2050 GHG emissions goals identified in EO S-3-05. The draft Concept Paper has been released and workshops have been held in January, March, April, June, August, and September of 2016, on various elements of the scoping plan concepts and options.

Within the Concept Paper issued in advance of the draft Second Update, CARB emphasizes a variety of GHG reduction concepts to help the state reach its GHG reduction goals. Notably, CARB emphasizes the need to improve the renewable portfolio standard, increasing the energy

efficiency of existing buildings, reduce the carbon intensity of fuels, increase fuel efficiency of heavy-duty vehicles, increase stringency of SB 375 Sustainable Communities Strategy, extending the cap-and-trade program, and development of a natural and working lands program. Of these concepts, most are out of the control of individual jurisdictions such as the County, and only one might apply to land use developers (i.e., the SB 375 Sustainable Communities Strategy). As discussed in this Section, the Project will not interfere with the achievement of AB 32's mandates and the legislative efforts adopted to implement the same. Although not possible to quantify at this time, as build-out of the Project will not occur until 2022, new legislation, regulations and standards adopted in furtherance of AB 32, SB 32 and even EO S-3-05 could apply to the Project and require additional emissions reducing measures beyond those currently contemplated.

For the September 14, 2016 workshop with respect to the future Second Update, CARB prepared *Vibrant Communities and Landscapes,* a draft document for comment and discussion focusing on "A Vision for California in 2050." A basic element of the vision is,

> California is taking action to grow in a manner that assures: . . . New development and infrastructure are built primarily in locations with existing infrastructure, services, and amenities (i.e., previously-developed locations), rather than greenfield locations. . .

The Actions section states,

> A number of current and emerging State planning and policy efforts provide the opportunity to articulate and implement this vision, and provide State leadership through work with local and regional partners. These include the Climate Change Scoping Plan, the Regional Transportation Plan Guidelines, the Sustainable Freight Action Plan, updated General Plan Guidelines, implementation of AB 2087 for regional conservation planning, the State Wildlife Action Plan, the Water Action Plan, and implementation of SB 743 guidelines and other updates to the California Environmental Quality Act.

The actions call for the State to support regional and local governments and to maximize GHG emission reductions through the conservation and protection of natural and working lands, reductions in vehicle miles traveled, and direct emission reductions associated with compact development patterns. This would be accomplished through a series of actions taken by the State to meet this goal. The actions could include:

- Development of performance metrics for environmental, health, and equity outcomes associated with stronger land use policies;
- Establishment of land conservation targets;
- Updating regional GHG reduction targets to achieve 2030 and 2050 goals and identifying opportunities to strengthen implementation success;
- Development of policies and processes for infrastructure siting that are consistent with the State's conservation, development, and population health goals;
- Exploring and development of financing, regulatory, and other tools to support more efficient and more equitable development;

- Exploring and development of financing, regulatory, and other tools to promote land protection and carbon-oriented land management practices; and
- Supporting transportation policies such as priced express lanes, reduced parking requirements for development, and transit commuter incentives that promote infill development and reduce vehicle miles traveled.

The *Vibrant Communities and Landscapes* document identifies the benefits of the California 2050 Vision to the State's residents, local and regional governments, and the economy that can result from an integrated approach to land use. The Plan identifies the following benefits associated with the 2050 Vision:

- Tangible, short- and long-term benefits for disadvantaged communities;
- Improved public health;
- Resilience to the impacts of climate change
- Maintenance of California's global economic leadership;
- Monetary savings for residents, businesses, and governments resulting from lower transportation and energy costs;
- Promotion of urban-rural connectivity in all regions; and
- Promotion of a sustainable balance between conservation and development across each ecoregion.

The Project promotes an efficient use of previously developed and disturbed lands. The Project will also provide compact development patterns near employment opportunities, access to parks and green space, and abundant recreational options providing opportunities for active transportation and exercise. The Project would not conflict with framework for implementing the State's policies on GHG reduction and the State's climate policy. However, it should be noted that neither the *Vibrant Communities and Landscapes* document nor the materials from the workshop for the Second Update to the AB 32 Scoping Plan, refers to SB 32, presumably because the legislation was so new (i.e., signed by the Governor on September 8, 2016). Notwithstanding, the goals of the Second Update and SB 32 are the same – to reduce GHG emissions to 40 percent below 1990 levels by 2030. As mandated by SB 32, CARB will require additional actions to meet the 2030 target. However, and while the SCAQMD efficiency targets provide a good-faith basis for analyzing the Project at this time, the specific requirements for SB 32 compliance will not be known until the Second Update to the Scoping Plan and/or additional policies and regulations are adopted.

Further, the Project is consistent with the policies of the RTP/SCS. The California Air Resources Board has recognized that compliance with Sustainable Communities Strategies is essential to meeting 2050 goals. (CARB 2013, p. 80). The First Update also states, "To date, seven Metropolitan Planning Organizations have adopted Sustainable Community Strategies. In addition to helping drive GHG reductions, these plans will help create more livable communities that offer greater housing and transportation options; improved access to resources and services; safer, more vibrant neighborhoods; and healthier lifestyles where people can live, work, and play without having to get into a car" (CARB 2013, p. ES-2).

In summary, the Development Plan provides for a Project that would advance the goals outlined in the applicable plans, policies and regulations adopted for the purpose of reducing the emissions of greenhouse gases. The Project would provide a compact residential community in close proximity to existing and proposed employment, visitor serving, cultural, commercial, and open space uses which would serve to reduce VMT and GHG emissions. A Project development requirement includes provision of an average of 1.25 kilowatts per dwelling unit to avoid GHG emissions (DR GHG-3). Other development requirements include and Energy Star or equivalent appliances (DR GHG-4), compliance with the applicable Title 24 Energy Efficiency Standards for Residential and Nonresidential Buildings (DR GHG-1), and the applicable California Green Building Standards (CALGreen) Code (DR GHG-2). However, even in light of these considerations, based on the information available at this time, the analysis completed for Threshold 4.7-1 indicates that the Project would not be able to achieve the SCAQMD efficiency threshold by 2030 that would represent a 40 percent reduction in GHG emissions from 1990 levels. As a result, and given the lack of regulatory guidance on the specific methods the State will utilize to achieve SB 32 compliance, this EIR conservatively concludes that the Project may conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases, including SB 32. In light of the uncertainty, and despite all the elements of the Project that are consistent with existing plans, policies and regulations adopted to reduce GHG emissions, the Project would be considered to have potentially significant unavoidable impacts.

Impact Conclusion: *Pursuant to Threshold 4.7-2, the Project may conflict with plans, policies and regulations adopted for the purpose of reducing GHG emissions. Therefore, impacts would be significant and unavoidable. No additional mitigation is feasible.*

4.7.7 CUMULATIVE IMPACTS

The proposed Project will emit greenhouse gases that will contribute to increased accumulation of greenhouse gas from more than one project and many sources in the atmosphere that may result in global climate change. An individual project's greenhouse gas emissions typically would be very small in comparison to state or global greenhouse gas emissions. Due to the complex physical, chemical, and atmospheric mechanisms involved in global climate change and the nature of the issue, a project's greenhouse gas emissions and the resulting significance of potential impacts are assessed on a cumulative basis. The efficiency thresholds developed by SCAQMD consider the cumulative development and the ability for the air basin to meet the required emissions reductions.

The analysis in Section 4.7.6 above shows that even with many GHG reducing development requirements and mitigation measures, the Project's GHG emissions would exceed the quantitative threshold associated with a 40 percent reduction from 1990 emission levels by 2030. Therefore, the Project would contribute to a significant cumulative impact. However, this conservative conclusion could overstate Project impacts if CARB identifies approaches to GHG reduction such as increased reliance on renewable energy or cleaner vehicle fleets to achieve the required reductions; thereby, reducing the burden on individual projects for GHG emission reductions. Further, as disclosed above, the Project is in a location that would encourage walking, bicycling, and transit use consistent with the goals and policies of the applicable RTP/SCS. The Project would comply with State building codes and other regulatory programs adopted for the purpose of reducing GHG emissions and would incorporate DRs GHG-1 through GHG-4 and MMs

GHG-1 and GHG-2 to reduce potential Project GHG emissions, consistent with AB 32, SB 32, and the implementing legislative and regulatory efforts. However, based upon the currently available information, the EIR concludes that the Project may contribute to a significant cumulative GHG impacts associated with GHG emissions and conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions.

4.7.8 MITIGATION PROGRAM

Development Requirements

The development requirements identified below would be applicable to the proposed Project and would help to avoid or minimize GHG impacts. As indicated in Section 4.0, Impact Analysis Introduction, of this EIR, the following measures are also included as an appendix to the Development Plan document, and their inclusion, as appropriate, will be verified during the development review and/or ministerial permit processes (e.g., building permit).

DR GHG-1 Projects shall be designed in accordance with the applicable Title 24 Energy Efficiency Standards for Residential and Nonresidential Buildings (*California Code of Regulations* [CCR], Title 24, Part 6). These standards are updated, nominally every three years, to incorporate improved energy efficiency technologies and methods.

DR GHG-2 Projects shall be designed in accordance with the applicable California Green Building Standards (CALGreen) Code (24 CCR 11).

DR GHG-3 The Project shall incorporate renewable energy generation for the entirety of the Project, not on a unit by unit basis, in an amount equivalent to 1.25 kilowatts (kW) per dwelling unit.

DR GHG-4 Low-energy Energy Star®-compliant or equivalent appliances shall be exclusively offered by builders for each appliance that is rated by Energy Star (e.g., refrigerator, clothes washer, dishwasher) or achieves an efficiency that is equivalent to the 2016 Energy Star compliance standard.

Mitigation Measures

MM GHG-1 Prior to issuance of each building permit for parking structures and parking lots with 20 or more parking spaces devoted to common area parking (including common resident parking in a parking structure), the County or its designee shall provide plans and specifications demonstrating that the following features have been incorporated into the parking facility. Proof of compliance shall be provided prior to the issuance of occupancy permits.

- The parking facility shall include a minimum of five percent preferentially located parking spaces for alternative-fueled (electric, natural gas, or similar low-emitting technology) vehicles.
- The parking facility shall include at least one electric vehicle charging station. Electrical lines shall be designed and sized to add additional

charging stations for up to three percent of the total parking spaces when a demand is demonstrated. The design and installation shall be consistent with Section A4.106.8.2, Residential Voluntary Measures, of the CALGreen Code.

- Bicycle parking shall be provided as specified in Section A4.106.9, Residential Voluntary Measures, of the CALGreen Code.

MM GHG-2 The operator of each residential building shall provide a commuter information area or multiple areas within or near each building; the information area(s) shall be centrally located and accessible to all residents. The information shall include, but not be limited to, current maps, routes and schedules for bus, Metrolink, and Amtrak and a means for sharing information for ride-sharing. Proof of compliance shall be provided to the Manager, Chief Executive Officer (CEO) Real Estate/Land Development within one month following the issuance of each occupancy permit.

4.7.9 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Even with implementation of above referenced mitigation program, the analysis of Project GHG emissions shows that the Project would generate greenhouse gas emissions, that may have a significant impact on the environment and the Project may conflict with SB 32 or other applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHG. Therefore, even with mitigation, the GHG emissions impacts, at both a Project and cumulative level, would be significant and unavoidable.

4.7.10 REFERENCES

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4.8 HAZARDS AND HAZARDOUS MATERIALS

This section analyzes the potential impacts associated with the development of the Project in an area that is susceptible to hazards associated with the existing environmental conditions and hazards and hazardous materials that may be introduced by the proposed Project. This section was prepared based on data and analysis provided by Geosyntec. Supporting documentation is provided in the *West Alton Parcel Soil and Soil Gas Assessment Report* provided in Appendix H. An evaluation of fire hazards is provided based on the *Fire Behavior Analysis Report and Fuel Modification Design Criteria*, prepared by Firesafe Planning (Appendix D of the Development Plan [the Development Plan is Appendix A of this EIR]) and associated Conceptual Fuel Modification Plan and Fire Protection Plan (Exhibits 3-14 and 3-15).

4.8.1 BACKGROUND INFORMATION

This section provides background information relevant to hazards associated with the Project site, including the soil lithology and depth to groundwater; former Marine Corps Air Station (MCAS) El Toro environmental investigations and status; County environmental investigations; and ownership status, including the Lease in Furtherance of Conveyance (LIFOC) and Finding of Suitability for Transfer (FOST).

Soil Lithology and Depth to Groundwater

The Project site is situated just to the south of the foothills of the Santa Ana Mountains in Orange County. Shallow native subsurface soils beneath the Project site consist of alluvial deposits originating from the Santa Ana Mountains to the north overlying sandstone from the Topanga and Vaqueros Formations. The alluvial deposits consist primarily of fine- to medium-grained sands, sands with silt, silty sands, and sandy silts. First-encountered groundwater generally flows within these alluvial sediments. While depth to groundwater (and groundwater surface elevation) vary across the Project site, the historic high groundwater was reported to be as shallow as 60 feet below the existing ground surface (bgs).

Previous Marine Corps Air Station El Toro Environmental Investigations and Status

The Installation Restoration Program (IRP) was established to identify, characterize, and remediate hazardous contamination sites originating at military installations. The IRP was authorized in 1984 for the former MCAS El Toro with the Initial Assessment Study (IAS) outlining hazardous remediation needs; the IAS was completed in 1986 (Brown and Caldwell 1986). Beginning with the IAS, a total of 24 IRP Sites (1–22, 24, and 25) were identified for investigation at MCAS El Toro. It is worth noting that the main operational area of former MCAS El Toro was the area proximal to the north-south and east-west oriented runways (i.e., the airfield), an area generally within or adjacent to Perimeter Road (a road that encircled the airfield and the most industrialized portions of MCAS El Toro). The majority of the IRP Sites were located within the main operational area, with only a few IRP Sites located in the outlying areas. The Project site is located in one such outlying area to the northeast of Irvine Boulevard. Many of the IRP Sites were further subdivided into separate units based on historical uses, the nature of known releases, types of contaminants present, or the medium affected. IRP Sites are sources of environmental

contamination that are either within the boundaries of the installation or originated on the installation and subsequently migrated off site. IRP Sites on military installations follow the comprehensive, step-by-step Remedial Investigation/Feasibility Study (RI/FS) process outlined under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

MCAS El Toro was listed on the U.S. Environmental Protection Agency's (USEPA's) National Priorities List (NPL) under CERCLA in February 1990. In October 1990, the USEPA, the California Environmental Protection Agency's (CalEPA's) Department of Health Services (predecessor to the Department of Toxic Substances Control [DTSC]), the Regional Water Quality Control Board (RWQCB), and the Department of the Navy (DoN) signed a Federal Facility Agreement (FFA). The DoN is the lead agency responsible for conducting cleanup of IRP Sites at MCAS El Toro pursuant to CERCLA (and the Superfund Amendments and Reauthorization Act [SARA]), the National Oil and Hazardous Substances Pollution Contingency Plan (also known as the National Contingency Plan [NCP]), and the Resource Conservation and Recovery Act (RCRA) guidance and policy, Superfund guidance and policy, and applicable State law.

The RI/FS process began at MCAS El Toro in 1993. Although some sites were documented to require interim remedial actions, permanent cleanup followed the signing of various Records of Decision (RODs).[1] For evaluated sites that are determined not to have contamination or not to have significant levels of contamination (referred to as "No Action Sites"), no FS is conducted and the process is completed with a "No Action ROD", which documents the decision that no further action is required for a site based on the results presented in the RI. Generally, completed cleanup actions are documented in a Remedial Action Completion Report and, once regulatory agencies agree that Remedial Action Objectives have been achieved, a No Further Action (NFA) status is granted by regulatory agencies in a letter (often referred to as an "NFA letter"). Discussions of these investigations and record documents as they relate to the relevant IRP Sites located in proximity to the Project site are included in the Existing Conditions section below (Section 4.8.4).

In addition to the IRP Sites, other Locations of Concern (LOCs) have been identified by the DoN and others (Geosyntec 2001). LOCs are areas where a documented release has occurred; where a release is suspected to have occurred; or, based on the types of activities that occurred in a given area, has the potential for a past release. Types of "other LOCs" (i.e., other than IRP Sites) that have been identified at former MCAS El Toro include RCRA Facility Assessment sites (RFAs), Temporary Accumulation Areas (TAAs), Aerial Photograph/Features Anomalies (APHOs), Underground Storage Tanks (USTs), Oil Water Separators (OWS), Potential Release Locations (PRLs), and Miscellaneous LOCs (MSC). MSCs are LOCs that did not fall into one of the LOC types but due to the limited number identified, did not require identification of a separate LOC type. In general, these other LOCs are smaller and more limited in scope than the identified IRP Sites. Types of LOCs in proximity to the Project site include IRP Sites and a single MSC. The DoN is responsible for the cleanup of the contamination related to the IRP Sites and other LOCs on the Project site.

County Environmental Investigations

In 1993, MCAS El Toro was identified for closure under the federal Base Realignment and Closure (BRAC) process. On April 5, 1995, the Department of Defense (DoD) Office of Economic

[1] An ROD is a document that memorializes the regulatory agencies' decision of the cleanup action(s) to be taken at a given site. The RODs for former MCAS El Toro are signed by the DoN and the regulatory oversight agencies.

Adjustment identified the County of Orange as the Local Redevelopment Authority (LRA) for the civilian reuse of MCAS El Toro. As a result, Environmental Impact Report (EIR) 573 was prepared to provide environmental information in connection with the County's second tier of reuse planning, focusing on the adoption of an Airport System Master Plan (ASMP) for MCAS El Toro and John Wayne Airport (JWA) (i.e., MCAS El Toro was to be redeveloped into the proposed Orange County International Airport). At that time, the County of Orange deemed it appropriate to obtain an independent review and assessment of the work conducted, or planned, by the DoN prior to the County accepting ownership of MCAS El Toro. Geosyntec was subsequently contracted to perform a Phase I Environmental Site Assessment (ESA) for MCAS El Toro (Geosyntec 2001). It should be noted that Geosyntec's opinions presented in the ESA (Geosyntec 2001) considered the ASMP reuse of former MCAS El Toro.

As a result of the passing of "Measure W", which essentially prohibits airport redevelopment by the County at MCAS El Toro, alternative reuse plans for the base were developed, which included the option for the County to take possession of several reuse parcels at the former MCAS El Toro, including the Project site. An evaluation that included the Project site was performed in 2005 by Geosyntec for the County to update the information included in the ESA (Geosyntec 2001) based solely on information contained in the 2003 Final Environmental Baseline Survey (EBS) Report, issued by the DoN (Earth Tech, 2003). The report presented findings and opinions regarding the environmental condition of the reuse parcels, taking into account the general nature of possible parcel reuses contemplated by the County at that time (Geosyntec 2005).

In 2007, Geosyntec revised and updated the report prepared in 2005 to reflect environmental work conducted by the DoN at MCAS El Toro in the intervening years (Geosyntec 2007). The objective of the revised and updated report was to reevaluate potential land use or redevelopment limitations related to identified environmental conditions at the Project site. This was done through a review of applicable and relevant DoN reports published after 2001 and performing supplemental regulatory agency database searches. A detailed reuse plan was not available at that time, so the conclusions and recommendations presented in the 2007 report were subject to refinement once detailed reuse plans for the Project site were available.

Prior to taking possession of the Project site, in 2011, Geosyntec performed another update to the status of LOCs on the Project site based on a review of select DoN documents and reports available after the 2007 update (Geosyntec 2011). During the 2011 update, a total of three LOCs in proximity to the Project site were evaluated (IRP Site 2, the Magazine Road Landfill; IRP Site 25, Major Drainages; and MSC JP5, a jet fuel pipeline and valve box). The LOCs were categorized by one or more of the following criteria: requiring additional document review, additional evaluation, or a Soils Management Plan, as containing physical constraints, or they were screened out of further analysis as associated environmental impacts were considered *de minimis*. IRP Site 25 and MSC JP5 were screened out as not requiring further action with the following rationale: IRP Site 25, which consists of a small portion of the Borrego Canyon Wash at the Project site, has only a very limited intersection with the easternmost corner of the Project site; there were no significant releases of JP-5 (a type of jet fuel) detected along the section of the MSC JP5 pipeline nearest the Project site (i.e., the Quarry Road section) or in the vicinity of the valve box portion of MSC JP5; and both LOCs had documented NFA status from regulatory agencies. The remaining LOC (IRP Site 2) and associated groundwater volatile organic compound (VOC) plume (primarily trichloroethylene [TCE]) intersects a very small portion of the Project site at the easternmost end. IRP Site 2 was recommended for additional document review and was identified as containing physical constraints due to ongoing remediation. IRP Site 2 is discussed below under in the

Existing Conditions (Section 4.8.4), and existing conditions have been updated with additional information that has been obtained from select DoN documents published since the update in 2011.

Lease in Furtherance of Conveyance and Finding of Suitability to Transfer

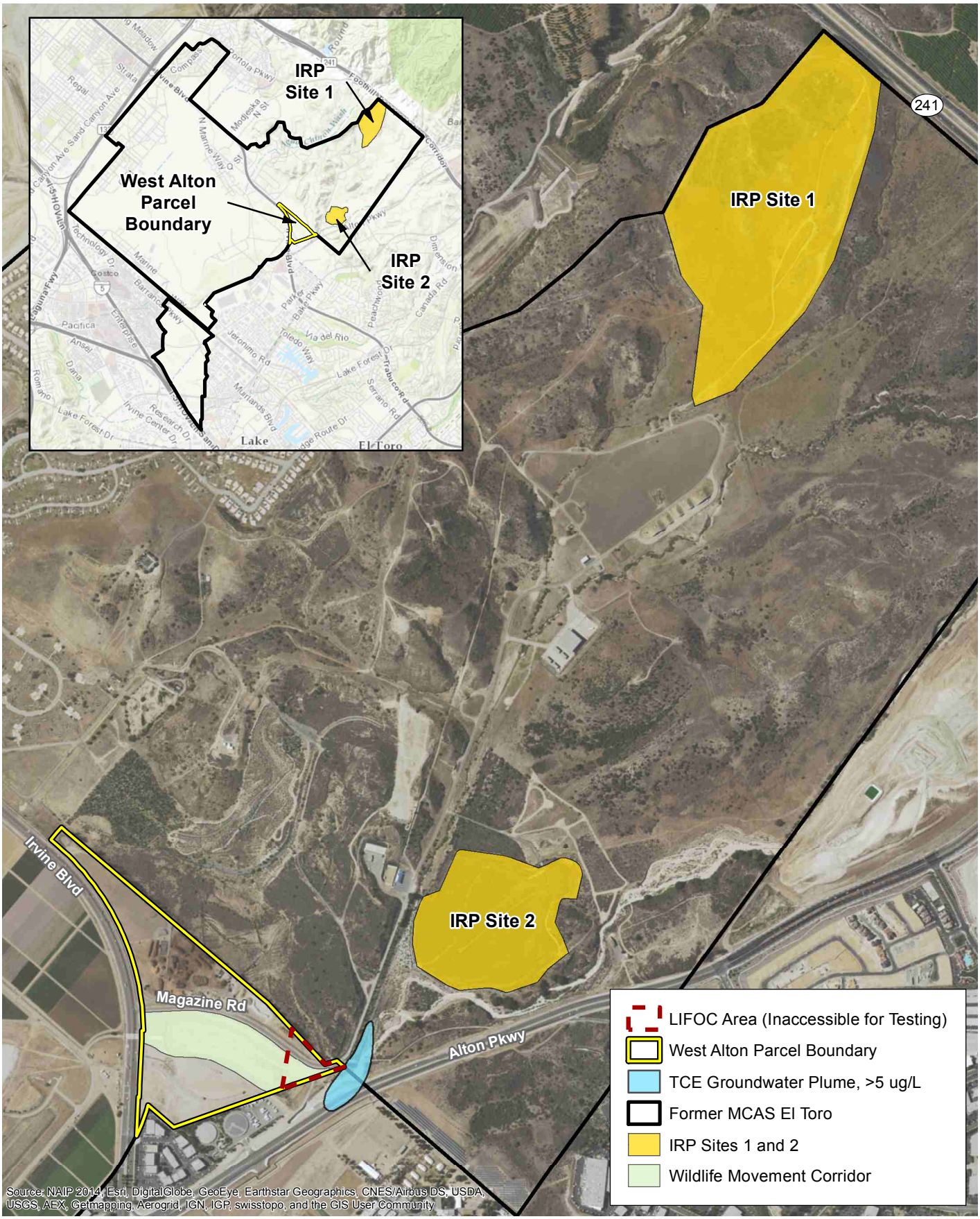
A portion of the Project site (approximately 1.4 acres) has not been transferred to the County but rather title is still held by the DoN. That portion of the Project site is currently leased to the City by a LIFOC pending completion of ongoing remediation by the DoN and subleased to the County. This area (referred to as "the LIFOC area") of the Project site is located on the easternmost end of the Project site. The footprint of the groundwater TCE plume associated with IRP Site 2 just touches the easternmost end of the Project site in the LIFOC area (see Exhibit 4.8.1 for the LIFOC area), though the plume is located at a depth of approximately 60 feet bgs. In addition, the LIFOC area contains at least one monitoring well (AECOM-Envirocon JV 2014) used for monitoring the TCE groundwater plume. The groundwater remedy for IRP 2 is in the remedial design/remedial action phase. Once active remediation is complete, the groundwater remedy will enter a monitoring phase. The LIFOC area of the Project site will be ready for transfer upon completion of confirmation monitoring. Upon DoN's issuance of a FOST and approval of the same by USEPA, DTSC, and RWQCB (i.e., the FFA regulatory signatories), the transfer of fee title to the LIFOC area of the Project site to the County can be completed. It is worth noting that the Project can move forward regardless of the transfer status of the LIFOC area because the LIFOC area is relatively small, it is located away from the main development area, and the planned development within the LIFOC area is limited to grading and landscaping in support of Park/Open Space use (i.e., no structures). Therefore, development of the LIFOC area can follow its transfer. However, if release of the LIFOC area is delayed due to remediation, an interim impact associated with provision of parkland would occur. Refer to Section 4.14, Recreation for a discussion of this issue.

4.8.2 REGULATORY SETTING

Agency Jurisdiction

Environmental cleanup of contamination related to the former use of the Project site as a portion of MCAS El Toro is being conducted under an FFA by the DoN. Site assessment and remediation activities are guided under CERCLA and RCRA and are being conducted under the regulatory oversight of the USEPA, the DTSC, and the Santa Ana RWQCB. The adequacy of assessment and remediation and subsequent transfer of the LIFOC area of the Project site will be subject to review and approval of these agencies.

Implementation of the Project will be performed under the regulatory oversight of multiple agencies with various and sometimes overlapping jurisdictions. These agencies include, but are not limited to, the USEPA, the DTSC, the RWQCB, the South Coast Air Quality Management District (SCAQMD), the Orange County Health Care Agency (OCHCA), the Orange County Fire Authority (OCFA), Orange County (OC) Development Services, and the Orange County Chief Executive Offices (CEOs) of Real Estate/Land Development. Therefore, rather than attempting to describe the jurisdiction of various agencies, regulations that are applicable to the Project are discussed by topic.



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Location of Relevant IRP Sites In Proximity to the Project Site

Exhibit 4.8-1

West Alton Parcel Development Plan EIR

N W E S

1,120 560 0 1,120 Feet

COUNTY OF ORANGE CALIFORNIA

Comprehensive Environmental Response, Compensation, and Liability Act

The 1980 "Superfund" legislation and subsequent amendments to CERCLA created a national framework for the identification and cleanup of contaminated sites; provided standards and financial assistance for site cleanups; and imposed liability on parties responsible for such contamination. IRP Sites on military installations follow the step-by-step CERCLA RI/FS process. Although some sites may require interim remedial actions, permanent cleanup follows the signing of an ROD. For evaluated sites that are determined not to have contamination or not to have significant levels of contamination (referred to as No Action Sites), no FS is conducted and the process is completed with a No Action ROD, which documents the decision that no further action is required for a site based on the results presented in the RI. Discussions of these investigations and record documents as they relate to the relevant IRP Sites located in proximity to the Project site are included in the Existing Conditions section below (Section 4.8.4).

Resource Conservation and Recovery Act

Adopted in 1976, RCRA provides the basic framework for federal regulation of hazardous waste. The DTSC is authorized to implement the State Hazardous Waste Program in lieu of federal RCRA regulations. At MCAS El Toro, RCRA addresses former hazardous waste storage and management facilities, while CERCLA addresses the release of hazardous materials and hazardous waste. To the County's knowledge, there were no hazardous waste storage and management facilities that existed on the Project site, and there are no active sites regulated under RCRA within the Project site.

Hazardous Materials Transportation Act

The Hazardous Materials Transportation Act administered by the U.S. Department of Transportation governs the transport of hazardous materials, such as contaminated soil, asbestos, or lead-containing materials. The California Department of Transportation (Caltrans) implements the federal regulations published as Title 49 of the *Code of Federal Regulations* (CFR), which is known as the Hazardous Materials Transportation Act. These laws regulate the handling and transport of hazardous waste materials on the Project site and off site as warranted.

Fire Protection

Orange County Fire Authority

The OCFA provides fire protection services to the City of Irvine. Development adjoining grass-covered, brush-covered, or chaparral-covered land, canyons, foothills, mountains, non-irrigated former farming areas, and other lands containing combustible vegetation requires modification of natural vegetation at the urban interface, referred to as fuel modification, to reduce the potential for loss of structures during wind-driven wildfires. A fuel modification zone is a series of strips of land where, in progressively varying degrees, combustible vegetation has been removed and/or modified and partially or totally replaced with more adequately spaced, drought-tolerant, fire resistant plants in order to provide a reasonable level of protection to structures from wildland and vegetation fires.

OCFA has adopted fuel modification requirements, most recently revised in January 2014, which are provided as OCFA Guideline C-05, *Vegetation Management Technical Design Guidelines* (Fuel Modification Guidelines) (OCFA 2014). The purpose of the Fuel Modification Guidelines is to provide information on how fuel modification zones are to be designed, installed, and maintained in order to meet State and local fire safety requirements. Fuel modification programs vary in complexity and depend upon the type, quantity, and spacing of vegetation, as well as topography; degree/type of exposure; local weather patterns; and the construction, design, and placement of structures.

When a fuel modification plan is required, it must be reviewed and approved by OCFA prior to grading permit issuance. Once installed, the property owner is responsible for the indefinite maintenance of the fuel modification areas in accordance with the notes on the approved fuel modification plan, including growth reduction activities (cutting back landscaping), removal of dead plant materials, removal of trees and shrubs not on the approved plan, removal of highly combustible plant species, and maintenance of the irrigation system. Ongoing maintenance must be conducted a minimum of twice each year, and the OCFA may conduct inspections of established fuel modification areas.

4.8.3 METHODOLOGY

Hazardous Materials

Since the Phase I ESA for MCAS El Toro (Geosyntec 2001) was completed, Geosyntec, on behalf of the County, performed status updates on IRP Sites and other LOCs located in proximity to the Project site in 2005, 2007, and 2011. As part of those updates, LOCs were categorized or screened out of further analysis based on several criteria (see Section 4.8.1, Background, for details). The IRP Site that was not screened out during the update in 2011 (i.e., IRP Site 2), including current regulatory status, remedial history, and potential petroleum-hydrocarbon impacts, is discussed in Section 4.8.4, Existing Conditions.

The evaluations of existing environmental conditions at the Project site are based on information in the Phase I ESA for MCAS El Toro (Geosyntec 2001), screening evaluations and updates of IRP Sites and LOCs on the Project site produced on behalf of the County (Geosyntec 2005, 2007, and 2011), the original Administrative Record File (e.g., CERCLA), and supplemental investigations conducted on behalf of the County as identified in Section 4.8.4.

In accordance with the County's Environmental Analysis Checklist and Appendix G of the State California Environmental Quality Act (CEQA) Guidelines, applicable Thresholds of Significance are identified in Section 4.8.5.

In Section 4.8.6, the potential impacts of implementing the Project given the existing environmental conditions are evaluated to assess whether significant impacts would occur based on the thresholds identified. The evaluation considers the potential for the Project to result in hazardous impacts associated with construction activities or long-term operation of the Project. In order to assess whether impacts associated with IRP Site 2, which is located in proximity to the Project site, present a significant hazard to human health at the Project site, human health risks that were calculated by the DoN were compared to generally accepted ranges for the type of land use contemplated (residential). If these calculated risks exceeded the generally accepted ranges, supplemental investigations were performed by the County, where possible and accessible, prior

to the preparation of this EIR.[2] In areas of the Project site that have been transferred in fee title to the County (i.e., those that are not part of the LIFOC area), an investigation of VOCs and methane in soil gas was performed and concentrations were compared to regulatory screening levels to assess whether off-gassing from the groundwater VOC plume or residual soil vapor VOCs would cause a vapor intrusion concern for planned buildings (Geosyntec 2015). In addition, an investigation of pesticides and arsenic in soil was performed and concentrations were compared to regulatory screening levels to assess whether pesticides and arsenic that may be present in soils due to former agricultural use of the Project site represent a potential threat to human health (Geosyntec 2015). Discussion of the additional investigations as they relate to impact analyses are included in the Impact Analysis section below, which includes a conclusion as to whether impacts are significant with or without mitigation and identifies applicable development requirements and mitigation measures that must be applied, if any, so that impacts will be mitigated to a less than significant level.

Wildland Fire Hazards

The analysis in the *Fire Behavior Analysis Report and Fuel Modification Design Criteria* (Fire Behavior Report, provided in Appendix D of the Development Plan) (Firesafe Planning 2015) used the computer software program BehavePlus Fire Modeling System 5.0.4 to predict the level of wildfire intensity for a fire approaching the Project site. Vegetative fuels are recognized as fuel models within the BehavePlus program and are designed to aid in determining fuel types for calculating and estimating fire behavior. This allows the intensity of a fire moving toward the Project to be evaluated. The modeling considers the distance of the structures from the most extreme flame lengths and intensity that would be produced given Project site conditions. Firesafe Planning Solutions used worst case scenario factors and fuel models to ensure an adequate safety cushion in the computer fire behavior calculations and results analysis. The study takes into consideration existing and future vegetative interface fuels, topography, and weather conditions during a fire. The Fire Behavior Report provides results of computer calculations that measure the fire intensity from a worst case scenario wildfire in both the extreme (Santa Ana—northeast wind) and the predominant (Onshore—southwest to west wind) conditions. This type of modeling also allows evaluation of the best fire defense system for the Project. Detailed information regarding the methods for preparing the Fire Behavior Report is presented in the report in Appendix D of this Draft EIR.

4.8.4 EXISTING CONDITIONS

Hazardous Materials

The following sections present existing environmental conditions on the Project site grouped into three categories: those that are associated with the identified IRP Site, those related to former agricultural use of the Project site, and potential petroleum-hydrocarbon impacts (i.e., not directly associated with an IRP Site). Petroleum-hydrocarbon impacts are listed separately because they are generally excluded from CERCLA liability and therefore were not always specifically addressed in remedial actions performed by the DoN.

[2] Testing in the LIFOC area was not permitted.

Installation Restoration Program Site

The following sections present existing environmental conditions on the Project site that are associated with IRP Site 2, the Magazine Road Landfill vadose zone soil and the associated groundwater VOC plume, including current regulatory status, a summary of their remedial history, and a summary of known petroleum-hydrocarbon impacts. The location of IRP Site 2 in relation to the Project site is shown in Exhibit 4.8-1. It should be noted that the main operational area of IRP Site 2 is located (at closest) approximately 1,050 feet northeast of the easternmost point of the Project site, and, therefore, potential impacts to the Project site are limited to contaminants that may migrate in groundwater or soil gas from IRP Site 2. The current regulatory status, Human Health Risk Assessment results from reports and documents prepared at the direction of the DoN, corresponding planning areas, and applicable mitigation measures for IRP Site 2 are listed in Table 4.8-1.

Installation Restoration Program Site 2 – Magazine Road Landfill/Vadose Zone Soil

IRP Site 2, the Magazine Road Landfill (OU-2B), was an operational landfill from the late 1950s to approximately 1980 that received solid waste primarily from MCAS El Toro with some lesser contributions from MCAS Tustin (see Exhibit 4.8-1). Suspected types of wastes disposed into the IRP Site 2 landfill during its operation include construction debris, municipal-type waste from Base operations, batteries, waste oils, hydraulic fluids, paint residues, transformers, and waste solvents. The landfill consisted of a main operational area and three unauthorized disposal areas to the south of the main operational area. Separate remedial actions for the vadose zone soil and the groundwater have been approved by the regulatory agencies. As part of the soil remedy for IRP Site 2, waste in the unauthorized disposal areas was consolidated into the main operational area, and a soil cover (landfill cap) was constructed over the waste. The main operational area of IRP Site 2 is located (at closest) approximately 1,050 feet northeast of the easternmost point of the Project site. It is important to note that the vadose zone soil remedy applies to the main operational area of IRP Site 2 and does not coincide with any portion of the Project site.

Current Regulatory Status

The soil remedy is currently in the Operations and Maintenance (O&M) and Long-Term Monitoring (LTM) phase.

TABLE 4.8-1
RELEVANT INSTALLATION RESTORATION PROGRAM SITE IN PROXIMITY TO THE PROJECT SITE

LOC ID	IRP Site Sub-Area (Unit)	Post-Remediation Human Health Risk Assessment Summary[a]	Regulatory Status[b]	Corresponding Project Planning Area[c] (Proposed Land Use)	Applicable Mitigation Measures
IRP 2 – Magazine Road Landfill/Vadose Zone Soil	Vadose Zone Soil	N/A (Off Site)	Operations and Maintenance and Long-Term Monitoring Phase	N/A (Off Site)	N/A (Off site)
IRP 2 – Magazine Road Landfill/Groundwater VOC Plume	Groundwater VOC Plume	**Screening Evaluation of Risks Due to Off-Gassing from VOC Plume and VI:** Residential ELCR = 3E-06[d], HI = 0.02[d] (DoN 2012) **Groundwater:** N/A – Ongoing Remediation	Remedial Design/Remedial Action Phase (i.e., Ongoing Remediation)	Planning Area 1 (Residential) and Planning Area 2 (Residential)	MM HAZ-1

LOC ID: Location of Concern Identification; IRP: Installation Restoration Program; N/A: Not Applicable; VOC: volatile organic compound; VI: Vapor Intrusion; ELCR: Excess Lifetime Cancer Risks; HI: Non-Cancer Hazard Index; MM: Mitigation Measure.

[a] Human Health Risk Assessment results are compiled based on a review of LOC-specific reports and documents prepared at the direction of the DoN.
[b] Regulatory status obtained from review of available documents in the Administrative Record File for former MCAS El Toro.
[c] Planning areas per West Alton Parcel Development Plan, 2016.
[d] These risks were calculated based on VOC concentrations in groundwater prior to ongoing groundwater remediation.

Source: Geosyntec 2016.

Remedial History

The remedial actions for soil and groundwater are separate. Soil has been addressed in conjunction with IRP Site 17 (the Communication Station Landfill), another former landfill located in the vicinity of the Project site, but that does not intersect any portion of the Project site. The Final Interim ROD (DoN 2000) identified the selected remedy for the vadose zone soil at IRP Site 2, including on-site waste consolidation; construction of a soil cover and erosion control features; land use restrictions (including prohibiting construction of structures with a 1,000-foot buffer zone[3]) and access controls; and monitoring of soil gas, leachate, and groundwater (to detect potential future releases of contaminants from the landfill). Note that this groundwater monitoring is separate from the groundwater monitoring that is part of the separate groundwater remedy discussed below. Remedial action construction was completed in February 2008 as documented in the Remediation Verification Report and the Remedial Action Completion Report (Earth Tech AECOM 2009). The Final Explanation of Significant Differences (ESD) (DoN 2009) documented that the Final Interim ROD serves as the Final ROD for the vadose zone soil of IRP Site 2, with the groundwater being addressed in a separate groundwater ROD to be prepared in conjunction with IRP Site 1 groundwater (as described in greater detail below). The easternmost point of the Project site is located approximately 1,050 feet from IRP Site 2 (i.e., outside of, but close to the 1,000-foot buffer zone). However, the Final ESD (DoN 2011) documents a reduction in the width of the buffer zone (for construction of structures) surrounding the landfill from 1,000 feet to 100 feet based on the results of the landfill gas evaluation presented in the Final Semi-Annual Long Term Monitoring Report dated October 2010 (AECOM 2010). It should be noted that the Project site is located within 1,000 feet of IRP Site 17, the closed Communication Station Landfill. However, the buffer zone for IRP Site 17 was also reduced to 100 feet as documented in the Final ESD (DoN 2011). The Project site is located outside the 100-foot buffer zone of IRP Site 17. The remedy for the IRP Site 2 vadose zone soil is currently in an O&M and LTM phase. The LTM program consists of monitoring landfill gas (LFG) with field instruments for total VOCs and methane at five probe locations with a total of 13 completion depths, collecting groundwater samples from four downgradient wells (two early detection [ED] monitoring wells [02NEW15 and 02PZ02] and two point of compliance [POC] monitoring wells [02NEW16 and 02DGMW59]) to be analyzed for VOCs, total metals, and general chemistry and surveying settlement monuments annually. The most recent O&M data, presented in the Final 2013 Annual Operations and Maintenance and Long-Term Monitoring Report (January–December 2013) for IRP Sites 2 and 17 (CE2-Kleinfelder JV 2015), indicates that the remedy at IRP Site 2 continues to be protective of human health and the environment. Perimeter gas sample results revealed no detectable VOC concentrations. Methane was detected in 3 of the 5 perimeter LFG monitoring wells (maximum reading was 0.1 percent of the lower explosive limit [LEL]) in the first LTM event in 2013 but was not detected above the LFG meter's measurement sensitivity at any of the measurement locations in the subsequent LTM event in 2013. By comparison, a typical action limit for methane is 5 percent of the LEL due to potential explosive risk. VOCs in groundwater samples collected from the ED and POC monitoring wells (i.e., upgradient of the groundwater VOC plume) were below laboratory reporting limits during both LTM events in 2013. Again, this groundwater monitoring is meant to detect potential releases of contaminants from the landfill

[3] Construction of structures within 1,000 feet of a landfill (i.e., within the "1,000-foot buffer zone") is generally prohibited due to concerns that methane gas, which is naturally produced in landfills, could migrate through soils, collect in structures, and create the potential for an explosion hazard.

and is separate from the groundwater monitoring that is part of the separate groundwater remedy discussed below.

County Supplemental Investigation

To understand the nature and extent of potential VOC and/or methane impacts to soil gas at the Project site that may exist due to its proximity to the main operational area of the IRP Site 2 landfill and/or the unauthorized disposal areas that were consolidated into the main operational area of the landfill, soil gas probes were installed and sampled in accordance with the *Advisory Active Soil Gas Investigations* (DTSC et al. 2015). A total of 18 individual soil gas probes were installed in 9 locations. Each location had 2 completion depths (generally 5 and 15 feet bgs). Each individual probe completion was sampled and analyzed for VOCs (USEPA Method 8260B) and methane (ASTM D1946). For full details, please see the *West Alton Parcel Soil and Soil Gas Assessment Report* (Geosyntec 2015). Based on the results presented in the report, the following conclusions were drawn:

- Detections of a single VOC, tetrachloroethylene (PCE), in soil gas samples were at concentrations below residential risk-based screening levels, which are generally considered protective of human health and satisfactory to regulatory oversight agencies, and are not expected to have an impact on the development plans for the Project site.
- There were no detections of methane in soil gas samples collected from the Project site.

Petroleum-Hydrocarbon Impacts

There are no known petroleum hydrocarbon impacts to soils at IRP Site 2.

Installation Restoration Program Site 2 – Magazine Road Landfill/Groundwater Volatile Organic Compound Plume

As discussed above, IRP Site 2, the Magazine Road Landfill (OU-2B), was an operational landfill from the late 1950s to approximately 1980 that received solid waste primarily from MCAS El Toro with some lesser contributions from MCAS Tustin. The discussion above addressed the remedial actions for the vadose zone soil. The following summarizes the status of the groundwater remediation actions that have been approved by the regulatory agencies.

Groundwater to the south of IRP Site 2 is impacted by VOCs (mostly TCE) with an apparent source being one of the three former unauthorized disposal areas. The footprint of the groundwater TCE plume associated with IRP Site 2 just touches the easternmost end of the Project site in the LIFOC area, though the plume is located at a depth of approximately 60 feet bgs.

Current Regulatory Status

The groundwater remedy is currently in the Remedial Design/Remedial Action phase (i.e., ongoing remediation), with documented VOC impacts to groundwater still present.

Remedial History

The remedial actions for soil and groundwater are separate. Groundwater is being addressed in conjunction with IRP Site 1 (the former Explosive Ordinance Disposal [EOD] Training Range), which is located approximately 1.1 miles northeast and upgradient with respect to groundwater flow of the Project site. Groundwater to the south of IRP Site 2 is impacted by perchlorate emanating from IRP Site 1 and VOCs (mostly TCE) with an apparent source being one of the former unauthorized disposal areas of IRP Site 2 that was consolidated into the main operational landfill as part of the landfill remedy. The Groundwater Feasibility Study (AECOM 2011) concluded that cleanup is required for perchlorate-impacted groundwater emanating from IRP Site 1 and VOC-impacted groundwater associated with IRP Site 2. The Final Groundwater ROD for IRP Sites 1 and 2 (DoN 2012) identified monitored natural attenuation (MNA) as the selected remedy for TCE impacts to groundwater and in situ bioremediation (ISB) as the selected remedy for perchlorate impacts to groundwater. In addition, institutional controls (ICs), including groundwater use restrictions, were also specified to limit potential human exposure to perchlorate- and VOC-impacted groundwater until the concentrations are reduced to their respective Remediation Goals (RGs). The Final Remedial Design/Remedial Action Work Plan for Groundwater at IRP Sites 1 and 2 (AECOM-Envirocon JV 2014) details how these remedies work together and included the installation of several monitoring wells and injection wells that require ICs. At least one monitoring well (presumably installed during remedial action construction completed in July 2014; 02-NEW42) is located in the LIFOC area of the Project site. This well will remain in place and will be monitored until such time as the RGs are met. Until the RGs are met and agencies give NFA approval, monitoring will continue. Five-year reviews will be conducted by the DoN with concurrence from the regulatory agencies in order to evaluate the performance and continued protectiveness of the remedial actions. After RGs are met, two rounds of successful verification sampling conducted over the period of one year will be required before monitoring can be terminated and a recommendation of NFA is made. Remedial Action construction began in March 2014 and was completed in July 2014 with baseline groundwater sampling. The first quarterly monitoring event was scheduled to begin in September 2014. Reports for this and subsequent monitoring events are not yet publicly available.

County Supplemental Investigation

With respect to the VOC plume in the groundwater, redevelopment of the Project site raises two issues: 1) VOCs may off-gas from the groundwater plume, migrate in the subsurface (i.e., in soil gas) beneath the Project site, and create the potential for vapor intrusion and impacts to indoor air within future structures and 2) there is at least one monitoring well (AECOM-Envirocon JV 2014) associated with IRP Site 2 within the LIFOC area of the Project site that must be protected during construction of the Project and access to which (during and post-construction) must be included in the Project design.

To understand the nature and extent of potential VOC impacts to soil gas at the Project site that may exist due to off-gassing from the groundwater plume and migration through soil gas, the County performed a supplemental investigation of soil gas as described in the previous section. For full details, please see the *West Alton Parcel Soil and Soil Gas Assessment Report*, provided in Appendix H (Geosyntec 2015). The following summarizes the conclusions that were drawn:

- Detections of a single VOC in soil gas samples were at concentrations below risk-based screening levels, which are generally considered protective of human health and satisfactory to regulatory oversight agencies, and are not expected to have an impact on the development plans for the Project site:
    - Only a single VOC was detected (PCE) and its concentrations were below residential screening levels.
    - The implemented groundwater remedy is expected to reduce existing VOC concentrations in groundwater in the future, further reducing the threat of contaminant off-gassing, migration in soil gas, and vapor intrusion potential.

The existing groundwater monitoring well(s) in the LIFOC area of the Project site represent existing environmental conditions that the Project must take into consideration.

Petroleum-Hydrocarbon Impacts

There are no known petroleum-hydrocarbon impacts to groundwater at IRP Site 2.

Former Agricultural Use of the Project Site

The Project site was historically used for agricultural purposes. The main concerns with respect to former agricultural use of a property are with organochlorine pesticides (OCPs), as they are the most persistent, and with herbicide compounds containing arsenic. As the Project site only slightly intersects two IRP Sites, no pesticides or arsenic concentration data for soils at the Project site were collected during the investigations performed by the DoN.

County Supplemental Investigations

In order to assess potential impacts to the Project site that may exist from former agricultural use, soil sampling and analyses were performed in general accordance with the *Interim Guidance for Sampling Agricultural Properties (Third Revision)* (DTSC 2008). A total of 44 discrete soil samples were collected from locations in Planning Areas 1 and 2 of the Project site at depths of approximately 12 to 18 inches bgs. Eleven composite samples were prepared by the laboratory and analyzed for OCPs by USEPA Method 8081A. One discrete sample from each composite area was analyzed for arsenic by USEPA Method 6010B ICP. Only one OCP (4,4'-DDE) was detected in a single composite sample at a concentration 200 times lower than the USEPA's Regional Screening Level (RSL) for residential receptors. The highest detected concentrations of arsenic was 4.90 mg/kg. According to the DTSC guidance document, if measured concentrations of each discrete sample analyzed for arsenic are less than 12 mg/kg, arsenic is not a chemical of potential concern (COPC) (DTSC 2008). As the measured concentrations of arsenic are significantly below the concentrations indicated in the guidance document, arsenic is not a COPC for the Project site.

Based on the results presented in the referenced report, the following conclusions are drawn:

- The detection of a single OCP in one composite soil sample at concentrations below the risk-based screening level and relatively low concentrations of arsenic detected at concentrations considered background are not expected to have an impact on development plans for the Project site:

- Only a single OCP (4,4'-DDE) was detected in a single composite sample at a concentration 200 times below the USEPA residential RSL, a level that is considered protective of human health and satisfactory to regulatory oversight agencies. Therefore, OCPs do not pose a significant risk to future residential receptors.
- Based on measured concentrations, arsenic is not a COPC for the Project site (DTSC 2008).

Potential Petroleum-Hydrocarbon Impacts

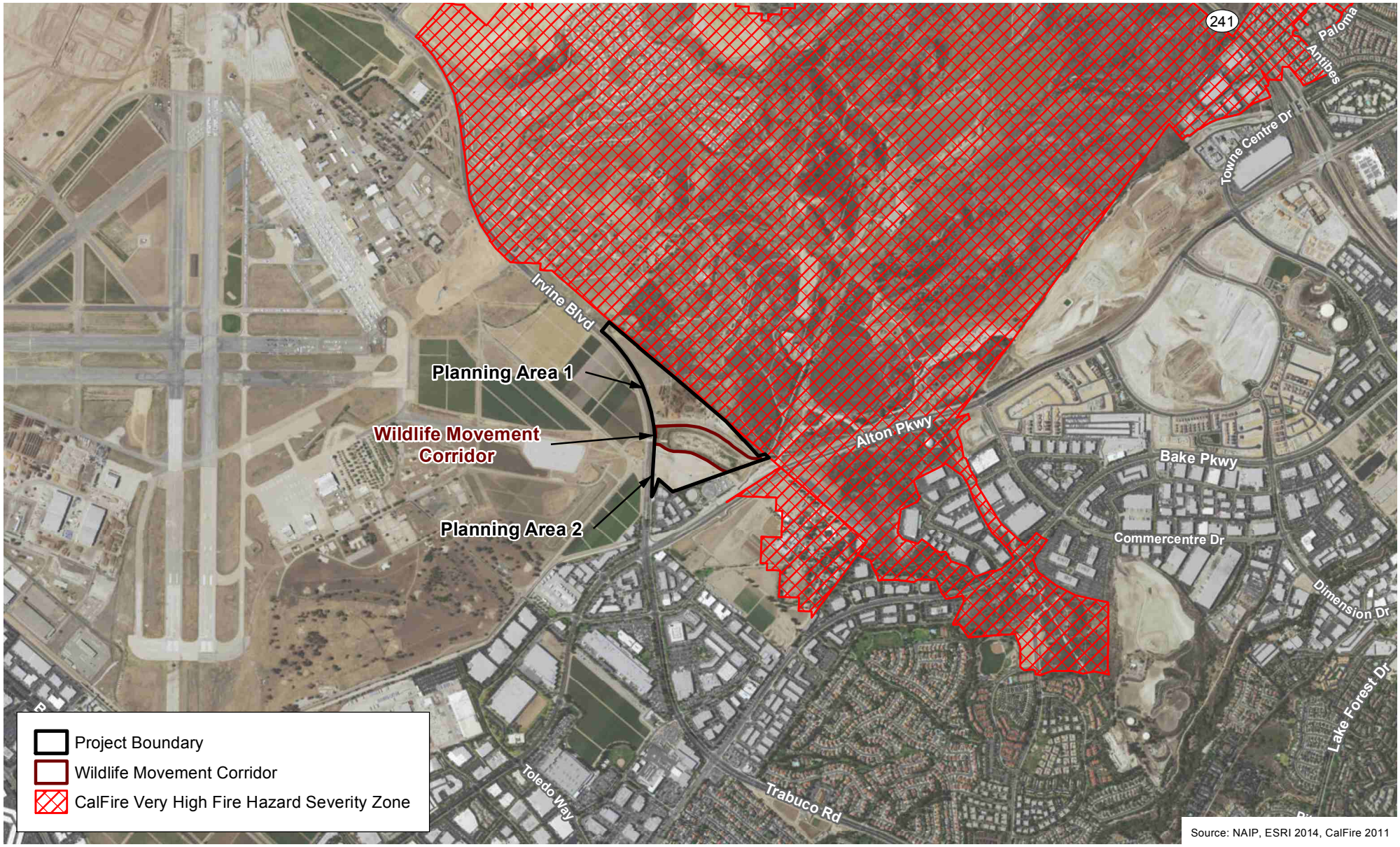
There may be unknown petroleum hydrocarbon impacts at the Project site due to the handling and use of petroleum products at MCAS El Toro (i.e., not directly associated with an IRP Site or other LOC). However, there are no known petroleum-hydrocarbon impacts at the Project site. Unknown petroleum-hydrocarbon impacts encountered during construction of the Project would be mitigated with a Soils Management Plan as discussed further in Section 4.8.6 below.

Fire Hazards

A Very High Fire Hazard Severity Zone (VHFHSZ) as identified on California Department of Forestry and Fire Protection (CAL FIRE) Hazard maps is located adjacent to the northern boundary of Planning Area 1, as shown on Exhibit 4.8-2 (Firesafe Planning 2015). The proposed Project is not located in the VHFHSZ.

A historic fire corridor exists to the north and northeast of the Project site and five large fires have burned to within two miles of the Project site as shown on the CAL FIRE database, which has been collecting fire perimeter data since the 1940s. No data exists on two unnamed fires from 1926 and 1931; however, the Green River Fire (1948), the Paseo Grande Fire (1967), and the Santiago Fire (2007) are well-documented. Only the Santiago Fire burned close to the Project site. Perimeter data for the Santiago Fire indicates that it burned to Irvine Boulevard and encompassed the Project site; however, aerial photography taken after the fire refutes this information by showing vegetation that did not burn on the northern border of the Project site. This indicates that by the time the fire traveled toward the Project site, it was running out of fuel, speed, and intensity when it interfaced with the Project site.

As discussed in Section 4.4, Biological Resources, of this EIR, there is limited vegetation on the Project site other than the container plants and green waste operations that are currently located on site as part of the R&S Soil Products Inc. commercial nursery uses and the restoration area in the Wildlife Movement Corridor. The predominant fuels on the Project site are grasses, grass/scrub mixtures, and riparian areas within the Wildlife Movement Corridor.



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CalFire Very High Fire Hazard Severity Zone Map

Exhibit 4.8-2

West Alton Parcel Development Plan EIR

N W E S

2,000 1,000 0 2,000 Feet

4.8.5 THRESHOLDS OF SIGNIFICANCE

In accordance with the County's Environmental Analysis Checklist and Appendix G of the State CEQA Guidelines, the Project would result in a significant impact related to hazards and hazardous materials if it would:

Threshold 4.8-1 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.

Threshold 4.8-2 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 create a significant hazard to the public or the environment.

Threshold 4.8-3 Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.

Threshold 4.8-4 Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

Threshold 4.8-5 Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

4.8.6 IMPACT ANALYSIS

As discussed above in Section 4.0, Impact Analysis Introduction, the Development Plan identifies a number of development requirements that serve to minimize potential impacts (the development requirements are in Appendix C of the Development Plan). The inclusion of these requirements as appropriate, will be verified during the development review and/or ministerial permit process (e.g., building permit). The development requirements also include other measures that will reduce or avoid potentially significant Project impacts. The County intends to implement the development requirements as part of the Project and has included the development requirements in the Development Plan for that purpose. These measures are listed in Section 4.8.8, Mitigation Program, below because these measures will be tracked as part of the Mitigation Monitoring and Reporting Program.

<u>Thresholds 4.8-1 and 4.8-3</u>

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?

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?

The Project contemplates residential use with associated infrastructure, parking, open space, and common areas. Hazardous materials are not expected to be associated with the Project in substantial quantities once it is implemented. Therefore, the impact analysis under Threshold 4.8-1 is focused on potential impacts associated with existing hazardous materials (i.e., existing environmental conditions) at the Project site that are subject to reasonably foreseeable upset and accident conditions during grading and construction phases of the Project and once the Project is implemented. The only existing environmental conditions that may present significant hazards due to reasonably foreseeable upset or accident conditions are potential impacts due to former agricultural use of the Project site.

It should be noted that as part of the analysis for this threshold, potential impacts associated with IRP Site 2 were evaluated. IRP Site 2 has undergone remedial actions for the vadose zone soil and is undergoing remedial actions for the groundwater. The potential for impacts to the public or the environment through reasonably foreseeable upset or accident conditions were assessed and the likelihood of them occurring is remote, and therefore, would be considered to be speculative. For example, the evaluation considered if there was a reasonable potential for significant hazard associated with 1) methane generated by the IRP Site 2 landfill migrating in the vadose zone to the Project site, collecting within future constructed structures, and creating an explosive hazard, or 2) inhalation by workers of VOCs in soil gas emanating from the main operational area or the unauthorized disposal areas of IRP Site 2, or from off-gassing from the VOC groundwater plume. The likelihood of these occurring is considered remote because 1) the soil gas investigation (Geosyntec 2015) showed there was no methane in soil gas samples collected from the Project site and the most recent O&M and LTM report for the IRP Site 2 landfill indicates methane is not being generated in significant enough quantities at the main operational area of the landfill to pose a significant impact (CE2 - Kleinfelder JV 2015), and 2) the soil gas investigation (Geosyntec 2015) also showed that only a single VOC was detected in soil gas at the Project site and those concentrations were below residential risk-based thresholds and detections do not appear to be related to the groundwater VOC plume. Therefore, less than significant impacts will result as to those issues as the likelihood for these conditions to create a significant hazard to the public or the environment through reasonably foreseeable upset or accident conditions is considered relatively low.

In terms of location near schools, the Project is within a ¼ -mile of the recently opened Portola High School. The high school opened in Fall of 2016 and is located to the west/northwest of the Project site across Irvine Boulevard. Although the proposed residential development does not propose any activities that would result in emitting hazardous emissions or ongoing handling of hazardous or acutely hazardous materials impacting the high school, the Project would include a park within the Lease in Furtherance of Conveyance (LIFOC) area. However, as indicated in MM HAZ-1, construction of the park in the LIFOC area would not occur until completion of the remediation and issuance of the FOST by the DoN and approval of the same by the United States Environmental Protection Agency (USEPA), Department of Toxic Substances Control (DTSC), and Regional Water Quality Control Board (RWQCB). Any remediation work would occur in accordance with applicable laws designed to protect the public, including any schools, from potentially significant environmental impacts associated with the emission or handling of hazardous or acutely hazardous materials. Further, the condition of the applicable portion of the Project site and the remediation efforts regarding the same were known before the State and others approved construction and occupancy of Portola High School. Upon issuance of the FOST, the applicable portion of the Project site would be

considered safe, and no significant impacts would result from the emission or handling of hazardous or acutely hazardous materials within ¼ mile of Portola High School.

Potential Impacts Due to Former Agricultural Use of the Project Site

Due to its former agricultural use, there may be residual pesticides and/or pesticide-related compounds (particularly OCPs as they are the most persistent) and/or arsenic compounds associated with herbicides (DTSC 2008) in soils at the Project site at concentrations that present a human health risk. Exposure to OCPs and arsenic in soils can occur through inhalation of dust when soils are disturbed or through direct contact or ingestion of soils. The nature and extent of potential pesticide or herbicide impacts to soil at the Project site that may exist due to its former agricultural use was evaluated as part of the soil investigation performed on behalf of the County (Geosyntec 2015). Soil sampling and analyses were performed in general accordance with the *Interim Guidance for Sampling Agricultural Properties (Third Revision)* (DTSC 2008). Only one OCP (4,4'-DDE) was detected in a single composite sample[4] (West Alton Parcel [WAP]-composite-11), at a concentration 200 times lower than the USEPA RSL for residential receptors (i.e., a level that is considered protective of human health and satisfactory to regulatory oversight agencies). Therefore, impacts due to OCPs are less than significant without mitigation. The highest detected concentrations of arsenic was 4.90 mg/kg. According to the DTSC guidance document, if measured concentrations of each discrete sample analyzed for arsenic are less than 12 mg/kg, arsenic is not a chemical of potential concern (COPC) (DTSC 2008). Additionally, 12 mg/kg is the concentration generally accepted as background for soils in Southern California. Therefore, concentrations of arsenic detected are considered background (i.e., naturally occurring) and potential Project impacts are less than significant and do not require mitigation.

Impact Conclusion: *Based on information from the latest O&M and LTM report for the IRP Site 2 landfill and supplemental County investigations, the potential for the Project to create a significant hazard to the public or the environment through reasonably foreseeable upset or accident conditions involving the release of hazardous materials are less than significant without mitigation pursuant to Threshold 4.8-1. Additionally, as indicated above, while the Project site is within a ¼ mile of Portola High School, the Project would not result in significant impacts due to emissions from or handling of hazardous or acutely hazardous materials on the Project site. Further, based on soil investigations, impact related to former agricultural use of the Project site would be less than significant without mitigation.*

Threshold 4.8-2

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?

[4] Per the DTSC guidance (DTSC 2008) composite samples were prepared by the laboratory by mixing equal weights of four primary samples. For further details, see the *West Alton Parcel Soil and Soil Gas Assessment Report* (Geosyntec 2015).

The Project site is a portion of the former MCAS El Toro Superfund site, which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. Therefore, the impact analyses under Threshold 4.8-2 are focused on whether implementation of the Project would create a significant hazard to the public or environment due to existing environmental conditions related to the Project site's former use. Impact analyses are arranged based on the following existing environmental conditions: potential hazardous soil impacts (including, but not limited to, petroleum-hydrocarbon-impacts) and potential impacts related to IRP Site 2.

Potential Hazardous Soil Impacts

During extensive historical document review of operations at MCAS El Toro conducted during the RI/FS process under the regulatory oversight of USEPA, DTSC, and the Water Board, the Project site was not found to coincide with IRP Sites or other LOCs that warranted environmental investigation, and therefore soil samples were not collected from the Project site. As discussed above, the *West Alton Parcel Soil and Soil Gas Assessment Report* evaluated the nature and extent of potential pesticide or herbicide impacts to soils on the Project site that may have existed due to its historical agricultural use and potential VOCs or methane impacts to soil gas beneath the Project site (Geosyntec 2015). This report is provided in Appendix H. [5] The results presented in the report included the following: only a single OCP (4,4-DDE) was detected in a single composite soil sample at a concentration 200 times below the USEPA residential RSL, a level that is considered protective of human health and satisfactory to regulatory oversight agencies; measured concentrations of arsenic in soils at the Project site were below the threshold (i.e., 12 mg/kg) for which arsenic would be considered a chemical of potential concern (COPC) for the Project site (DTSC 2008); only a single VOC was detected (PCE) in soil gas collected from the Project site at concentrations below residential screening levels, the PCE detections in soil gas are likely not related to the groundwater plume associated with IRP Site 2 and the implemented IRP Site 2 groundwater remedy is expected to reduce existing VOC concentrations in groundwater in the future, further reducing the potential of contaminant off-gassing, migration in soil gas, and vapor intrusion potential; and there were no detections of methane in soil gas samples collected from the site. Therefore, the report found that soil impacts due to OCPs and arsenic and soil gas impacts due to VOCs and methane are less than significant without mitigation because measured levels were well below the USEPA RSL for residential receptors.

Though not anticipated, hazardous materials impacts to soil may be present at the Project site as a result of former MCAS El Toro operations. Because there are no known impacts to soils at the Project site, no mitigation measures for soils are required. However, to address unknown contaminants should they be encountered during development of the Project, Development Requirement (DR) HAZ-1 describes a Soils Management Plan that will be developed and implemented to provide measures for identifying and mitigating potential petroleum-hydrocarbon, VOC, and other impacts to soils, in accordance with SCAQMD Rule 1166 and applicable sections of the *California Health and Safety Code*. With implementation of this DR, impacts during and after construction would be less than significant pursuant to

[5] As part of the *West Alton Parcel Soil and Soil Gas Assessment Report* 44 primary discrete soil samples and 5 duplicate discrete soil samples were collected. Eleven composite samples and two duplicate composite samples were prepared by the laboratory and analyzed for OCPs by EPA Method 8081A. Eleven discrete samples and three duplicate discrete samples were analyzed for arsenic by EPA Method 6010B ICP. Soil laboratory analytical reports are provided in Appendix H (see Appendix B of the report).

Threshold 4.8-2. DR HAZ-2 enumerates regulations concerning the transport and disposal of hazardous materials, including soils impacted by hazardous materials and/or petroleum hydrocarbons, should they be identified during construction through implementation of the Soils Management Plan (i.e., DR HAZ-1). Among other things, these regulations include the requirements for packaging, storing, labeling, reporting, and generally managing and disposing of hazardous waste and identify standards applicable to transporters of hazardous waste such as the requirements for transporting shipments of hazardous waste, manifesting, vehicle registration, and procedures to enact in the case of emergency accidental discharges during transportation. Although not expected, DR HAZ-3 enumerates applicable sections of the *California Code of Regulations* and the *California Health and Safety Code* that will be implemented should USTs be encountered during Project site grading or excavation activities. With implementation of the regulations in these DRs as required by law, potential impacts would be less than significant pursuant to Threshold 4.8-2.

Impact Conclusion: *Significant hazard to the public or the environment due to potential unknown hazardous soil impacts and the Project site being on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5, are potentially significant without implementation of the applicable development requirements. DR HAZ-1 requires development of a Soils Management Plan to address unknown hazardous materials impacts and/or petroleum-hydrocarbon and VOC impacts to soil that are identified during grading. DR HAZ-2 addresses transportation and disposal of hazardous materials-impacted soils, and DR HAZ-3 addresses assessment, removal, and closure of unknown USTs should they be encountered during grading. With implementation of DR HAZ-1, DR HAZ-2, and DR HAZ-3, impacts during and after construction would be less than significant pursuant to Threshold 4.8-2.*

Potential Impacts Due to IRP Site 2 – Magazine Road Landfill

This section provides an impact analysis for IRP Site 2, for which a supplemental soil gas investigation was performed by the County in support of the EIR. This impact analysis compares the concentrations of chemicals detected in the subsurface against the associated risk-based screening levels for the planned land use as a basis for whether significant hazards to the public or the environment are posed as a result of the Project. In addition, the groundwater remedy for IRP Site 2 includes ongoing remediation and monitoring in the LIFOC area of the Project site. The impact analysis for IRP Site 2 considers hazards due to impacts to the monitoring of the groundwater plume associated with IRP Site 2 during grading and construction.

Volatile Organic Compound and/or Methane Impacts to Soil Gas

The nature and extent of potential VOC impacts from soil gas that may exist at the Project site due to migration from the main operational area or the unauthorized disposal areas of IRP Site 2 or from off-gassing of the groundwater VOC plume and/or potential methane impacts that may exist at the Project site due to migration from the main operational area of IRP Site 2 was evaluated as part of the soil gas investigation performed on behalf of the County (Geosyntec 2015). No VOCs were detected in samples collected from Planning Area 1. Only a single VOC was detected (PCE) at four of five locations in Planning Area 2 and it was at concentrations

below residential risk-based screening level The implemented groundwater remedy described above is also expected to reduce existing VOC concentrations in groundwater in the future, further reducing the potential threat of contaminant off-gassing, migration in soil gas, and vapor intrusion potential. There were no detections of methane in soil gas samples collected from the Project site. In addition, the most recent O&M and LTM report indicates methane is not being generated in significant enough quantities at the main operational area of the IRP Site 2 landfill to pose a significant impact (CE2-Kleinfelder JV 2015).

VOCs and methane in soil gas could not be tested in the areas of the Project site that are within the LIFOC area. However, the portion of the Project site within the LIFOC is small (approximately 1.4 acres) and development plans for the LIFOC area are limited to grading and Park/Open Space use (i.e., no habitable structures). Therefore soil gas VOCs and methane have been adequately characterized and no mitigation measure is required.

Impact Conclusion: *Though the Project is located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5, the impacts with respect to VOCs and methane in soil gas are less than significant without mitigation pursuant to Threshold 4.8-2 because as part of the DoN remediation efforts soil contaminants would be below thresholds established by regulatory agencies and the Project would not create a significant hazard to the public or the environment and no mitigation measure is required.*

Project Impacts to Monitoring Wells

The only active ongoing remediation in the vicinity of the Project site is the groundwater remedy and monitoring wells associated with the IRP Site 1 and IRP Site 2 groundwater perchlorate and TCE plume. There is one groundwater monitoring well within the LIFOC area of the Project site. In order to protect human health and the environment, the groundwater remedy will continue to operate until such time as the appropriate cleanup levels are attained and final closure is granted by the regulatory agencies. Notwithstanding implementation of the Project, with respect to the groundwater extraction and treatment system, 1) the DoN and other regulatory agencies must maintain the ability to access the monitoring well(s) and 2) the monitoring well(s) must be protected during construction and operation of the Project. The Final ROD specifies that remediation of the existing contamination of the shallow groundwater at IRP Site 2 will continue until remediation goals for perchlorate and TCE are met. The remediation goals were set at the California Maximum Contaminant Levels (MCLs) for perchlorate and TCE (6 microgram per liter [ug/L] and 5 ug/L, respectively). This remediation process will likely take a period of years to complete, and, during this time, the DoN has implemented institutional controls in portions of IRP Site 2 to limit access to the groundwater. The Final Groundwater ROD (DoN 2012) identifies ICs that must be implemented in the form of land use or activity restrictions for a portion of IRP Site 2. The ICs are administratively handled through the LIFOC. It is expected that the final ICs will be transferred with the LIFOC portion of the Project site. However, in order to ensure the continued and uninterrupted operation of the groundwater monitoring system, MM HAZ-1 includes preparation of a Groundwater Well Management Plan to identify how the grade at each well location is proposed to change, identify how well heads will be protected during construction (e.g., placement of k-rails or other barriers), provide the methodology for extending or shortening well casings or replacing

surface completions or wells, and specify a final survey of finished well locations and elevations to protect the existing well(s) during Project construction.

Impact Conclusion: *The potential for the Project to create a significant hazard to the public or the environment with respect to impacts to the groundwater monitoring well(s) associated with the groundwater TCE plume at IRP Site 2 and due to the Project site being on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5, are potentially significant without mitigation. MM HAZ-1 addresses protection of the monitoring well system during grading and construction. With implementation of this measure, impacts would be reduced to less than significant pursuant to Threshold 4.8-2.*

Thresholds 4.8-4 and 4.8-5

Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Would the Project expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

As previously identified, Planning Area 1 is located adjacent to a VHFHSZ, as identified on CAL FIRE Hazard maps (refer to Exhibit 4.8-2). There are no designated emergency evacuation routes on or immediately adjacent to the Project site. Therefore, the Project would not impact any designated evacuation routes. As the Project site is located adjacent to VHFHSZ, in accordance with OCFA requirements, fuel modification zone safety measures will be incorporated into the Project. In addition, Planning Areas 1 and 2 have multiple access points to Irvine Boulevard to accommodate emergency equipment and Project residents' evacuation. There are no unique characteristics about the uses proposed by the Project that would impair emergency response or evacuation from the Project site or surrounding areas.

As described in Section 4.4, Biological Resources, of this Draft EIR, there is limited vegetation on the Project site other than the restoration area in the Wildlife Movement Corridor, and the container plants and green waste operations that are currently located there as part of the R&S Soil Products Inc. and commercial nursery uses. The only locations with areas of moderate fuels are within the Wildlife Movement Corridor. This area has been provided with supplemental watering to allow the establishment of the vegetation. Within the Wildlife Movement Corridor, the predominant fuels are grasses, grass/scrub mixtures, and riparian areas. As the irrigation is withdrawn from the Wildlife Movement Corridor, it is anticipated that only the bottom channel where water is available most of the year will continue to have moderate fuels. The edges of the Wildlife Movement Corridor (Project interface) will not continue to increase in fuel potential beyond the level of current vegetation due to a lack of water and its exposure to direct sunlight. All of the fuels within the development area (Planning Areas 1 and 2) will be removed and replaced with plants from the approved palette, consisting of fire resistant plants, and native and appropriate non-native drought tolerant species in accordance with OCFA guidelines.

As previously indicated, the Fire Behavior Analysis Report assessed the risks related to wildland fire to the Project site and established the appropriate criteria for the design of defensible space installation and identified a maintenance program that would reduce the intensity of a wildfire approaching the Project site. Vegetative fuels are recognized as fuel models within the BehavePlus program and are designed to aid in determining fuel types for calculating and estimating fire behavior. This allows the intensity of a fire moving toward this development to be evaluated. The fire behavior calculations included the adjacent Federal Bureau of Investigation (FBI) property as a continuous fuelbed.

The Fire Behavior Analysis Report indicates, based on the modeling, flame lengths of just over 40 feet are possible from the FBI property; however, this is not the likely scenario due to predominant winds that drive wildland fires and the arrangement of the slopes and fuel relative to the proposed structures. Fire behavior modeling indicated that 21.4-foot flame lengths are the maximum to be expected at the Project site's property line with Planning Area 1 from the predominant west wind. These are well within the 2:1 ratio (flame length to distance ratio) needed for protecting the structures with the 100-foot areas provided on the northeast interfaces. In fact, this ratio would be more in line with the 4:1 ratio required for a "safety zone", where personnel and equipment would be safe without the use of radiant heat shelters. Protections from the west or southwest winds need not be as large because when winds are from the southwest, fire would not burn into the Project site as a "line of fire" due to existing development and lack of continuous fuels (Firesafe Planning 2015). In these cases, the maximum expected flame lengths (from the Wildlife Movement Corridor) are 16.1 feet. As disclosed in the Fire Behavior Analysis Report, a minimum distance of 35.0 feet would be acceptable.

The portion of the Project site that interfaces with winds from the north is lightly vegetated. The fire is more likely to be a "line of fire", potentially impacting large areas at one time with a large fire front because the head of the fire is a long line, which is made of a series of point fires. However, the fuel modification design guidelines have taken this into account and the Project's fire protection buffer is sufficient to offer adequate protection. (Firesafe Planning 2015). Therefore, the potential impact associated with wildland fire would be less than significant.

The Wildlife Movement Corridor presents a possible avenue of fire exposure to the Project site; however, as discussed above, the lack of wildland fuel on the edges of the corridor reduces the potential exposure. In particular, the northern interface of the Wildlife Movement Corridor has a southern aspect and is unlikely to retain a large amount of fuel when the irrigation is turned off following establishment of the biological resources. The lack of fuels and the direction of the west and southwest winds that would drive a fire from the Wildlife Movement Corridor away from the Project site combine to create an interface that would require only 35 feet of fuel modification in this area.

The Conceptual Fuel Modification Plan and Fire Protection Plan, which were approved by OCFA on July 13, 2016 (OCFA 2016a and 2016b), are presented in Exhibits 3-14 and 3-15 in Section 3.0, Project Description, of this EIR and are identified as a development requirement (DR HAZ-4), included in Section 4.8.8 below. The Project would implement a fire protection plan that would comply with or exceed the OCFA standards for VHFHSZ/Special Fire Protection Areas. Fire protection measures as part of the Project would include, but are not limited to, fire-resistant structures adjoining natural open space areas and fuel modification/management to help suppress wildland fires. Fuel modification would occur within two zones, with each zone

designed specifically to help suppress a fire in different ways. The zones would include requirements for minimum structure setbacks, permanent irrigation systems, fire resistant plants from an approved plant list by the County and landscape and planting maintenance (i.e., thinning and removal of dead plants) as described below:

- Zone A shall consist of a 20-foot setback consisting of noncombustible construction only.
- Zone B is the first 28 to 80 feet from Zone A. This zone will be cleared of all undesirable plant species, irrigated, and planted with plants as set forth in Appendix A of the Fire Behavior Report.

Three areas within the Project site will not be capable of providing a typical 170-foot fuel modification zone. Therefore, these areas would be protected in an equal but alternative method by increasing the irrigated zone(s) and providing a six-foot-high radiant heat wall at the edge of the fuel modification zone. The radiant heat wall would be constructed at the edge of Fuel Modification Zone B and between the structures and the native vegetation. The radiant heat walls are perpendicular to the wind but parallel with the slope and are extremely effective when used at the top of the slope in the types of light to moderate fuels that exist adjacent to the Project site.

Further, the proposed landscape plan utilizes a plant palette consisting of fire-resistant plants, native, and appropriate non-native drought-tolerant species in accordance with OCFA guidelines. The proposed Project's Conceptual Fuel Modification Plan would provide a performance-based fire protection system for the Project site that is greater than the wildland fire hazards that exist (Firesafe Planning 2015).

With implementation of the approved Conceptual Fuel Modification Plan and Fire Protection Plan, implementation of the proposed Project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires. This impact is less than significant and no mitigation is required.

Impact Conclusion: *The Project site is located adjacent to a VHFHSZ. There are no designated emergency evacuation routes on or immediately adjacent to the Project site. Therefore, the Project would not impact any designated evacuation routes pursuant to Threshold 4.8-4. With implementation of the approved Fuel Modification Plan, development under the proposed Project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires. This impact is considered less than significant pursuant to Threshold 4.8-5.*

4.8.7 CUMULATIVE IMPACTS

After mitigation, Project-specific impacts due to hazardous materials would be reduced to a level that is less than significant. Although some of the cumulative projects listed also have potential impacts associated with hazardous materials, specifically projects on the former MCAS El Toro, the environmental concerns associated with hazardous materials are site-specific. Each cumulative project is required to comply with applicable laws and address any issues related to hazardous material or wastes so as not to result in potentially significant

cumulative impacts. Federal, State, and local regulations require mitigation to protect the public and the environment against significant hazard due to reasonably foreseeable upset or accident conditions or development on listed hazardous materials sites. Therefore, cumulative hazardous materials impacts would be less than significant.

Similar to the Project, a number of the cumulative projects located adjacent to the undeveloped urban fringe would also be located adjacent to or within a VHFHSZ. Each of these projects would be required to meet the applicable requirements for fuel modification or other design requirements that would provide a performance-based fire protection system to guard against hazards associated with wildland fires. These provisions are evaluated on a site-specific basis, which, when combined, would reduce the risk associated with exposure of people or structures to a significant risk of loss, injury, or death involving wildland fires. Similar to the potential for cumulative hazardous material, the cumulative impacts associated with wildland fires would be less than significant.

4.8.8 MITIGATION PROGRAM

Development Requirements

DR HAZ-1 Prior to initial grading, a site-specific Soils Management Plan will be developed to be implemented during grading and will include measures for monitoring soil conditions for evidence of impacts and contingency measures in the event that impacted soils (including, but not limited to, petroleum-hydrocarbons and other volatile organic compounds [VOCs]) are encountered during grading as evidenced by visual staining, olfactory perception, or field testing. The objective of the Soils Management Plan is to reduce exposures to impacted soils to less than significant levels, as defined by applicable law, for construction and utility workers during grading and construction phases of the Project and for future residents after construction is complete. The Soils Management Plan will include, at a minimum, identification of contaminants through use of field equipment (e.g., PID); sampling and laboratory analyses, if necessary; segregation; temporary stockpiling specifications; and treatment and/or disposal options in accordance with applicable law. This Soils Management Plan will be submitted to the Manager of Building & Safety for review and approval.

DR HAZ-2 During site grading and construction activities, hazardous contaminated soils or other hazardous materials shall be managed in accordance with the requirements of Title 22, Division 4.5 of the *California Code of Regulations*; the U.S. Department of Transportation regulations in the *Code of Federal Regulations* (specifically, Title 49, Hazardous Materials Transportation Act and Title 40, Part 263, Subtitle C of Resource Conservation and Recovery Act); California Department of Transportation (Caltrans) standards; and Occupational Safety and Health Administration (OSHA) standards. Title 22 sets forth the requirements with which hazardous waste generators, transporters, and owners or operators of treatment, storage, or disposal facilities must comply. These regulations include the requirements for packaging, storing, labeling, reporting, and generally managing and disposing of hazardous waste, which shall be done in a manner meeting the satisfaction of the Manager, Orange County Health Care

Agency (OCHCA)/Hazardous Materials Program prior to shipment. In addition, the regulations identify standards applicable to transporters of hazardous waste such as the requirements for transporting shipments of hazardous waste, manifesting, vehicle registration, and procedures to enact in the case of emergency accidental discharges during transportation. The County shall sign necessary hazardous and nonhazardous waste manifests as "Generator".

DR HAZ-3 If any underground storage tanks (USTs) are encountered during site grading or excavation activities, they shall be removed in accordance with the existing standards and regulations of, and oversight by, the Manager, OCHCA/Hazardous Materials Program, based on compliance authority granted through the *California Code of Regulations* (specifically, Title 23, Division 3, Chapter 16, Underground Tank Regulations). The process for UST removal is detailed in the OCHCA's *Underground Storage Tanks: The Basics* manual. Soil samples from areas where storage tanks have been removed or where soil contamination is suspected shall be analyzed for hydrocarbons, including gasoline and diesel, in accordance with procedures set forth by the OCHCA. If hydrocarbons are identified in the soil, the appropriate response/remedial measures will be implemented as directed by OCHCA with support/review from the Regional Water Quality Control Board (RWQCB) until all specified requirements are satisfied and a Tank Closure Letter is issued. Any aboveground storage tank (AST) in existence at the commencement of site development shall be removed in accordance with all applicable regulations under the oversight of Orange County Fire Authority (OCFA). Compliance requirements relative to the removal/closure of storage tanks are set forth in Sections 25280 through 25299 of the *California Health and Safety Code.*

DR HAZ-4 Prior to issuance of building permits, the Project plans shall reflect a fire protection plan that would comply with or exceed the OCFA standards for Very High Fire Hazard Severity Zone (VHFHSZ)/Special Fire Protection Areas. Fire protection measures as part of the Project shall include, but not be limited to, fire-resistant structures adjoining natural open space areas and fuel modification/management to help suppress wildland fires. Unless an alternative approach is approved by OCFA, the fuel modification shall occur within two zones with requirements for minimum structure setbacks, permanent irrigation systems, fire-resistant plants from an approved plant list by the OCFA/County, and landscape and planting maintenance (i.e., thinning and removal of dead plants) as described below:

- Zone A shall consist of a 20-foot setback consisting of noncombustible construction only.
- Zone B is the first 28 to 80 feet from Zone A. This zone will be cleared of all undesirable plant species, irrigated, and planted with plants as set forth in Appendix A of the Fire Behavior Report.

For those areas within the Project site not capable of providing a typical 170-foot fuel modification zone, an equal but alternative method of providing fire protection shall include increasing the irrigated zone(s) and providing a six-foot-

high radiant heat wall at the edge of the fuel modification zone. The radiant heat wall shall be constructed at the edge of Zone B and between the structures and the native vegetation. The radiant heat walls are perpendicular to the wind but parallel with the slope and are extremely effective when used at the top of the slope in light to moderate fuels. (Note: DR BIO-4 pertains to the design of the radiant heat walls. Should the wall design be tempered glass over block wall, the tempered glass shall be textured to minimize the potential for bird strikes.)

Mitigation Measure

MM HAZ-1 In the event that the Lease in Furtherance of Conveyance (LIFOC) area has not been transferred to the County by the time Project construction commences, the LIFOC area will be cordoned off and no grading or construction activities will be performed within the LIFOC area. Prior to initial grading, the County will secure from the Department of the Navy (DoN) an updated, complete listing; survey coordinates; and map showing locations of existing groundwater wells related to remedial activities within the LIFOC area. If a well or wells are part of active remediation monitoring at the time of transfer (i.e., they must be protected during grading and construction and access to them must be maintained) the final grading plan will be compared to the existing surface elevations at the location of each well and a Groundwater Well Management Plan will be prepared to ensure required access to and protection of the groundwater monitoring wells. That well plan shall, at a minimum, identify how the grade at each well location is proposed to change; identify how well heads will be protected during construction (e.g., placement of k-rails or other barriers); provide the methodology for extending or shortening well casings or replacing surface completions or wells, as needed; and specify a final survey of finished well locations and elevations. The well plan will be approved by the DoN and the Regional Water Quality Control Board (RWQCB).

4.8.9 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Significant or potentially significant impacts associated with existing environmental conditions would be mitigated to a level considered less than significant with implementation of DR HAZ-1 through DR HAZ-4 and MM HAZ-1. No significant unavoidable impacts would occur.

4.8.10 REFERENCES

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4.9 HYDROLOGY AND WATER QUALITY

This section discusses Project-related impacts to hydrology/drainage and water quality at the West Alton Parcel Development Plan (Development Plan) Project site. The analysis in this section is based on two separate *Conceptual County of Orange/Santa Ana Region Priority Project Water Quality Management Plan (WQMP)* for the northern and southern parcels (Planning Area 1 and Planning Area 2) and two separate *Preliminary Drainage Analysis,* for the northern and southern parcels (Planning Area 1 and Planning Area 2). All four reports were prepared by Tait & Associates, Inc. in December 2015 and revised in April 2016.

The *Preliminary Drainage Analysis* reports address runoff from the Project site and its impact to the existing downstream storm drainage system. The analyses include calculations for the 25 - year and 100-year storms for both the existing and proposed conditions and provide design analyses for the drainage facilities proposed as part of the Project, with the drainage improvements being designed to mitigate all rainfall event frequencies up to a 24-hour, 25-year storm event. Calculations for the 24-hour 100-year storm event are included to demonstrate the Project would provide 100-year flood protection for on-site structures and to ensure on-site basin performance during severe storm events. The analyses fulfill the requirements of the Orange County Drainage Area Management Plan (DAMP 2011) and the Orange County Hydrology Manual (October 1986 and 1996 Addendum).

The four reports are included as appendices to this EIR. The two *Conceptual County of Orange/Santa Ana Region Priority Project Water Quality Management Plan* are provided in Appendix I-1 and the two *Preliminary Drainage Analysis Reports* are provided in Appendix I-2.

4.9.1 REGULATORY SETTING

Federal

Clean Water Act

In 1972, the Federal Water Pollution Control Act ("Clean Water Act") was amended to require National Pollutant Discharge Elimination System (NPDES) permits for the discharge of pollutants to "waters of the U.S."[1] from any point source.[2] Final regulations regarding storm water discharges were issued on November 16, 1990, and require that municipal separate storm sewer system (MS4) discharges and industrial (including construction) storm water discharges to surface waters be regulated by an NPDES permit. MS4s are a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains) and are owned or operated by a public body that has jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes. The MS4s are designated or used for collecting or conveying storm water only (i.e., not wastewater or combined sewage).

1 "Waters of the U.S." include all waters that have, are, or may be used in interstate or foreign commerce (including sightseeing or hunting), including all waters subject to the ebb and flow of the tide and all interstate waters, including interstate wetlands (33 Code of Federal Regulations 328.3).

2 Point sources are discrete water conveyances, such as pipes or man-made ditches.

Total Maximum Daily Loads

Water bodies not meeting water quality standards are deemed "impaired" and, under CWA Section 303(d), are placed on a list of impaired waters for which a total maximum daily load (TMDL) must be developed for the impairing pollutant(s). For point sources, including storm water, the load allocation is referred to as a "Wasteload Allocation", whereas for non-point sources, the allocation is referred to simply as a "Load Allocation". Once established, the TMDL allocates the loads (or concentrations) among current and future pollutant sources to the water body.

The CWA requires that the State Water Resources Control Board (SWRCB) and RWQCBs conduct a Water Quality Assessment that addresses the condition of its surface waters (required in Section 305[b] of the CWA) and that provides a list of impaired waters (required in CWA Section 303[d]); this Water Quality Assessment is then submitted to the U.S. Environmental Protection Agency (USEPA) for review and approval. The Water Quality Assessment integrates the requirements of Sections 305(b) and 303(d) of the CWA, and is referred to as the "Integrated Report". The 2012 Integrated Report and updated 303(d) list was approved by the SWRCB on April 8, 2015, and the USEPA approved the Report on July 30, 2015 (SWRCB 2015). The next update cycle for the Santa Ana Region (Region 8) is scheduled to occur in 2016 and is anticipated to be approved by the USEPA in mid-2017. Table 4.9-1 below summarizes the pollutants affecting the water quality limited segments downstream of the proposed Project, their TMDL requirement status, and potential pollutant sources, as provided on the current 303(d) list.

TABLE 4.9-1
SUMMARY OF 303(D) LIST FOR THE PROJECT RECEIVING WATER BODIES

WATER BODY	POLLUTANT	TMDL REQUIREMENT STATUS	Potential Pollutant Sources (Where Identified)
Newport Bay, Lower	Chlordane	5A (2019)	N/A
	Copper	5A (2007)	N/A
	DDT (Dichlorodiphenyltrichloroethane)	5A (2019)	N/A
	Indicator Bacteria	5B	N/A
	Nutrients	5B	N/A
	PCBs (Polychlorinated biphenyls)	5A (2019)	N/A
	Pesticides	5B	Agriculture
	Pesticides	5B	Contaminated Sediments
	Sediment Toxicity	5A (2019)	N/A
Newport Bay, Upper	Chlordane	5A (2019)	N/A
	Copper	5A (2007)	N/A
	DDT (Dichlorodiphenyltrichloroethane)	5A (2019)	N/A
	Indicator Bacteria	5B	N/A
	Metals	5A (2019)	N/A
	Nutrients	5B	N/A
	PCBs (Polychlorinated biphenyls)	5A (2019)	N/A
	Pesticides	5B	Agriculture

TABLE 4.9-1
SUMMARY OF 303(D) LIST FOR THE PROJECT RECEIVING WATER BODIES

WATER BODY	POLLUTANT	TMDL REQUIREMENT STATUS	Potential Pollutant Sources (Where Identified)
	Pesticides	5B	Unknown Nonpoint Source
	Sediment Toxicity	5A (2019)	N/A
	Sedimentation/Siltation	5B	Agriculture
	Sedimentation/Siltation	5B	Channel Erosion
	Sedimentation/Siltation	5B	Construction/Land Development
	Sedimentation/Siltation	5B	Erosion/Siltation
San Diego Creek Reach 1	Fecal Coliform	5A (2019)	N/A
	Nutrients	5B	N/A
	Pesticides	5B	Unknown Nonpoint Source
	Sedimentation/Siltation	5B	N/A
	Selenium	5A (2007)	N/A
	Toxaphene	5A (2019)	N/A
San Diego Creek Reach 2	Indicator Bacteria	5A (2021)	N/A
	Nutrients	5B	Agriculture
	Nutrients	5B	Groundwater Loadings
	Nutrients	5B	Urban Runoff/Storm Sewers
	Sedimentation/Siltation	5B	Agriculture
	Sedimentation/Siltation	5B	Channel Erosion
	Sedimentation/Siltation	5B	Construction/Land Development
	Sedimentation/Siltation	5B	Erosion/Siltation
	Unknown Toxicity	5B	Unknown Nonpoint Source

TMDL: Total Maximum Daily Load; N/A: not applicable; 5A: TMDL required (expected completion date reported in 303[d] list in parentheses); 5B: pollutant being addressed by U.S. Environmental Protection Agency (i.e., an approved TMDL)

Source: SWRCB 2015.

State/Regional

California Porter-Cologne Act

California's Porter-Cologne Water Quality Control Act of 1970 ("Porter-Cologne Act") grants the SWRCB and the RWQCBs the power to protect surface water and groundwater quality and is the primary vehicle for implementing California's responsibilities under the Clean Water Act. The Porter-Cologne Act grants the SWRCB and the RWQCBs authority and responsibility to adopt plans and policies; to regulate discharges of waste to surface and groundwater; to regulate waste disposal sites; and to require cleanup of discharges of hazardous materials and other pollutants.

Each RWQCB must formulate and adopt a Water Quality Control Plan ("Basin Plan") for its region. The Basin Plan must conform to the policies set forth in the Porter-Cologne Act and established by the SWRCB in its State Water Policy. The Basin Plan establishes beneficial uses for surface and groundwater in the region and sets forth narrative and numeric water quality standards to protect those beneficial uses.

The RWQCBs are also authorized to enforce discharge limitations; to take actions to prevent violations of these limitations from occurring; and to conduct investigations to determine the status of the quality of any of the waters of the state. Civil and criminal penalties are also applicable to persons who violate the requirements of the Porter-Cologne Act or any SWRCB/RWQCB orders.

California Toxics Rule

The Clean Water Act also requires states to adopt water quality standards for receiving water bodies and to have those standards approved by the U.S. Environmental Protection Agency (USEPA). Water quality standards consist of designated beneficial uses for a particular receiving water body (e.g., wildlife habitat, agricultural supply, fishing), along with the water quality criteria necessary to support those uses. Water quality criteria are prescribed concentrations, levels of constituents, or narrative statements that represent the quality of water that supports a particular use. Because the State of California was unable to develop these standards for priority toxic pollutants, the USEPA promulgated the California Toxics Rule (CTR) in 1992 (40 *Code of Federal Regulations* [CFR] 131.38), which fills this gap.

National Pollutant Discharge Elimination Program

As discussed above, the NPDES permit program is administered by the nine RWQCBs in the state. These boards have the mandate to develop and enforce water quality objectives and implementation plans within their regions. If discharges from industrial, municipal, and other facilities go directly to surface waters, those project applicants must obtain permits from the applicable RWQCB. An individual NPDES permit is specifically tailored to a facility. A general NPDES permit covers multiple facilities in a specific activity category such as construction activities. The proposed Project is located within the jurisdiction of the Santa Ana RWQCB.

Municipal Separate Storm Sewer System Permit and Drainage Area Management Plan

In 2002, the Santa Ana RWQCB issued NPDES Permit Order No. R8-2002-0010 for discharges of urban runoff from public storm drains in northern Orange County. The Permittees are the County of Orange; the Orange County Flood Control District (OCFCD); and the northern Orange County cities, including the City of Irvine (collectively "the Co-Permittees"). To implement the requirements of the MS4 permit, the Co-Permittees developed the 2003 Drainage Area Management Plan (DAMP), which includes a Model New Development and Redevelopment Program (County of Orange et al. 2003). This Model Program provides a framework and a process for following the MS4 permit requirements to incorporate watershed protection/storm water quality management principles into the Co-Permittees' General Plan process, environmental review process, and development permit approval process.

A revised Orange County MS4 permit was adopted on May 22, 2009 (Permit No. CAS618030, Order No. R8-2009-0030). The revised permit included several provisions for new development and redevelopment, including a requirement to revise the DAMP and Model WQMP by May 2011. The MS4 Permit was subsequently reopened and revised for the limited purpose of extending deadlines for the preparation of the WQMP and related documents (Permit Order No. R8-2010-0062). Pursuant to these requirements, the Co-Permittees prepared and submitted a revised model WQMP, Technical Guidance Document (TGD), and supporting documents (collectively referred to as the "revised documents"), which were approved by the RWQCB on May 19, 2011, and became effective on August 17, 2011.[3] The revised documents include guidance for the preparation of conceptual or preliminary WQMPs to more effectively ensure that water quality protection, including LID principles, is considered in the earliest phases of a project. The revised documents incorporate the latest information on Best Management Practices (BMPs) and provide additional clarification regarding their effectiveness and applicability.

Storm Water Quality Requirements

The MS4 permit requires that the Model WQMP be updated to incorporate new LID provisions and to address the impact of urbanization on downstream hydrology. The revised Model WQMP requires that each priority development project infiltrate, harvest and re-use, evapotranspire, or biotreat the 85th percentile storm event ("design capture volume"). Biotreatment may be considered only if infiltration, harvesting and reuse, and evapotranspiration cannot be feasibly implemented at a project site. Any portion of the design capture volume that is not infiltrated, harvested and re-used, evapotranspired, or biotreated on the project site by LID BMPs must be treated and discharged per specific conditions of the permit.

The revised MS4 permit allows for alternatives and in-lieu programs for LID BMPs. If LID BMPS cannot be implemented to address the full design capture volume, in-lieu programs must be considered. Waivers may be granted only where the cost of BMPs "greatly outweighs" benefits.

Hydromodification and Flow Control

The MS4 Permit also requires priority projects to identify Hydrologic Conditions of Concern (HCOCs) associated with a project. An HCOC occurs when there is a potential for increased runoff that can cause significant impacts on downstream channels and aquatic habitats, alone or in conjunction with impacts of other projects. Such impacts are termed 'hydromodification', which is defined as the alteration of natural flow characteristics and sediment supply in streams and channels due to urbanization. If HCOCs are identified, a project must implement BMPs to mitigate hydromodification. For Orange County municipalities within the Santa Ana RWQCB's jurisdiction, a project must implement on-site or regional hydromodification controls such that the following occur:

1. The post-development runoff volume for the 2-year, 24-hour storm event is no greater than 105 percent of that for the pre-development condition; and

[3] The RWQCB is currently revising the MS4 permit. The comment period on the third draft Orange County MS4 Permit extended through December 7, 2015. It should be noted that, although the MS4 permit is beyond its 5-year term, these permits remain in effect until a new permit is adopted. The Santa Ana RWQCB has prepared an Administrative Draft of a new MS4 permit, and it will take effect 30 days after adoption of a final version by the Board, which is anticipated to occur in 2016.

2. The time of concentration of post-development runoff for the 2-year, 24-hour storm event is no greater than 105 percent of that for the pre-development condition.

Where a project WQMP documents that the excess runoff volume from the 2-year runoff event cannot feasibly be retained, the project must implement on-site or regional hydromodification controls to:

1. Retain the excess volume from the 2-year runoff event to the maximum extent practicable (MEP); and
2. Reduce the post-development runoff 2-year peak flow rate to no greater than 110 percent of the pre-development runoff 2-year peak flow rate.

Construction General Permit

Pursuant to Section 402(p) of the CWA, which requires regulations for permitting certain storm water discharges, the SWRCB issued a statewide general NPDES Permit for storm water discharges from construction sites.[4] The SWRCB NPDES General Permit for Storm water Discharges Associated with Construction Activity is referred to as the "Construction General Permit". Under this Construction General Permit, discharges of storm water from construction sites with a disturbed area of one or more acres are required to either obtain individual NPDES permits for storm water discharges or to be covered by the Construction General Permit.

Coverage under the Construction General Permit is accomplished by completing a construction site risk assessment to determine appropriate coverage level and by preparing a Storm Water Pollution Prevention Plan (SWPPP), including site maps, a Construction Site Monitoring Program (CSMP), and sediment basin design calculations. For projects located outside a Phase I or Phase II permit area[5], the Construction General Permit requires a post-construction water balance calculation for hydromodification controls and the completion of a Notice of Intent. All of these documents must be electronically submitted to the SWRCB for General Permit coverage. The primary objective of the SWPPP is to ensure that the responsible party properly constructs, implements, and maintains BMPs to reduce or eliminate pollutants in storm water discharges and authorized non-storm water discharges from the construction site.

The SWPPP also outlines the monitoring and sampling program required for the construction site to verify compliance with discharge Numeric Action Levels (NALs) set by the Construction General Permit.

General Waste Discharge Requirements for Construction Non-Storm Water Discharges

If construction dewatering or discharges from other specific construction activities (e.g., water line testing, sprinkler system testing) are required, a proposed project must comply with the requirements of General Waste Discharge Requirements (General WDRs) for Short-Term

[4] NPDES No. CAS000002, Water Quality Order 2009-0009-DWQ, SWRCB NPDES General Permit for Storm water Discharges Associated with Construction Activity (adopted by the SWRCB on September 2, 2009, and effective on July 1, 2010). This order was amended by 2010-0014-DWQ, which became effective on February 14, 2011, and 2012-0006-DWQ, which became effective on July 17, 2012.

[5] Phase I permit area covers large municipalities with greater than 100,000 persons, and Phase II permit area covers small municipalities with less than 100,000 persons.

Groundwater-Related Discharges and De Minimus Wastewater Discharges to Surface Waters in the San Diego Creek/Newport Bay Watershed. The General WDRs include provisions mandating notification, testing, and reporting of dewatering and testing-related discharges, and contain numeric and performance-based effluent limits depending upon the type of discharge. The General WDRs authorize such construction-related activities so long as all conditions of the permit are fulfilled.

Santa Ana River Basin Plan

The Basin Plan provides quantitative and narrative criteria for a range of water quality constituents applicable to certain receiving water bodies within the Santa Ana Basin, including San Diego Creek and Newport Bay. Specific criteria are provided for the larger, designated water bodies in the region in addition to general criteria or guidelines for ocean waters, bays and estuaries, inland surface waters, and groundwater. In general, the narrative criteria require that degradation of water quality does not occur due to increases in pollutant loads that will adversely impact the designated beneficial uses of a water body. Water quality criteria apply in receiving waters (as opposed to applying directly to runoff); therefore, water quality criteria from the Basin Plan are utilized as benchmarks for comparison in the quantitative assessments.

County of Orange

Local Implementation Plan

Per the requirements in the DAMP and the 2002 MS4 Permit, the County of Orange and the OCFCD adopted a Local Implementation Plan (LIP) containing the policy and implementation documents for compliance with the DAMP. Orange County revised its LIP in December 2010 to comply with the updated 2009 MS4 Permit. Section A-7 of the County's LIP contains the new development and redevelopment component based upon the Orange County Model Water Quality Management Plan.

4.9.2 METHODOLOGY

The design criteria and methodology follow the Orange County Hydrology Manual, dated October 1986. The Project storm drain facilities (inlets, culverts, and detention) have been designed to conform to Orange County standards. One detention basin in Planning Area 1 and two detention basins in Planning Area 2 will be included in the design to ensure the post-development peak flow of the 25-year storm event remains below the existing 25-year storm event peak flow. Additionally, the detention basins in both Planning Areas have been designed to fully contain the 100-year storm without overflowing, in accordance with the 100-year detention basin analysis.

Runoff Calculation Methodology

Runoff calculations for the *Preliminary Drainage Analysis* reports were conducted using the rational method in accordance with the recommendations of the Orange County Hydrology Manual.

A computer model was made using AES RATSCX and CH1 software with built-in methodology following the 1986 Orange County Hydrology Criterion. The RATSCX module was used to analyze

and route runoff through each drainage area using elevations, flow lengths, soil types, and area inputs to calculate peak flows developed during 25-year and 100-year storm events. The CH1 module was then used to produce hydrographs for each stream using the Orange County Small Area Unit Hydrograph Method and then route the hydrograph produced flows within a flow-through basin model to produce a delayed flow-thru basin hydrograph with a user defined elevation-area-discharge relationship of the proposed basin.

Design input criteria for the model were as follows:

Design Storm:	25-year, (100-year)
Antecedent Moisture Condition (AMC):	II, (III)
Soil Conservation Service Soil Group:	B (for Planning Area 1)
	A (for Planning Area 2)
Existing Land Use:	Planning Area 1: Barren-Natural poor cover plus paved access roadway (10 percent impervious)
	Planning Area 2: Barren-Native poor cover with paved access roadway (10 percent impervious)
Proposed Land Use:	Multi-Family, (65 percent impervious) for both Planning Area 1 and Planning Area 2

The detailed AES RATSCX hydrologic calculations and values for Planning Area 1 are included in Appendix B of the *Preliminary Drainage Analysis* (Appendix I-2 of this EIR).

For Planning Area 2, in addition to the on-site flow calculations performed using AES software, runoff from an off-site 0.81-acre portion of Irvine Boulevard (referred to ST-1) was needed to analyze the capacity of the downstream 30-inch RCP within Irvine Boulevard. Runoff for this singular area was performed using the Rational Method in accordance with the Orange County Hydrology Manual. Precipitation intensity and time of concentration were calculated for a 25 year storm event using Figures B-3 and D-1 from the Orange County Hydrology Manual. These off-site calculations, the full on-site AES RATSCX hydrologic calculations and values, and the proposed condition hydrographs and flow-through basin routing hydrographs are included in the *Preliminary Drainage Analysis* (Appendix I-2 of this EIR).[6]

Runoff and Detention

The proposed design runoff flow rate for the Project cannot exceed the existing condition 25-year storm peak runoff flow rate. For Planning Area 1, using AES RATSCX software, the existing and proposed 25-year storm peak runoff flow rates were calculated to be 57.38 cfs and 82.33 cfs, respectively, and for Planning Area 2, the existing and proposed peak runoff flow rates were calculated to be 19.54 cfs and 31.24 cfs, respectively. To ensure post-development peak flow runoff rates are not higher than the existing peak runoff flow rates, one detention basin in Planning Area 1 and two detention basins in Planning Area 2 are proposed as part of the Project's

[6] Within the *Preliminary Drainage Analysis* (Appendix I-2 of this EIR), the off-site calculations can be found in Appendix D, the full on-site AES RATSCX hydrologic calculations and values are included Appendix B, and the proposed condition hydrographs and flow-through basin routing hydrographs are included in Appendix C.

drainage design, which will reduce the on-site peak runoff rate to 57.38 cfs or less for Planning Area 1 and 19.54 cfs or less for Planning Area 2.

The detention basins in both Planning Areas will allow ponding to reach a depth of roughly 4 feet. Outflow from each proposed detention basin will include a flow limiting riser pipe in Planning Area 1 and a weir or appropriately sized pipe in Planning Area 2 to limit discharge to the peak runoff flow rate. Basin 2 in Planning Area 2 is currently designed to provide a dual purpose of detention and infiltration for LID requirements. Detention basin analysis was performed using runoff hydrographs produced in the AES CH1 program with the Orange County Hydrology Manual's modified Pul's method for flow-through basins. The detention basins and overall site drainage for Planning Area 1 and Planning Area 2 were also analyzed for the 100-year storm event as an additional measure of safety and to assess the size and performance of the basins under severe conditions. Final detention system designs will be determined during the design and preparation of final construction documents. For the purpose of this analysis, a total of 34,000 cubic feet of detention is provided with the single detention basin in Planning Area 1, and a combined total of 62,800 cubic feet of detention is provided with the two detention basins in Planning Area 2.

LID and Treatment Control

Within the Santa Ana Regional Water Quality Control Board jurisdiction, the Fourth Term MS4 Permit has been adopted with specific requirements for new development and significant redevelopment stormwater control. Low impact development (LID) is a stormwater management strategy that emphasizes conservation and use of existing site features integrated with distributed stormwater controls that are designed to more closely mimic natural hydrologic patterns of undeveloped sites than traditional stormwater management controls. LID best management practices (BMPs) must be selected based on a hierarchy of controls and sized to capture the maximum feasible portion of the Design Capture Volume (DCV) (e.g., retention), before attempting to address the remaining volume with the next lower priority control (biotreatment). As indicated before, available options for on-site storm water retention include the use of infiltration BMPs, harvest and use BMPs, and evapotranspiration BMPs, in order of selection priority.

Biotreatment BMPs provide a variety of treatment mechanisms to remove both suspended and dissolved pollutants in urban stormwater runoff. All biotreatment BMPs may be volume-based (storage a key design component) and are designed to treat and discharge urban stormwater runoff to a downstream conveyance system. Biotreatment BMPs can be designed to promote infiltration and evapotranspiration even though they are treat-and-release BMPs. If necessary to mitigate risks to structures, human health, or other concerns, a biotreatment BMP may also be lined to prevent infiltration of urban stormwater runoff into underlying soils. Examples of biotreatment BMPs include rain gardens, vegetated swales, retention ponds, constructed wetlands, detention basin, and proprietary biotreatment devices such as the Filterra and/or Modular Wetland systems.

Geotechnical studies for the proposed Project site indicate soil infiltration rates will vary across the Project site. In some areas where the indicated infiltration rate is less than 0.3 inches per hour, the use of an infiltration detention BMP may not be feasible. In these locations, biotreatment BMPs would be the preferred treatment method. Therefore, a combination of infiltration and biotreatment BMPs will be used in the design of the Project. The Conceptual

Water Quality Management Plan provides further detail regarding LID and BMP use and selection (Appendix I-1).

4.9.3 EXISTING CONDITIONS

Existing Topography and Facilities

The existing topography gently slopes up towards the southeastern portion of the Project site, and the on-site ground surface elevations range from +497 to +423 feet above mean sea level. An existing desilting basin is located in the northwest corner of Planning Area 1, which collects runoff from a portion of the existing drainage area within Planning Area 1. Storm water discharge from the basin is collected in an unlined graded drainage channel along the north/east side of Irvine Boulevard. The City of Irvine is currently constructing a public storm drain line in Irvine Boulevard that will eventually replace the drainage ditch and will collect storm water runoff from Planning Area 1. Magazine Road runs along the southern perimeter of Planning Area 1 adjacent to the Wildlife Movement Corridor and extends off-site to provide access to the existing FBI training facility west of the Project site. Magazine Road is paved with asphalt and has a concrete v-ditch along the north side of the roadway, which intercept runoff from both the roadway and the existing area north of Magazine Road. Two existing 18-inch storm drain lines collect runoff in the concrete v-ditch and discharge stormwater into the existing Wildlife Movement Corridor. These existing storm drain lines are designated as WCL-1 and WCL-3.

An interim storm drain system has been constructed for the Wildlife Movement Corridor to address storm water runoff prior to the ultimate extension of the Wildlife Movement Corridor south under Irvine Boulevard and into the OCGP. The interim storm drain system consists of a 30-inch RCP storm drain (designated as WCL-2i). This interim storm drain line collects runoff within the Wildlife Movement Corridor and then extends through Planning Area 2 and discharges into the existing 30-inch RCP in Irvine Boulevard.

In Planning Area 1, existing storm water runoff sheet flows into an existing graded pond located in the northwest portion of the planning area adjacent to Irvine Boulevard. Once the volume of water exceeds the volume of the graded pond, the storm water runoff spills over the berm and is collected by an existing City storm drain system within Irvine Boulevard right-of-way.

In Planning Area 2 there is a small graded pond adjacent to Irvine Boulevard at the lowest elevation of the planning area. This small graded pond is lined with rip-rap and serves as the planning area's on-site collection point for existing storm runoff before discharging storm water into an existing City storm drain line in Irvine Boulevard.

Downstream Conditions

Storm water runoff discharges from Planning Area 1 in two separate directions. The majority of runoff is conveyed off-site north along Irvine Boulevard in an existing open graded drainage channel. This channel connects to an underground storm drain line that crosses under Irvine Boulevard and will connect via an underground storm drain line to the Agua Chinon Channel. The graded drainage ditch is currently being removed by the City as part of the Irvine Boulevard widening improvements and will be replaced by a City storm drain line within Irvine Boulevard

that has been designed to accept stormwater runoff from the majority of the existing drainage runoff area in Planning Area 1.

The remaining Planning Area 1 runoff will enter the Wildlife Movement Corridor via the two existing 18-inch storm drains. Within the Wildlife Movement Corridor, the runoff is collected by an existing 30-inch RCP storm drain (designated as WCL-2) that extends south through Planning Area 2 where it connects to a 30-inch RCP within Irvine Boulevard that discharges the storm water flow to the Borrego Canyon Wash at the intersection of Irvine Boulevard and Alton Parkway.

Planning Area 2 discharges to an existing 30-inch RCP located within Irvine Boulevard public storm drain line, which is tributary to the Orange County Flood Control District's Borrego Canyon Wash (located south of the Project site along Alton Parkway) and eventually joins the Agua Chinon Channel before discharging to the San Diego Creek and eventually the Upper Newport Bay.

The existing 30-inch RCP located within Irvine Boulevard receives runoff from 3 sources: a street catch basin serving a 0.81-acre segment of Irvine Boulevard, the interim Wildlife Movement Corridor storm drain that traverses through Planning Area 2, and from Planning Area 2.

Hydrologic (Groundwater Conditions)

The historic high groundwater was reported to be as shallow as 60 feet below the existing ground surface.

Existing Drainage Patterns

In both Planning Areas 1 and 2 the existing on-site drainage pattern predominately consists of sheet flow across the applicable portion of the Project site in either an east to west or a north to south direction and includes a sheet flow across the entirety of the Project site. Runoff from Planning Area 1 discharges offsite at three locations. Two locations discharge into the Wildlife Movement Corridor, and the third one discharges at the Project's northwest corner.

Planning Area 1 storm water runoff entering the Wildlife Movement Corridor includes an off-site portion of brush-covered hillside and Magazine Road. Stormwater runoff generated within this area is collected in an open channel trench adjacent to the relocated Magazine Road and is conveyed to the Wildlife Movement Corridor via two existing 18-inch storm drain lines, identified as WLC-1 and WLC-3. The remaining runoff not entering WCL-3 continues west along the relocated Magazine Road in open channel trench flow to the riser inlet of WCL-1. Of the total 7.97 acres contributing runoff to the Wildlife Movement Corridor, a total of 4.71 acres is associated with off-site run-on.

Storm water runoff from the northern portion of Planning Area 2 sheet flows across the site and is collected in an unpaved area adjacent to Irvine Boulevard. This runoff then flows south along the roadside and is collected by an existing curb opening catch basin. The southern portion of Planning Area 2 drains into the graded desilting basin adjacent to Irvine Boulevard. The catch basin and the graded desilting discharge through an existing 30-inch RCP storm drain in Irvine Boulevard.

Existing Water Quality

Existing Project Site

The Project site is located in the northeasterly quadrant of the former MCAS El Toro. The Project site is generally disturbed by prior use with a portion of the site leased to R&S Soils for green waste operations and a container nursery. The Wildlife Movement Corridor, Magazine Road, and an existing access road serve as the only other improvements on site. Historically, the Project site has been leased for agricultural uses, which has resulted in the natural vegetation having been removed from the majority of the Project site. The Wildlife Movement Corridor has been planted with native vegetation. A feature of the Wildlife Movement Corridor is a 72-inch culvert provided under Alton Parkway to allow wildlife to get from the Project site to a different parcel (known as the Eastern Alton Parcel) owned by the County of Orange.

Receiving Waters

The Orange County Storm Water Program conducts water quality monitoring of dry and wet weather flows throughout Orange County. The closest downstream OC Public Works monitoring station is located in San Diego Creek Reach 1 at Harvard (Station ID: WYLSED). The watershed area at this location is about 42 square miles, and the land uses of the tributary area include a mixture of residential, commercial, open space, transportation, and agricultural land use activities. The WQMP includes a Section 303(d) list of impaired water bodies and/or those that have an associated TMDL (as discussed under Regulatory Setting). These constituents include nutrients, metals, selenium, bacteria, fecal coliform, pesticides, polychlorinated biphenyls (PCBs), chlordane, copper, toxaphene, indicator bacterial, and sediment toxicity. Applicable TMDLs for the San Diego Creek /Upper and Lower Newport Bay are ammonia, indicator bacteria, nutrients, sedimentation/siltation, fecal coliform, pesticides, selenium, toxaphene, chlordane, copper, DDT, PCBs, and sediment toxicity.

Regional Water Quality

The pollutants identified in the 303(d)-listed water bodies summarized in Table 4.9-1, Summary of 303(d) List for the Project Receiving Water Bodies, above can be grouped into the following categories: pesticides, metals, pathogens, nutrients and other organics, and sediment. These are typical pollutants generated by an urban area with dense land development and a wide variety of land uses. It is noted that the existing and/or approved TMDLs for the pollutants identified for these water bodies do not apply directly to discharges of urban runoff, but rather apply within the specified receiving waters. The primary source of pollutants is via surface runoff, both from point (i.e., an outlet) and non-point sources.

4.9.4 THRESHOLDS OF SIGNIFICANCE

In accordance with the County's Environmental Analysis Checklist and Appendix G of the State CEQA Guidelines, the Project would result in a significant hydrology and water quality impact if it would:

Threshold 4.9-1 Violate any water quality standards or waste discharge requirements.

Threshold 4.9-2 Substantially alter the existing drainage pattern of the site or area including the alteration of the course of a stream or river, in manner which would result in substantial erosion or siltation on or off-site.

Threshold 4.9-3 Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite.

Threshold 4.9-4 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.

Threshold 4.9-5 Otherwise substantially degrade water quality.

4.9.5 IMPACT ANALYSIS

As discussed in Section 4.0, Impact Analysis Introduction, the Development Plan identifies a number of development requirements which serve to minimize potential impacts (the development requirements are in Appendix C of the Development Plan). The inclusion of these requirements as appropriate, will be verified during the development review and/or ministerial permit process (e.g., building permit). The development requirements also include others measures that will reduce or avoid potentially significant Project impacts. The County intends to implement the development requirements as part of the Project and has included the development requirements in the Development Plan for that purpose. These measures are listed in Section 4.9.8, Mitigation Program because these measures will be tracked as part of the Mitigation Monitoring and Reporting Program.

Thresholds 4.9-1 and 4.9-5

Would the Project violate any water quality standards or waste discharge requirements?

Would the Project otherwise substantially degrade water quality?

Construction-Related (Short-Term) Water Quality

The potential impacts of construction activities, construction materials, and non-storm water runoff on water quality during the construction phase would primarily be due to sediment (total suspended solids [TSS] and turbidity) and certain non-sediment-related pollutants. Construction-related activities that are primarily responsible for sediment releases are related to exposing previously stabilized soils to potential mobilization by rainfall/runoff and wind. Such activities include removal of vegetation from the site, grading of the site, and trenching for infrastructure improvements. Environmental factors that affect erosion include topographic, soil, and rainfall characteristics. Non sediment-related pollutants that are also of concern during construction relate to construction materials and non-storm water flows, and include construction materials (e.g., concrete, paint, and stucco); chemicals, liquid products, and petroleum products used in building construction or the maintenance of heavy equipment; and concrete-related pollutants.

Construction impacts due to Project development would be minimized through compliance with the Construction General Permit, discussed above under Regulatory Setting. This permit requires the discharger to perform a risk assessment for the proposed development (with differing requirements based upon the determined level) and to prepare and implement a SWPPP, which must include erosion- and sediment-control BMPs that would meet or exceed measures required by the determined risk level of the Construction General Permit, in addition to BMPs that control the other potential construction-related pollutants. A Construction Site Monitoring Program that identifies monitoring and sampling requirements during construction is also a required component of the SWPPP.

Erosion-control BMPs are designed to prevent erosion, whereas sediment controls are designed to trap or filter sediment once it has been mobilized. In addition to erosion- and sediment-control BMPs, the following types of BMPs would be implemented, as needed, during construction: waste and materials management; non-storm water management; training and education; and inspections, maintenance, monitoring, and sampling. The BMPs would be implemented in compliance with the Construction General Permit, which requires that all discharges from qualifying storm events would be sampled for turbidity and hydrogen potential (pH), and results would be compared to Numeric Action Levels to ensure that BMPs are functioning as intended. If discharge sample results fall outside these action levels, a review of causative agents and the existing site BMPs would be undertaken; maintenance and repair on existing BMPs would then be performed and/or additional BMPs would be provided to ensure that future discharges meet these criteria.

The construction-phase BMPs would ensure effective control of not only sediment discharge, but also of pollutants associated with sediments (e.g., nutrients, heavy metals, and certain pesticides). In addition, compliance with Best Available Technology Economically Achievable and Best Conventional Pollutant Control Technology (BAT/BCT) requires that BMPs used to control construction water quality impacts are updated over time as new water quality control technologies are developed and become available for use. Therefore, compliance with the BAT/BCT ensures mitigation of construction water quality impacts over time.

Development Requirement (DR) HWQ-4 through DR HWQ-7 pertain to the development of storm water and water quality plans for the Project. Compliance with the development requirements, which include preparation of the WQMP, a SWPPP, and an erosion and sediment control plan, that substantially conform with the Conceptual WQMP and the Preliminary Drainage Reports, and compliance with the federal NPDES program would ensure impacts to the receiving waters from non-storm flows during construction and storm water flows from post-construction are less than significant. No additional measures beyond implementation of DR HWQ-4 to DR HWQ-7 are required.

Operational (Long-Term) Water Quality

The Conceptual WQMPs for Planning Areas 1 and 2 have been prepared for the County of Orange by Tait & Associates, Inc. in compliance with the requirements of the County of Orange National Pollutant Discharge Elimination System (NPDES) storm water Program requiring the preparation of a WQMP. Per DR HWQ-4, a final WQMP will be prepared, which will address post-construction storm water quality management for the Project in a manner that substantially conforms to the Conceptual WQMP. Based on the WQMP for Planning Area 1, the proposed drainage pattern for Planning Area 1 will essentially follow the existing drainage patterns. The

majority of runoff from Planning Area 1 will be directed westward through a storm drain system to an on-site detention/infiltration basin. The detention/infiltration basin will discharge site runoff to the City of Irvine storm drain line in Irvine Boulevard. The portion of Irvine Boulevard adjacent to the Project site is currently being improved, independent of the Project, by the City of Irvine.

The proposed Project will maintain on-site and off-site storm water runoff contributions to the Wildlife Movement Corridor similar to the existing condition and storm water runoff volumes. Stormwater runoff that is conveyed to the Wildlife Movement Corridor will sheet flow to multiple graded inlets and enter a storm drain system within Planning Area 1 where biotreatment improvements will be constructed to treat storm water runoff before it enters the Wildlife Movement Corridor's existing storm drain lines (WLC-1 and WLC-3).

Future storm water runoff from Planning Area 2 will be collected by multiple storm drain systems and will ultimately be discharged to the existing 30-inch RCP located within Irvine Boulevard that is a tributary to the Borrego Canyon Channel and eventually joins the Agua Chinon Channel before discharging to the San Diego Creek and the Upper Newport Bay. The existing 30-inch RCP located within Irvine Boulevard currently receives and will continue to receive runoff from 3 sources: the proposed storm drain systems within Planning Area 2; an existing curb opening catch basin serving a 0.81 acre portion of Irvine Boulevard; and the relocated interim Wildlife Movement Corridor outlet storm drain line that currently traverses through Planning Area 2. The 10.34 acres of the development within Planning Area 2 will direct runoff westward through a storm drain system to several on-site detention basins. The on-site basins will eventually discharge to the existing 30-inch RCP in Irvine Boulevard that is already serving Planning Area 2.

The selection of storm water runoff BMPs must follow a hierarchy of infiltration, harvest and reuse, evapotranspiration, and finally biofiltration. Two typical categories of BMPs—harvest and reuse of storm water on site and evapotranspiration—have been determined to be non-feasible BMP solutions for both Planning Area 1 and Planning Area 2. Harvest and Reuse BMPs are not feasible, as the proposed Project does not include sufficient landscape to warrant the runoff volumes for irrigation reuse. Further, dual-plumbed recycled water systems are not accepted by the California State Health Department (See Section 60313, General Requirements, Attachment H, for a copy of the "Regulations Related to Recycled Water"). Even though the Project's proposed site landscape improvements and proposed biofiltration BMPs may potentially result in some evapotranspiration, the benefits based on their limited footprints are not quantifiable. The Project proposes three detention basins; however, the surface areas of the proposed detention basins are not large enough to encourage evaporation. Therefore, harvest and reuse and evapotranspiration are not considered viable BMP options for this Project. A combination of infiltration BMPs, where feasible, and biofiltration BMPs will be used within Planning Areas 1 and 2 to address storm water runoff management and treatment requirements.

In locations where infiltration BMPs are not feasible, proprietary biotreatment BMPs with upstream underground detention will be utilized for this Project. Proprietary biotreatment BMPs for locations where the LID performance criteria cannot be met would be utilized to address the impacts. Biotreatment BMPs are a broad class of LID BMPs that reduce storm water volume to the maximum extent practicable; treat storm water using a suite of treatment mechanisms characteristic of biologically active systems; and discharge water to the downstream storm drain systems or directly to receiving waters. The treatment mechanisms

would address both suspended and dissolved constituents and reduce the potential water quality impacts to less than significant. A list of Structural and Non-Structural BMPs proposed for implementation as part of the Project are provided in the *WQMP for Planning Area 1 and Planning Area 2* (Appendix I-1 of this EIR).

As part of the County of Orange's DAMP requirements, the Project design's storm drain improvements would be required to address any increase in the post-development storm water runoff volume as compared to the estimated storm water runoff volume based on the existing conditions. In addition, the design would include treatment of the 2-year 24-hour storm event that would address pollutants of concern that may result from the Project. Pollutants, which are typical of urban development, include suspended-solid/sediment, nutrients, heavy metals, pathogens such as bacteria/viruses, pesticides, oil and grease, toxic organic compounds, trash and debris. Implementation of the DAMP design treatment requirements would prevent these pollutants from entering downstream receiving drainage systems and water bodies.

Based on the analysis conducted for the WQMP, HCOC are considered to exist if any streams located downstream from the project are determined to be potentially susceptible to hydromodification impacts and either the post-development runoff volume or time of concentration for the 2-year, 24-hour storm exceeds the pre-development runoff volume by more than five percent or the time of concentration for the 2-year, 24-hour storm event by more than 5 percent. The proposed Project is located within an area of hydrologic concern and will increase the peak flow and decrease the time of concentration for the storm event, therefore, this Project is considered for HCOC. Potential impacts from HCOCs would be addressed through the use of detention basins to store the difference in runoff volumes in combination with downstream proprietary biotreatment units (Modular Wetlands). An infiltration basin will detain runoff to serve as additional mitigation to address the Project's HCOC.

Impact Conclusion: *With the implementation of the development requirements, which are provided for in the Development Plan and included in the Mitigation Program (see Section 4.9.7), the Project would not violate any water quality standards and waste discharge requirements nor would it otherwise substantially degrade water quality, pursuant to Thresholds 4.9-1 and 4.9-5. The water quality-related impacts would be less than significant. Additionally, implementation of DR HWQ-4 through DR HWQ-7, which includes compliance with the Construction General Permit, preparation of an SWPPP, and General WDRs would ensure impacts to receiving waters from non-storm water flows during construction are less than significant.*

Thresholds 4.9-2, 4.9-3, and 4.9-4

Would the Project substantially alter the existing drainage pattern of the site or area including the alteration of the course of a stream or river, in manner which would result in substantial erosion or siltation on or off-site?

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 substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?

Would the Project 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?

Proposed Drainage Patterns

The proposed drainage pattern will follow the existing drainage patterns. In Planning Area 1, the majority of runoff will be directed westward through a storm drain system to an on-site detention basin. The detention basin will discharge Planning Area 1 site runoff to the City storm drain line in Irvine Boulevard, which is currently being constructed by the City independent of the Project. The remainder of the runoff flows in Planning Area 1 would be directed to the Wildlife Movement Corridor in order to maintain existing flow regime. Stormwater runoff will sheet flow to graded inlets and enter two proposed storm drain systems that eventually will discharge to the existing WLC-1 and WLC-3 storm drain lines within the Wildlife Movement Corridor.

In Planning Area 2, two detention basins are proposed that will outlet into an existing 30-inch City storm drain in Irvine Boulevard. Based on infiltration percolation testing conducted as part of the Project's initial geotechnical investigation, the proposed on-site detention basins may also provide an area for stormwater infiltration. Consistent with the development requirements and applicable law, additional testing will be conducted in the final design to determine the level of infiltration for storm water treatment as well as storm water detention and retention for each proposed storm water basin.

The development in Planning Area 2 will direct runoff westward through several storm drain systems to two main on-site storm water basins. The on-site basins will eventually discharge to the existing 30-inch RCP in Irvine Boulevard that currently serves as the planning area's existing storm water conveyance system. Based on infiltration percolation test results it is anticipated that the larger of the two proposed detention basins, Basin 2, may also provide an area for stormwater infiltration. Additional testing will be conducted in the final design to determine if both storm water basins can provide some infiltration capacity or only serve as detention basins, as depicted in the preliminary design studies for Planning Area 2. The stormwater flow from the Wildlife Movement Corridor will be rerouted and connected to the existing City storm drain line in Irvine Boulevard.

Impervious Cover

The existing site in Planning Area 1 is approximately 10 percent impervious. Total existing cover consists of on-site barren dirt, portions of asphalt paved Magazine Road, and portions of asphalt paved Irvine Boulevard. The Project's proposed on-site improvements will be approximately 65 percent impervious. Impervious cover percentages of existing and proposed drainage areas A, B, C, and D were calculated on an individual basis and can be found in AES Rational Method Calculations in Appendix B of the *Preliminary Drainage Analysis* (Appendix I-2 of this EIR).

Similar to Planning Area 1, the existing site in Planning Area 2 is approximately 10 percent impervious. Existing site cover consists of barren dirt except for the former Magazine Road, a paved asphalt service road. The proposed Project's on-site improvements will be approximately 65 percent impervious. Impervious cover percentages of existing and proposed drainage area

were calculated and can be found in AES Rational Method Calculations in Appendix B of the *Preliminary Drainage Analysis* (Appendix I-2 of this EIR).

Drainage Delineation

The existing condition hydrology maps, which show the existing drainage areas and quantify the peak flow for 24-hour, 25-year storm events for Planning Area 1 and Planning Area 2 are contained in Appendix A of each of the *Preliminary Drainage Analysis* reports (Appendix I-2 of this EIR). Appendix A of each report also contain conceptual hydrology maps for the proposed Project condition, which depict drainage areas and quantify the peak flow for 24-hour, 25-year storm event.

Based on the results of the *Preliminary Drainage Analysis* for Planning Area 1, the increase in runoff as a result of the proposed Project would be addressed by the proposed storm water basins that would capture the increased runoff. Therefore, the Project would not have a significant impact on the downstream storm drain system, as shown in Table 4.9-2, below.

TABLE 4.9-2
SUMMARY OF EXISTING RUNOFF RESULTS
FOR PLANNING AREA 1

	Area (ac)		Impervious %		Peak 25-Year Flow Q25 (cfs)		Peak 100-Year Flow Q100 (cfs)		Detention Storage* (cf)
	Existing	Prop.	Existing	Prop.	Existing	Prop. (w/det.)	Existing	Prop. (w/det.)	
A	17.91	17.45	0	65	30.08	22.02	40.39	22.66	34,000
B	2.92	3.17	75	90	6.67	7.88	8.84	10.25	--
C	7.98	6.66	17	22	20.63	21.88	27.46	28.78	--
D	-	1.54	--	79	--	4.97	--	6.45	--
Total	**28.81**	**28.81**	**12**	**55**	**57.38**	**56.75**	**76.69**	**68.14**	**--**

*This analysis for the post-development condition shall be considered to be a planning tool only to help guide the developer and the architect in creating a land use plan. Additional design analysis is required to determine the post-development condition requirements for stormwater detention and treatment.

Source: Tait, 2015a.

Runoff from Planning Area 1 discharges to two separate receiving waters. Table 4.9-3, below, summarizes the runoff to each water body.

TABLE 4.9-3
SUMMARY OF DOWNSTREAM RECEIVING WATERS
FOR PLANNING AREA 1

Downstream Receiving Water	Receiving Runoff Sources		Demand Q_{25} (cfs)		Peak Runoff Q100 (cfs)	
	Existing (ac)	Proposed (ac)	Existing	Proposed	Existing	Proposed
Agua Chinon Channel	Areas A, B 20.83	Areas A, B 20.61	36.75	29.90	49.23	32.91
Wildlife Corridor (WLC-1 + WCL-3)	Area C 7.98	Areas C, D 8.20	20.63	26.85	27.46	35.23
Total	**28.81**	**28.81**	**57.38**	**56.75**	**76.69**	**68.14**
Source: Tait, 2015a.						

Based on the results of the *Preliminary Drainage Analysis* for Planning Area 2, the proposed storm water BMPs, including on-site detention would prevent an increase in storm water runoff from the Project site. Therefore, the Project improvements would not have a significant impacts on the downstream storm drain system.

A summary of the results for Planning Area 2, is depicted in Table 4.9-4, below.

TABLE 4.9-4
SUMMARY OF ON-SITE RESULTS
FOR PLANNING AREA 2

	Area (ac)	Impervious %	Peak 25-Year Flow Q25 (cfs)	Peak 100-Year Flow Q100 (cfs)	Detention Storage* (cf)
Existing	10.34	10	19.54	26.35	--
Proposed (No detention)	10.34	65	31.24	40.56	--
Proposed (w/ detention)			8.52	18.06	62,800
*This analysis for the Post-Development Condition shall be considered to be a planning tool only to help guide the developer and the architect in creating a land use plan. Additional design analysis is required to determine the Post-Development Condition requirements for stormwater detention and treatment. Source: Tait, 2015a.					

In regards to the 30-inch RCP Lateral A1 within Irvine Boulevard acting as the solitary Project site outfall, the Drainage Analysis for Planning Area 2 has determined through research of record drawings and hydrologic calculations that it has sufficient capacity to handle the proposed runoff demand. Table 4.9-5, below, summarizes capacity and demand of the 30-inch RCP Lateral A1.

TABLE 4.9-5
SUMMARY OF DOWNSTREAM 30-INCH RCP LATERAL A1
FOR PLANNING AREA 2

Receiving Runoff Sources	Demand Q_{25} (cfs)		Capacity* Q_{10} (cfs)
	Existing	Proposed	
Wildlife Corridor Stormdrain (WLC-2)	13.2	13.2	--
0.81 ac portion of Irvine Blvd.	2.44	2.44	--
Project Site	19.54	8.52	--
Total	**35.18**	**24.16**	**37.0 ***

*Peak 10 year storm flow capacity was found on record drawings of project #84-PC-0629. The peak 25-year storm flow of WLC-2 was found on Alton Parkway Construction Plans dated April 2009 on sheets C-617 and C617A. Q25 of Line WLC-2 was determined by subtracting Line I-C (6.5 cfs) from the total downstream flow of Line I-B (19.7 cfs). Record drawings depicting these stormdrain systems are included in Appendix D of the *Preliminary Drainage Analysis* (for Planning Area 2).

Source: Tait, 2015b.

Based on the information shown above, the total runoff for Planning Area 2 would exceed the peak flows over the pre-development conditions by 60 percent without on-site detention. To address storm water detention, the drainage pattern for the proposed Project would be designed to reduce the 100-year post-redevelopment storm water discharge volume to be less than 100-year storm water discharge for the existing condition.

Proposed Drainage Improvements

Each Planning Area would treat its runoff in accordance with current Preliminary WQMP requirements and would be required to mitigate any increase in flow as a result of the Project through the implementation of BMPs, thereby not only reducing the peak flow rate but also reducing pollutants of concern to downstream waterways. The proposed storm drain systems would discharge off site at the existing locations. With implementation of the BMPs, impacts to downstream receiving waterways associated with the Project (i.e., Agua Chinon and Borrego Canyon Wash) would not result in any alteration of the existing drainage pattern in a manner that would cause erosion or siltation or flooding due to the increased flow rates and impacts would be less than significant because discharges would generally be comparable to existing peak flows. Additionally, by retaining and treating flows, the Project's contribution of runoff water would not exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; therefore, impacts would be less than significant.

Summary

As indicated in the analyses provided above, the proposed drainage patterns for Planning Areas 1 and 2 would not deviate from the existing drainage patterns and peak volumes. The proposed development, including landscaping and site improvements would reduce the siltation that occurs with the existing Project site. Through implementation of the proposed desilting basins and biotreatment, sediments and silts are captured before leaving the Project site. Additionally, the proposed features would reduce runoff volume to existing levels, therefore, preventing

downstream erosion and flooding and any potential impact to the downstream stormwater drainage systems. DR HWQ-1 through DR HWQ-3 would be applicable.

Impact Conclusion: *The Project would not alter the existing drainage pattern of the site or area in a manner that would result in substantial erosion or siltation on or off-site. The proposed improvements, including provision of detention basins, have been designed to best maintain existing drainage runoff flow patterns, when feasible. Additionally, the Project would not change the existing drainage pattern of the site in a manner that would increase the rate or amount of runoff resulting in flooding on- or off-site. Also, the Project would not exceed capacity of existing or planned stormwater drainage system or provide substantial additional sources of polluted runoff. Therefore, no significant impacts would occur with incorporation of DR HWQ-1 through DR HWQ-3 and no mitigation is required, pursuant to Thresholds 4.9-2 through 4.9-4. During the final design of the Project, which will build upon the existing reports, additional drainage analysis (DR HWQ-1) would be conducted to determine maximum allowed discharge for the entire Project site and for individual planning areas based on the proposed development plan and the backbone storm drain system for each area.*

4.9.6 CUMULATIVE IMPACTS

With implementation of the proposed Project, the anticipated quality of runoff expected with the BMPs would not contribute concentrations of pollutants of concern that would result in a violation of the water quality standards and waste discharge requirements or degrading water quality in the Project's receiving waters. Therefore, the Project's incremental effects on surface water quality are not expected to be significant. In addition, the Project would include LID BMPs, as needed, to comply with the hydromodification control requirements in the adopted MS4 Permit.

The Project's surface runoff water quality, after BMPs, during construction and post-development is anticipated to comply with adopted regulatory requirements that are designed to ensure that regional development does not adversely affect water quality and flow duration of receiving streams. These requirements include the MS4 Permit and DAMP/LIP requirements and the Construction General Permit. Any future development within the San Diego Creek Watershed must also comply with these requirements. Therefore, cumulative impacts on surface water quality and flow-duration of receiving waters from the Project and future urban development in the San Diego Creek Watershed are addressed through compliance with the MS4 Permit and DAMP/LIP requirements and Construction General Permit requirements, which are intended to protect the beneficial uses of the receiving waters. Based on compliance with these requirements designed to protect beneficial uses, cumulative water quality and hydromodification impacts would be less than significant and no mitigation is required.

The proposed Project and other new developments anticipated in the area would result in changes to on-site land uses, primarily the conversion of land to urban uses. Such land conversion, which would result in increased impervious surfaces, would increase the amount and velocity of surface runoff and would decrease the amount of natural groundwater recharge. However, all cumulative development and redevelopment projects in this area (i.e., in Irvine and in the surrounding cities), including the proposed Project would be subject to the City's and the

County of Orange's hydrology/drainage related requirements. All related projects would be required to prepare a drainage analysis that would identify the existing drainage pattern, pre- and post-development rates, and drainage system improvements that would control project runoff and contribution to cumulative runoff. As part of the final storm drain plan, new development would be required to confirm that adequate infrastructure is provided to convey site runoff to local and regional facilities. If potential impacts are identified related to increased erosion, siltation, and flooding on- and off-site, mitigation measures would be proposed to address the impacts.

The provision of drainage system improvements as a component of each individual project, including the proposed Project, would ensure that Project-specific impacts would be less than significant. The cumulative impact on drainage facilities in the San Diego Creek Watershed would not be cumulatively considerable.

4.9.7 MITIGATION PROGRAM

Development Requirements

The following development requirements would be applicable to the proposed Project and would help to avoid or minimize hydrology and water quality impacts:

DR HWQ-1 **Drainage Study.** Prior to the issuance of any grading permits, the following drainage studies shall be submitted to and approved by the Manager of Building & Safety, or designee:

A. A drainage study of the Project including off-site areas that drain onto and/or through the Project, and justification of any proposed diversions;

B. When applicable, a drainage study evidencing that proposed drainage patterns will not overload existing storm drains; and

C. Detailed drainage studies indicating how the Project grading, in conjunction with the drainage conveyance systems (including applicable swales, channels, street flows, catch basins, storm drains, and flood water retarding) will allow building pads to be safe from inundation from rainfall runoff, which may be expected from all storms up to and including the theoretical 100-year flood.

DR HWQ-2 **Drainage Facilities.** Prior to issuance of grading or building permits, drainage studies that demonstrate the following shall be submitted to and approved by Manager of Building & Safety, or designee:

1. All surface runoff and subsurface drainage directed to the nearest acceptable drainage facility, as determined by the Manager of Building & Safety, or designee.
2. Drainage facilities discharging onto adjacent property shall be designed to imitate the manner in which runoff is currently produced from the site and in a manner meeting the satisfaction of the Manager of Building & Safety, or designee. Alternatively, the County or its designee may obtain a drainage acceptance and maintenance agreement, suitable for recordation, from the

owner of said adjacent property. All drainage facilities must be consistent with the County of Orange Grading Ordinance and Local Drainage Manual.

DR HWQ-3 Drainage Improvements

A. Prior to the issuance of any grading permits, the County or its designee shall do the following in a manner meeting the approval of the Manager, of Building & Safety, or designee:

   1. Design provisions for surface drainage;
   2. Design all necessary storm drain facilities extending to a satisfactory point of disposal for the proper control and disposal of storm runoff; and

B. Prior to the approval of final inspection, said improvements shall be constructed, or provide evidence of financial security (such as bonding), in a manner meeting the approval of the Manager, OC Inspection.

Water Quality

DR HWQ-4 **Water Quality Management Plan.** Prior to the issuance of any grading or building permits, the County or its designee shall submit for review and approval by the Manager of Building & Safety, or designee, the Final Water Quality Management Plans (WQMP) specifically identifying Best Management Practices (BMPs) that will be used on site to control predictable pollutant runoff. The County or its designee shall utilize the Orange County Drainage Area Management Plan (DAMP), Model WQMP, and Technical Guidance Manual for reference, and the County's WQMP template for submittal. This WQMP shall include the following:

- Detailed site and project description.
- Potential storm water pollutants.
- Post-development drainage characteristics.
- Low Impact Development (LID) BMP selection and analysis.
- Structural and Non-Structural source-control BMPs.
- Site design and drainage plan (BMP Exhibit).
- GIS coordinates for all LID and Treatment Control BMPs.
- Operation and Maintenance (O&M) Plan that (1) describes the long-term operation and maintenance requirements for BMPs identified in the BMP Exhibit; (2) identifies the entity that will be responsible for long-term operation and maintenance of the referenced BMPs; and (3) describes the mechanism for funding the long-term operation and maintenance of the referenced BMPs.

DR HWQ-5 **Compliance with the National Pollutant Discharge Elimination System (NPDES) Implementation Program.** Prior to the issuance of a certificate of use and occupancy, the County or its designee shall demonstrate compliance with the County's NPDES Implementation Program in a manner meeting the satisfaction of the Manager, OC Inspection, including the following:

- Demonstrate that all structural BMPs described in the BMP Exhibit from the Project's approved WQMP have been implemented, constructed, and installed in conformance with approved plans and specifications;
- Demonstrate that the County or its designee has complied with all non-structural BMPs described in the Project's WQMP;
- Submit for review and approval an Operations and Maintenance (O&M) Plan for all structural BMPs (the O&M Plan shall become an attachment to the WQMP;
- Demonstrate that copies of the Project's approved WQMP (with attached O&M Plan) are available for each of the initial occupants;
- Agree to pay for a Special Investigation from the County of Orange for a date 12 months after the issuance of a Certificate of Use and Occupancy for the Project to verify compliance with the approved WQMP and O&M Plan; and
- Demonstrate that the County or its designee has recorded one of the following:
    1. Covenants, Conditions, and Restrictions (CC&Rs), which includes the approved WQMP and O&M Plan;
    2. A water quality implementation agreement that has the approved WQMP and O&M Plan attached; or
    3. The final approved WQMP and O&M Plan.

DR HWQ-6 **Storm Water Pollution Prevention Plan.** Prior to the issuance of any grading or building permits, the County or its designee shall demonstrate compliance with California's General Permit for Stormwater Discharges Associated with Construction Activity by providing a copy of the Notice of Intent (NOI) submitted to the State Water Resources Control Board and a copy of the subsequent notification of the issuance of a Waste Discharge Identification (WDID) Number or other proof of filing in a manner meeting the satisfaction of the Manager of Building & Safety, or designee. Projects subject to this requirement shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP). A copy of the current SWPPP shall be kept at the Project site and be available for County review on request.

DR HWQ-7 **Erosion and Sediment Control Plan.** Prior to the issuance of any grading or building permit, the County or its designee shall submit an Erosion and Sediment Control Plan (ESCP) in a manner meeting approval of the Manager of Building & Safety, or designee, to demonstrate compliance with the County's NPDES Implementation Program and State water quality regulations for grading and

construction activities. The ESCP shall identify how all construction materials, wastes, grading or demolition debris, and stockpiles of soil, aggregates, soil amendments, and other construction materials shall be properly covered, stored, and secured to prevent transport into local drainages or coastal waters by wind, rain, tracking, tidal erosion, or dispersion. The ESCP shall also describe how the County or its designee will ensure that all BMPs will be maintained during construction of any future public rights-of-way. The ESCP shall be updated as needed to address the changing circumstances of the Project site. A copy of the current ESCP shall be kept at the Project site and be available for County review on request.

Mitigation Measures

No significant adverse impacts related to hydrology and water quality would occur with future Development Plan; thus, no mitigation measures are required.

4.9.8 LEVEL OF SIGNIFICANCE AFTER MITIGATION

The proposed improvements are designed to best maintain existing drainage runoff flow patterns, when feasible. No impacts on-site and to downstream water bodies have been identified. No measures other than the above described compliance with applicable laws and development requirements are required for the Project-specific and cumulative impacts. During the final design of the Project, consistent with the conceptual and preliminary analysis performed to date, additional drainage analysis would be conducted to determine maximum allowed discharge for the entire Project site and for Planning Areas 1 and 2 based on the construction level plans and the backbone storm drain system for each area.

As harvest and reuse, evapotranspiration, and evaporation BMPs are not feasible options given the location of the site and lack of sufficient landscaping, water treatment would occur through use of infiltration basins and biofiltration systems including proprietary biotreatment BMPs. In compliance with the recommended BMPs and the development requirements, the short- and long-term Project-specific and cumulative hydrology and water quality-related impacts would be less than significant. Additionally, compliance with the Construction General Permit, including preparation of an SWPPP and General WDRs would ensure impacts to receiving waters would be less than significant.

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4.10 LAND USE AND PLANNING

This section describes the existing land uses on the Project site and in the Project's surrounding area and assesses the impact of the Project on these uses. Additionally, the section identifies the plans and policies of applicable planning documents and the Project's consistency with those policies.

4.10.1 REGULATORY SETTING

One aspect of land use planning considered under the California Environmental Quality Act (CEQA) is the consistency of the proposed Project with relevant planning documents, which include Southern California Association of Governments' (SCAG) *2016–2040 Regional Transportation Plan/Sustainable Communities Strategy* (RTP/SCS) and the Regional Comprehensive Plan (RCP). The Project is not subject to the City of Irvine's land use jurisdiction, including the City's plans, policies and regulations. Thus, the Project is not required to be consistent with the City's General Plan, Zoning Ordinance or other City imposed requirements. The Project is also not subject to the County's General Plan, Zoning Ordinance or other similar County imposed requirements. Nonetheless, in light of the unique circumstances of this Project and in the interest of full disclosure, the following compares the Project with the City of Irvine General Plan and Zoning Ordinance.

Regional

Southern California Association of Governments

SCAG is the Metropolitan Planning Organization (MPO) for six counties: Orange, Los Angeles, San Bernardino, Riverside, Ventura, and Imperial. The SCAG region includes 191 cities in an area that encompasses more than 38,000 square miles. As the designated MPO, SCAG prepares plans for transportation, growth management, hazardous waste management, and air quality. Additionally, SCAG reviews environmental documents of projects of regional significance for consistency with regional plans. SCAG's responsibilities include the following:

- Maintaining a continuous, comprehensive, and coordinated planning process (the "3 Cs") resulting in a Regional Transportation Plan (RTP) and a Federal Transportation Improvement Program (FTIP).
- Developing a Sustainable Communities Strategy (SCS) to address greenhouse gas emissions as an element of the RTP.
- Developing demographic projections.
- Developing integrated land use, housing, employment, and transportation programs and strategies for the South Coast Air Quality Management Plan.
- Serving as co-lead agency for air quality planning in the Central Coast and Southeast Desert air basin districts.
- Developing and ensuring that the RTP and the FTIP conform to the purposes of the State Implementation Plans for specific transportation-related criteria pollutants, per the Clean Air Act.

- Serving as the authorized regional agency for intergovernmental review of proposed programs for federal financial assistance and direct development activities.
- Reviewing environmental impact reports for projects having regional significance to ensure they are in line with approved regional plans.
- Developing an area-wide, waste treatment management plan.
- Preparing the Regional Housing Needs Assessment.
- Along with the San Diego Association of Governments and the Santa Barbara County/Cities Area Planning Council, preparing the Southern California Hazardous Waste Management Plan (SCAG 2015).

SCAG has developed a number of plans in compliance with its responsibilities. Those that are relevant to the Project are discussed below.

Regional Comprehensive Plan

SCAG's Regional Comprehensive Plan (RCP) provides a policy framework for regional planning in Southern California. The RCP calls for City and County involvement and coordination in addressing regional issues related to growth management and development. However, the RCP only serves as a voluntary "toolbox" to assist local jurisdictions in making their General and Specific Plans and individual projects more sustainable. As identified in Resolution No. 08-502-1 (Resolution of the Southern California Association of Governments Accepting the 2008 Regional Comprehensive Plan for the SCAG Region), given its advisory nature, the 2008 RCP is not used in SCAG's Inter-Governmental Review (IGR) process (SCAG 2008a).

Regional Transportation Plan/Sustainable Communities Strategy

The RTP is a long-range transportation plan that is developed and updated by SCAG every four years. The RTP provides a vision for transportation investments throughout the region. The SCS is a newly required element of the RTP. The SCS component integrates land use and transportation strategies that would achieve California Air Resources Board (CARB) emissions reduction targets pursuant to Senate Bill (SB) 375.

The SCAG 2016-2040 RTP/SCS, which updates the 2012 RTP/SCS was approved on April 7, 2016. The 2016 RTP/SCS highlights regional changes that have affected the development of the Plan since the 2012 RTP/SCS, including: the region's fluid and dynamic demographic and housing market; the passage of MAP-21; state legislation on transportation funding; the rapid advancement of new technologies such as real-time traveler information, on-demand shared mobility services enabled by smartphone applications or ridesourcing, car share and bike share; and the state's continued emphasis on reducing greenhouse gas emissions.

The 2016 RTP/SCS was also developed recognizing the progress the region has made since the last plan. Progress has been made in many planning areas, ranging from transit, passenger rail, highways, regional HOV and Express Lane network, active transportation, goods movement, sustainability planning implementation, affordable housing, and public health.

The goals of the 2016 RTP/SCS have remained unchanged since the 2012 RTP/SCS; however, the 2016 RTP/SCS added two new policies focusing on transportation, which include

investments and strategies to reduce non-recurrent congestion and demand for single occupancy vehicle use, and investments that result in cleaner air, a better environment, a more efficient transportation system (SCAG 2016).

Local

County of Orange

Through the Property Tax Transfer and Pre-Annexation Agreement (Pre-Annexation Agreement or Agreement), the City of Irvine and the County of Orange have agreed that development of the Project site may be done as if the Project site remained unincorporated, and therefore under the County's land use authority (Irvine et al. 2003).

Under sections 53090–53091 of the California Government Code, counties and cities are exempt from zoning regulations when one entity owns territory within the jurisdiction of another entity. And under Government Code section 23004 (d), a county may manage, sell, lease or otherwise dispose of its property as the interests of its inhabitants require. The powers and immunities embodied in these statutes are reflected in the Property Tax Transfer and Pre-Annexation Agreement, discussed above, and in Section 7-9-20(i) of the Orange County Zoning Code, which provides that land owned or leased by the County is not subject to land use regulations of the County, including the Zoning Code, specific plans, and planned communities.

City of Irvine

Consistent with the Property Tax Transfer and Pre-Annexation Agreement (Pre-Annexation Agreement or Agreement), the County retains exclusive land use control over the Project site. The City of Irvine and the County of Orange have agreed that development of the property would be done as if the Project site remained unincorporated. Thus, the Project is not subject to the City of Irvine's land use jurisdiction, including the City's plans, policies and regulations. As the Project is not required to be consistent with the City's General Plan, Zoning Ordinance or other City imposed requirements, a CEQA land use consistency analysis of the City regulations and plans is not required. However, in the interest of informed decision making, this Section 4.10 of the EIR describes the City plans and regulations and includes a comparison of the Project with those plans and regulations.

City of Irvine General Plan

The City of Irvine's Year 2000 General Plan Update was adopted on March 9, 1999 and has subsequently been amended. The General Plan is current with respect to amendments through June 2015 (Supplement 9, August 2015). The *City of Irvine General Plan* contains the following 14 elements: Land Use; Circulation; Housing; Seismic; Cultural Resources; Noise; Public Facilities; Integrated Waste Management; Energy; Safety; Parks and Recreation; Conservation and Open Space; Growth Management; and Irvine Business Complex (IBC). Seven of these elements are required by State Law (e.g., Land Use, Circulation, Housing, Seismic, Noise, Safety, and Conservation and Open Space), and the remaining elements are optional elements that address issues relevant to City development. As noted above, the Project is not subject to the City's General Plan. It should also be noted that the Project is not located within the IBC so issues raised in that element are not discussed below.

Land Use Element

The *City of Irvine General Plan's* Land Use Element seeks to protect and enhance the quality of life in the community through land use policies that guide future growth and that define the quality of life in the City. The goal of the Land Use Element is to "promote land use patterns which maintain safe residential neighborhoods, bolster economic prosperity, preserve open space, and enhance the overall quality of life in Irvine" (Irvine 2015a, 2015d). Land use policies determine how land is developed in the community and also guide and resolve many land use issues and constraints in order to define the quality of life in the City.

Circulation Element

The goal of the Circulation Element is to "provide a balanced transportation system" (Irvine 2015a, 2015d). The Citywide circulation system can influence the pace of urban development and facilitate interaction among the City's planning areas. The Circulation Element describes the City's circulation system, which has been designed to (1) create a hierarchy of roadways; (2) reinforce boundaries of planning areas; (3) respond to conservation, noise, air pollution, and wildlife preservation policies; and (4) satisfy City General Plan and Strategic Business Plan objectives. There are four different types of systems that compose Irvine's circulation system: air, road, public transit, and transit.

Housing Element

The goal of the City of Irvine's 2013–2021 Housing Element is to "provide for safe and decent housing for all economic segments of the community" (Irvine 2015a, 2015d). The Housing Element demonstrates how the strategies to meet its locally determined housing needs are addressed through plans, programs, and projects. In 2003 the City of Irvine adopted an Inclusionary Zoning Ordinance, which requires that all new residential developments subject to the City's jurisdiction allocate 15 percent of their proposed units to affordable housing (5 percent for very low-income households, 5 percent for low-income households, and 5 percent for moderate-income households). Additionally, the Regional Housing Needs Assessment (RHNA) is addressed through the Housing Element and is intended to create a better balance of jobs and housing in communities and to ensure the availability of housing for all income groups.

Seismic Element

The goal of the Seismic Element is to "minimize the loss of life, disruption of goods and services, and the destruction of property associated with an earthquake" (Irvine 2015a, 2015d). All areas of the City are classified as one of five Seismic Response Areas (SRAs). Each SRA zone describes the magnitude and types of potential seismic hazards present.

Cultural Resources Element

The goal of this element is to "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" (Irvine 2015a, 2015d). The element also designates the paleontological sensitivity zones throughout the City and its Sphere of Influence.

Noise Element

The goal of the Noise Element is to "contribute to a healthy and safe environment by minimizing noise impacts" (Irvine 2015a, 2015d). It provides guidelines for minimizing noise impacts from various sources. The Noise Element divides unwanted noise into two categories of noise sources: (1) mobile, such as motor vehicles, railroads, and aircraft and (2) stationary, such as industrial and mechanical equipment.

Public Facilities and Services Element

The goal of the Public Facilities and Service Element is to "provide a full range of necessary public facilities and services that are convenient to users, economical, reinforce City and community identity, and reflect the participation of citizens" (Irvine 2015a, 2015d). This element seeks to provide public services and community facilities that meet an acceptable level of service.

Integrated Waste Management Element

The goal of the Integrated Waste Management Element is to "encourage solid waste reduction and provide for the efficient recycling and disposal of refuse and solid waste material without deteriorating the environment" (Irvine 2015a, 2015d). Policies address solid waste disposal systems, solid waste facility siting requirements, and wastewater and runoff treatment.

Energy Element

The goal of the Energy Element is to "promote energy conservation and the use of renewable energy sources throughout the City in a cost effective way" (Irvine 2015a, 2015d). The element provides a basis for long-range energy planning and summarizes information on supply and demand. It encourages the use of energy-efficient design features and energy-conservation measures.

Safety Element

The goal of the Safety Element is to "minimize the danger to life and property from man-made and natural hazards, including fire hazards, flood hazards, non-seismic geologic hazards and air hazards" (Irvine 2015a, 2015d). The element provides guidelines for the protection of the community from these hazards.

Parks and Recreation Element

The goal of the Parks and Recreation Element is to "provide park and recreation opportunities at a level that maximizes available funds and enables residents of all ages to utilize their leisure time in a rewarding, relaxing, and creative manner" (Irvine 2015a, 2015d). It establishes guidelines for the development of park and recreation facilities.

Conservation and Open Space Element

The goal of the Conversation and Open Space Element is to "maintain and preserve the environmental systems as a major feature in the City" (Irvine 2015a, 2015d). The element

provides long-term guidance for the preservation of significant natural resources and open space areas in the City and its Sphere of Influence, and it provides policies for preserving, managing, and using natural and man-made resources.

Growth Management Element

The goal of this Element is "to ensure that growth and development are integrally planned with, and phased concurrently with, the City of Irvine's ability to provide an adequate circulation system and public facilities" (Irvine 2015, 2015d). The Growth Management Element deals with a wide variety of growth management issues including congestion management, air quality, and a balanced land use mix.

City of Irvine Zoning Ordinance

The City of Irvine Zoning Ordinance is the primary tool for implementing the City's General Plan. It provides development standards (e.g., setbacks, building height, site coverage, parking, and sign requirements); identifies allowable land uses; and specifies other regulations. Additionally, the Zoning Code provides detailed guidance for development based on, and consistent with, the land use policies established in the General Plan. As noted above, the Project is not subject to the City of Irvine Zoning Ordinance.

4.10.2 METHODOLOGY

Information presented in this section is based on field reconnaissance; review of aerial photographs; and review of the relevant planning documents identified in this section. Project consistency with existing and planned land uses in the vicinity is evaluated through review of the land use goals and policies contained in the *City of Irvine General Plan* and planning programs prepared by SCAG (i.e., RTP/SCS Goals and Strategies).

The threshold from the State CEQA Guidelines' Appendix G Checklist is focused on planning and policy consistency. As part of the land use analysis, the State CEQA Guidelines require an EIR to evaluate potential "conflicts with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project". For the reasons discussed previously, neither the City nor the County's plans, policies or regulations apply to the Project. As a consistency analysis is not required, but to promote informed decision making, a comparison of the Project to the City's land use policies and the City's Zoning Ordinance is presented in the Impact Analysis section. Though SCAG does not have direct approval authority over the Project, the local agencies, including the County and the City, strive to achieve consistency with regional planning programs. Therefore, these plans and policies have been used as the basis of making a determination of a significant impact.

4.10.3 EXISTING CONDITIONS

The Project is located on County-owned or controlled property in the City of Irvine near the northeasterly edge of the former Marine Corps Air Station (MCAS) El Toro, northwest of the intersection of Alton Parkway and Irvine Boulevard. Magazine Road traverses the site in a west-east direction. The Project is bound by Irvine Boulevard on the southwest; existing business/industrial buildings and Irvine Ranch Water District (IRWD) facilities on the south

and southeast; and open space property, which is part of the Reserve Area for the Central-Coastal Subregion Natural Communities Conservation Plan/Habitat Conservation Plan (NCCP/HCP) and owned by the Federal Bureau of Investigation (FBI), to the north. Regional access is provided by Interstate (I) 5 and State Route (SR) 133, and local access is provided by Irvine Boulevard and Alton Parkway.

General Plan Designation and Zoning

The Project site is designated in the *City of Irvine General Plan* as Orange County Great Park (PA 51) (Irvine 2015a, 2015d). The General Plan, Land Use Element Table A-1 identifies a variety of uses in this designation, including Multi-Use, Institutional, Industrial, and Commercial. The General Plan Land Use Element identifies Zoning Districts 1.1 (Exclusive Agriculture), 1.4 (Preservation Area), 1.9 (Orange County Great Park), 6.1 (Institutional), and 8.1 (Trails and Transit Oriented Development) as being correlated with the Orange County Great Park land use designation.

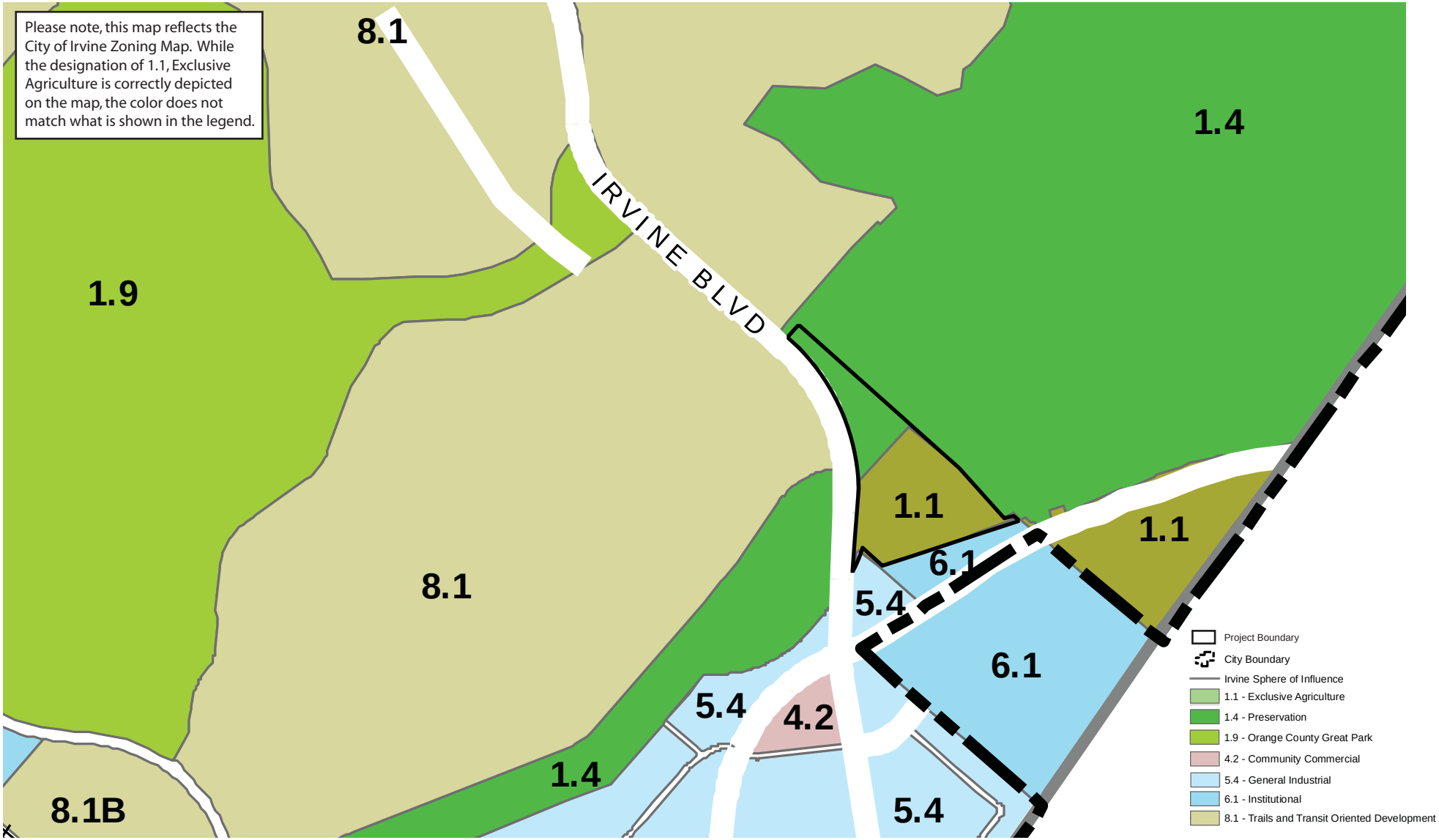
As depicted on Exhibit 4.10-1, Existing Zoning, the City of Irvine Zoning Map identifies the southern portion of the Project site (i.e., the southeastern half of Planning Area 1, all of Planning Area 2, and the Wildlife Movement Corridor) as 1.1 (Exclusive Agriculture) and the northwestern half of Planning Area 1 as 1.4 (Preservation). Some of the uses permitted under 1.1 zoning designation include agriculture, apiary, greenhouse, packing plant, stable, and wireless communication facility. Some of the uses permitted under 1.4 zoning designation include agriculture and wireless communication facilities.

On-Site Uses

The Project site is 44.16 acres, including the Wildlife Movement Corridor and an Orange County Flood Control District (OCFCD) drainage outlet structure, which occupy 11.84 acres. The Wildlife Movement Corridor bisects the site into two development areas. Planning Area 1, to the north of the Wildlife Movement Corridor, is about 21.98 acres and Planning Area 2 to the south is 10.34 acres; resulting in 32.32 net development acres.

The Project site is generally disturbed by prior use. Currently, the Project site is under an encroachment permit with the R&S Soils Products Inc. for commercial nursery operations, green waste operations (composting), and vehicle storage related to those uses. The Wildlife Movement Corridor, Magazine Road, and an existing access road serve as the only other improvements on site. Historically, the site has been leased for agricultural uses, which resulted in the natural vegetation having been removed from the majority of the Project site.

In 2009, approximately 11.84 acres were set aside for the development of the Wildlife Movement Corridor as mitigation for the Alton Parkway extension between Irvine Boulevard and Town Centre Drive/Rancho Parkway south to the northeast of the Project site. The majority of the Wildlife Movement Corridor restoration project was completed in 2012 and has begun the third year of monitoring consistent with permit requirements. The Wildlife Movement Corridor has been planted with native vegetation. A feature of the Wildlife Movement Corridor is a 72-inch culvert provided under Alton Parkway to allow wildlife safe access to a different parcel (known as the East Alton Parcel) that is owned by the County of Orange. Once the mitigation performance standards established as part of the Alton Parkway permitting process have been achieved (this is generally five years from initial



Source: City of Irvine Zoning Map 2014

Existing Zoning

Exhibit 4.10-1

West Alton Parcel Development Plan EIR

N W E S

Map Not To Scale

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implementation), the Wildlife Movement Corridor will be turned over to the City of Irvine. It should be noted that the Wildlife Movement Corridor is not part of the development area and no physical changes are proposed to the Wildlife Movement Corridor, although the property is included within the definition of the Project site.

Surrounding Uses

Land uses immediately south and southeast of the Project site include Allred Centre, which consists of research and development/industrial uses and the Irvine Ranch Water District (IRWD) Zone 3 facility, which includes two large water reservoirs and other facilities. Further to the southeast, across Alton Parkway, is the James A. Musick Jail, which is a County-run facility. To the north of the site is an open space property, which is part of the Reserve Area for the Central-Coastal Subregion Natural Communities Conservation Plan/Habitat Conservation Plan (NCCP/HCP) and is owned by the FBI. The FBI maintains a shooting range on their property. Access to the shooting range is through Magazine Road, which runs through Planning Area1.

East of the Project site, the Borrego Canyon Wash is a natural sandy bottom channel with riprap on some banks and vegetation on other banks. The portion of the Wash that runs south of the Project site has been channelized in a box culvert that crosses under Irvine Boulevard. The Borrego Canyon Wash is designated by the OCFCD as Facility No. F20 (County of Orange 2007).

The area located to the west of the Project site and across Irvine Boulevard has historically been used for agricultural uses and is currently under cultivation; however, this area is slated for development as part of the Great Park Neighborhoods District 5. Additionally, Portola High School, which is part of the Irvine Unified School District and opened in fall 2016, is located to the northwest of the Project site.

Property abutting the Project site immediately to the northwest has historically been used as housing for the former MCAS El Toro. This area is slated for development as part of Great Park Neighborhoods District 7.

Planned Uses

The current and planned development in the surrounding area would change the general character of the area from a former marine base and a partially developed regional park to a fully developed regional park surrounded by residential, mixed-use, commercial, office, and retail uses.

The City of Irvine approved the Great Park Neighborhoods development on portions of PA 51 and former PA 30 between 2003 and 2014. District 5 of the Great Park Neighborhoods is adjacent and to the west of the site across Irvine Boulevard, and District 7 is immediately to the northwest of the site, on the east side of Irvine Boulevard. The Great Park Neighborhoods development is adjacent to the OCGP and is privately owned by Five Point Communities. The original development approval, which occurred in 2003, consisted of residential and non-residential uses, including 3,625 residential units and 1,269 density bonus units as well as 1,154,700 square feet of non-residential uses in Districts 1 North, 4, and 8 and 5,430,894 square feet of non-residential uses, including but not limited to community commercial and

multi-use in PA 30 and PA 51. The 2012 Modified Project, approved by the City in 2012 as a modification of the Great Park Neighborhoods development project, incorporated PA 30 into PA 51, added a total of 4,606 dwelling units for an approved total of 10,700 units, including the optional conversion of up to 535,000 square feet of non-residential multi-use to up to 889 dwelling units and 311 density bonus units. Additional uses such as community commercial and multi-use are also planned as part of the 2012 Modified Project (Irvine 2012).

Adjacent and to the west of the Great Park Neighborhoods project is the approximate 1,300-acre OCGP with 200 acres already developed and 688 acres in planning and design. The approved uses, to the west of the Project site, include a 175-acre sports park with soccer and multi-use fields, tennis courts, baseball/softball fields, and sand volleyball courts. Additional uses include a 188-acre golf course and golf practice facility and clubhouse, a 71-acre agriculture component, a 40-acre Bosque area, a 36-acre Upper Bee Canyon area, a 178-acre wildlife corridor, and additional improvements (Irvine 2015d).

Located in the southeastern portion of the OCGP, adjacent to the 688-acre OCGP Improvement Area is the 260-acre planned Cultural Terrace. The proposed Cultural Terrace, located near the Irvine Station, would potentially include culturally-oriented amenities such as museums, a library, a multi-cultural center, and an amphitheater in addition to a lake, gardens, a performing arts center, and additional compatible uses (Irvine 2015d).

Adjacent and to the southwest of the OCGP, across future extension of Marine Way, is the County-owned site for the El Toro, 100-Acre Parcel Development Project, which is proposed as a mixed-use development comprised of three overlapping districts of Residential, Mixed-Use, and Commercial. The proposed development would result in 2,103 high density residential units; 220,000 square feet of retail; 1,876,000 square feet of office; and a 242-room hotel.

4.10.4 THRESHOLDS OF SIGNIFICANCE

In accordance with the County's Environmental Analysis Checklist and Appendix G of the State CEQA Guidelines, the Project would result in a significant land use impact if it would:

Threshold 4.10-1 Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.

4.10.5 IMPACT ANALYSIS

Threshold 4.10-1

Would the Project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

The analysis of this threshold is broken down into two areas: (1) consistency with applicable planning documents and (2) compatibility with existing and planned land uses. For the reasons described previously, the Project is not subject to the City General Plan or Zoning Code. In the interest of informed decision making; however, the following compares the Project against the elements of the City General Plan and Zoning Code that would apply if the City had jurisdiction over the Project.

A comparison of the Project with these programs is discussed in this section, and Tables 4.10-1, 4.10-2, and 4.10-3 provide an analysis of consistency with specific goals and policies.

Comparison to Planning Documents

County of Orange General Plan and Zoning Code

As discussed above in Section 4.10.1, Regulatory Setting, the County General Plan and Zoning Code are not applicable to the Project site.

City of Irvine General Plan and Zoning Code

As discussed above in Section 4.10.1, Regulatory Setting, the proposed Project is not subject to the City's land use jurisdiction, including the City's plans, policies, and regulation. Nonetheless, for purposes of informed decision making, the following compares the Project to City General Plan and Zoning Ordinance. As indicated under Existing Conditions, above, the Project site is identified in the *City of Irvine General Plan* as Orange County Great Park (Irvine 2015a, 2015d). The City's Zoning Map identifies the Project site as 1.1, Exclusive Agriculture, which allows uses such as agriculture, apiary, greenhouse, packing plant, stable, and wireless facility; and 1.4, Preservation, which allows uses such as passive public recreation, botanical gardens, cattle grazing, fuel modification zones, habitat enhancement, drainage and flood control facilities, and other uses, as deemed appropriate by the City (Irvine 2015b).

The Project proposes residential uses, which are not identified as permitted uses under the City's 1.1 and 1.4 zoning designations. The Development Plan also allows other uses, some of which are not permitted under the Zoning designations noted above. Upon Project approval by the County, consistent with the Pre-Annexation Agreement, the Orange County Board of Supervisors may recommend changes to the City General Plan and Zoning Ordinance consistent with that approval. In accordance with the Pre-Annexation Agreement, the City Council will then consider the requested amendments to the City General Plan and Zoning Ordinance.

For purposes of informed decision making, the following identifies changes the City could make to Table A-1, Maximum Intensity Standards by Planning Area and to the footnotes of Table A-2, Non-Regulatory Maximum Intensity Standards: Land Use Acreage by Planning Area, in the City of Irvine General Plan's Land Use Element to reflect the Project. The revisions to the footnotes of Tables A-1 and A-2 of the City of Irvine General Plan would include the following:

- Revisions to Footnote 18 to provide clarification regarding the maximum intensities for the Heritage Fields development in PA 51 and the responsibility of the Heritage Fields' property owner.

- Revisions to Footnote 26 to provide clarification regarding the responsibility of the Heritage Fields' property owner in PA 51.
- Revisions to Table A-1, Existing Maximum Intensity Standards by Planning Area, of the General Plan Land Use Element to change the multi-use units and the maximum with additive units.
- Revisions to Footnote 8 of Table A-2 to provide clarification regarding the responsibilities of the Great Park Neighborhood's property owner.

The City's Zoning Map identifies the Project site as Exclusive Agriculture (1.1) and Preservation (1.4) (Irvine 2015b). To reflect the densities and character of the Project, the City could place the Project in the TTOD designation and make changes to Section 3-37-39, 8.1, Trails and Transit Oriented District (TTOD). Those changes would include the following:

- Revisions to Section 3-37-39 – 8.1 Trails and Transit Oriented Development to add 8.1D TTOD County of Orange West Alton Parcel (Planning Area 51).
- Revisions to *Intensity Standard (item 2)* to exclude 8.1D zoning district from the maximum development intensities of Section 9-51-6(C) and maximum ADT in PA 51.
- Revisions to *Intensity Standard* to include an item 4 to identify the maximum development intensity and maximum ADT for 8.1D.

Changes to Section 9-51, Planning Area 51 (Orange County Great Park) to reflect the Project, would include the following:

- Revisions to Section 9-51-2 (B), under Chapter 9-51, Planning Area 51 (Orange County Great Park) to provide clarification regarding the responsibility of Master Developer of Great Park Neighborhoods in PA 51.
- Update the statistical analysis table in Section 9-51-3 to reflect the proposed intensity of the Project.
- Revision to *Notes on Maximum Intensities* Section 9-51-3 (Statistical Analysis), Planning Area 51 Table footnote, to provide clarification regarding the responsibility of Master Developer of Great Park Neighborhoods and to add the pertinent Section number.
- Replacing the existing zoning district map for PA 51 to include the 8.1D zoning district and to change the zoning of the Wildlife Movement Corridor to Preservation (1.4).
- Revisions to Section 9-51-6(A), Affordable Housing, to exclude 8.1D zoning district from provisions of Chapter 2-3, Affordable Housing Implementation Procedures.
- Revisions to TTOD zoning district intensity to exclude 8.1D zoning district from maximum residential and non-residential intensity requirements from the Great Park Neighborhoods sub land use category.
- Addition of a new paragraph to provide the maximum residential intensities for the 8.1D zoning district. Additional revisions and clarifications to items 9 through 12 in the same section to exclude the 8.1D zoning district from requirements of TTOD zoning district and to identify the *West Alton Parcel Development Plan* as the governing document for the 8.1D zoning district.

- Revisions to Sec. 9-51-6(D), Trip Budget (C), provisions to provide clarification on maximum ADT limits for properties within the 8.1D zoning district.
- Revisions to Sec. 9-51-6 (D) Great Park Development Monitoring Database, provisions to provide clarification on maximum ADT limits for properties within the 8.1D zoning district and provisions to clarify the responsibility of the master developer of the Great Park Neighborhoods.
- Revisions to Sec. 9-51-6 (E) Review Process, to exclude the 8.1D zoning district from the review process of developments in 8.1 TTOD zoning district.
- Revisions to items G through I, L, and O through S to provide clarification on requirements for the 8.1D zoning district versus the Great Park Neighborhoods development.
- Addition of item V, Special Development Standards and Discretionary and Ministerial Permit Processing within 8.1D Zoning District, which subjects properties within 8.1D zoning districts to the guidelines, developments standards, and requirements of the *West Alton Parcel Development Plan* document, as adopted and implemented by the County of Orange. All permits, including grading and building permits, would be issued by the County of Orange through processing procedures of the County of Orange or the Development Plan for issuance of discretionary and ministerial permits.

Given the County's rights and obligations provided for in the Pre-Annexation Agreement and otherwise, the land use plans, policies, and regulation of the City of Irvine are not applicable to the Project site. Therefore, the Project would not result in a significant adverse impact due to an inconsistency with the land use plans, regulations, or policies of the City of Irvine. Further, if the City implements the above identified GPA and Zoning Code changes, the City of Irvine General Plan and Zoning Ordinance would reflect the Project.

Policy Comparison

As discussed in Section 3.4, the Project is not required to comply with the City or County General Plan policies or other similar plans and regulations. Although not applicable for purposes of the CEQA threshold, and in the interest of informed decision making, Table 4.10-1 compares the Project to the objectives and policies of the City General Plan that might apply if the Project were subject to those elements. In addition, the following compares the Project against applicable regional plans.

TABLE 4.10-1
PROJECT COMPARISON TO CITY OF IRVINE GENERAL PLAN ELEMENTS

Policy	Compliance with Policy
Land Use Element	
Objective A-1: City Identity. Preserve and strengthen Irvine's identity as a diverse and innovative community.	
Policy (a): Develop identifiable City edges, pathways, entry points, and landmarks, and conserve visual resources along the scenic corridors which characterize Irvine.	**Project Would Not Conflict** Though the Project site is not located on the edge of the City or along a scenic corridor, the Project would not result in significant aesthetics or visual impacts (see Section 4.1, Aesthetics).
Policy (b): Use building masses and landscaping to create a sense of unity for the various components throughout the City.	**Project Would Not Conflict** The Project proposes a multi-family residential development with open space and recreation uses in the area. The type of uses proposed are compatible with the existing and planned uses in the surrounding areas. A compatibility analysis with the surrounding existing and planned uses is provided in this section of the EIR. Within the development, building massing and landscaping on the Project site would be implemented in compliance with the Development Plan's design guidelines and development standards. The Development Plan has been structured to create a unified development throughout the Project site, although landscape character may cater to the specific locations and individual neighborhoods within the Project site.
Policy (c): Ensure energy efficiency and low maintenance needs through the following methods: • Land use planning. • Building design. • Landscaping design. **Policy (f):** Promote sustainable development through energy and water conservation, reduced reliance on non-renewable resources, and the use of native trees, shrubs, and grasses with low maintenance costs.	**Project Would Not Conflict** The Development Plan includes Sustainable Guidelines as a framework that can be implemented through a variety of Project site-specific design solution. Additionally, the proposed landscape for the Project incorporates native plants and promotes water-efficient landscape practices. Development standards are included in the Development Plan that would enforce compliance with water use as specified in the County of Orange Zoning Code and smart irrigation techniques included in the Development Plan.
Policy (g): Distinguish individual planning areas in character and physical appearance by considering the following characteristics during design and development: • Physical and visual separation. • Architectural style. • Planning area edge.	**Project Would Not Conflict** The character and individuality of each of the residential neighborhoods on the Project site would be enforced through landscape character, identity features, parks and open space, site lighting, and site furnishings. Each neighborhood would have a unique design and program for landscaping, identity features, open space and park system, site lighting, and site furnishings. While the design guidelines ensure a consistent character throughout the development, individual neighborhoods may be identified by designs unique to each one.
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. • Open space areas.	**Project Would Not Conflict** The Project is located in City of Irvine PA 51, which is projected to include a range of housing type and densities. The Project would not alter the type of development anticipated throughout the remainder of the Planning Area. The Project would have a compatible character with the other existing and proposed residential developments. The Project would also provide a variety of residential products for future residents, including stacked flats or lofts within the low-rise attached housing types and a wrap building within the mid-rise attached housing types. Recreational open space such as neighborhood parks, pocket parks, focal gardens, private recreational areas, and trails would be distributed throughout all Planning Areas.

TABLE 4.10-1
PROJECT COMPARISON TO CITY OF IRVINE GENERAL PLAN ELEMENTS

Policy	Compliance with Policy
Objective A-3: Open Space Areas. Encourage land use development that preserves the beauty of the natural environment.	
Policy (d): Ensure developments occurring in close proximity to NCCP/HCP implementation areas are consistent with the NCCP plan and/or implementing agreement.	**Project Would Not Conflict** The Project area is within the Central-Coastal Subregion of the Natural Communities Conservation Plan/Habitat Conservation Plan (NCCP/HCP); however, it is not located within a Habitat Reserve (Reserve) area, special linkage area, non-reserve open space area, or transportation corridor wildlife crossing. Indirect impacts on the NCCP/HCP Reserve area were evaluated in Section 4.4, Biological Resources. Implementation of construction-related minimization measures set forth in Section 7.5.3 of the NCCP/HCP EIR/EIS (identified as DR BIO-2) would ensure that the Project would be consistent with the NCCP/HCP and would be implemented consistent with the provisions and policies of the NCCP/HCP Implementation Agreement. The Project also recommends that the City change the zoning for the Wildlife Movement Corridor from Agriculture (1.1) to Preservation (1.4).
Objective A-4: Balanced Land Uses. Manage growth to ensure balanced residential and nonresidential development throughout the City.	
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.	**Project Would Not Conflict** Consistent with this policy, the Project site is located in the vicinity of existing roadways and transportation corridors. Access to I-5 and I-405 is located under three miles southwest of the Project site via Bake Parkway. Access to SR-241 is located just under 2.3 miles to the northeast of the Project site via Alton Parkway. Access to SR-133 is located approximately three miles northwest of the Project site via Irvine Boulevard. All required infrastructure necessary to serve the Project is already located at or in close proximity to the Project site. The Project would also provide a variety of residential products for future residents, including stacked flats or lofts within the low-rise attached housing types and wrap buildings within the mid-rise attached housing types. By introducing a total of 803 residential units, the Project would provide a better jobs-housing balance in a jobs-rich area. Recreational open space such as neighborhood parks, pocket parks, focal garden, private recreational areas, and trails would be distributed throughout all neighborhoods. The Project would further protect open space if the City approves the Project's recommended change of zone for the Wildlife Movement Corridor from Agriculture (1.1) to Preservation (1.4).
Policy (d): Reduce expenditures for public services and facilities by clustering residential development.	**Project Would Not Conflict** The proposed Project includes a total of 803 high –density, multi-family residential units, with an average density of 30 du/ac within each Planning Area, in an area that includes a new high school and other future residential development. Clustering of the residential units would create efficiencies for provision of services.
Policy (e): Coordinate strategies with the County of Orange to meet housing and employment needs.	**Project Would Not Conflict** As discussed in Section 4.12, Population and Housing, the proposed Project would result in a maximum of 803 housing units, which would represent 0.5 percent of the OCP-2014 housing growth for Orange County and 1.9 percent for the City of Irvine between 2012 and 2040. The Project would generate minimal employment. It is estimated that approximately 15 people would be employed to service the facilities. The Project would provide a better jobs-housing balance in a jobs-rich region.

TABLE 4.10-1
PROJECT COMPARISON TO CITY OF IRVINE GENERAL PLAN ELEMENTS

Policy	Compliance with Policy
Policy (f): Attract land uses that generate revenue to the City, while maintaining a balance of other community needs such as housing, open space, and public facilities.	**Project Would Not Conflict** The Project is proposed as multi-family residential development with supporting open space and recreational uses. The Project would not conflict with City's attainment of this policy. In fact the Project would provide housing to support businesses that generate revenue for the City. Additionally, the Project as proposed would provide a better jobs-housing balance in a jobs-rich region.
Objective A-6: Land Use Compatibility. Achieve harmonious land use patterns throughout the City.	
Policy (g): In coordination with other agencies, require all significant impacts associated with the closure and reuse of former MCAS El Toro and former MCAS Tustin to be mitigated to a level acceptable to the City.	**Project Would Not Conflict** The Project site is located on property that is or will be County-owned at the northeastern edge of the former MCAS El Toro. This EIR analyzes all environmental impacts of the proposed Project; identifies significant impacts; and proposes mitigation measures to address the impacts. Some Project impacts are identified as significant and unavoidable due to implementation of mitigation measures being outside of the control of the County of Orange or other factors. As the lead agency, the County Board of Supervisors will decide whether impacts are mitigated to an acceptable level.
Policy (j): Residential areas and sensitive uses shall be protected from the encroachment of incompatible activities or land uses which would cause a hazard or substantial nuisance or otherwise create a negative impact upon sensitive uses or the residential living environment.	**Project Would Not Conflict** Please refer to the discussion of land use compatibility provided in this section of the EIR following the policy analysis. As identified, the Development Plan would introduce a multi-family residential and supporting open space and recreation uses that would be compatible with the existing and planned land uses around the Project site.
Circulation Element	
Objective B-1: Roadway Development. Plan, provide, and maintain an integrated vehicular circulation system to accommodate projected local and regional needs.	
Policy (n): Design roadways which ensure safe and efficient traffic flow while also providing adequate and convenient access to retail sites.	**Project Would Not Conflict** The proposed circulation for the Project is planned as two Planning Areas with connections to the City of Irvine regional multi-modal network. The internal circulation of the Project will be privately maintained and would typically consist of 2-lane internal drives with parallel parking on at least one side and parkways to encourage a pedestrian-friendly environment. Smaller driveways will generally provide access to a small group of dwelling units. The Project's design guidelines and development standards include guidance for the internal drives and alleys. In addition, stop-sign-controlled intersections would be included throughout the Project site to facilitate safe and efficient traffic flow.
Objective B-2: Roadway Design. Develop a vehicular circulation system consistent with high standards of transportation engineering safety and with sensitivity to adjoining land uses.	
Policy (g): Include mitigation measures in the approval of all proposed developments to minimize negative impacts of the automobile.	**Project Would Not Conflict** The roadway improvements would be designed to be compatible with City of Irvine standards (see Section 4.15, Transportation and Traffic, for an evaluation of design compatibility). A Transportation Impact Analysis has been prepared for the proposed Project to assess traffic related impacts and to propose mitigation measures to address the impacts. The EIR finds the certain circulation impacts are significant and unavoidable because the implementation of mitigation measures and/or improvements would be outside the jurisdiction and control of the County of Orange. The Project would contribute traffic to the freeway system which is proposed to operate at deficient levels of service.

TABLE 4.10-1
PROJECT COMPARISON TO CITY OF IRVINE GENERAL PLAN ELEMENTS

Policy	Compliance with Policy
	However, mitigation of these impacts are outside of the County's jurisdiction and beyond the scope of an individual project.
Objective B-3: Pedestrian Circulation. Establish a pedestrian circulation system to support and encourage walking as a mode of transportation.	
Policy (a): Link residences with schools, shopping centers, and other public facilities, both within a planning area and adjacent to planning areas, through an internal system of trails. **Policy (b):** Require development to provide safe, convenient, and direct pedestrian access to surrounding land uses and transit stops. Issues such as anticipated interaction between pedestrians and vehicles, proposed infrastructure improvements and design standards shall be considered.	**Project Would Not Conflict** The proposed Project supports ease of access for pedestrians on- and off-site, and the Development Plan promotes a pedestrian-friendly internal circulation system and connections to the City's regional multi-modal network, with the intent to encourage the use of alternative modes of travel (biking, walking, and transit). The internal roadway network provides numerous pedestrian crossing locations and internal intersections with stop controls also provide pedestrian crossing opportunities. Furthermore, trails and walkways are provided throughout the Project site. This circulation connects to the City's circulation network, providing close access to the multi-use trails located within the OCGP and convenient access to OCTA bus stations on Alton Parkway.
Policy (c): Design and locate land uses to encourage access to them by nonautomotive means.	**Project Would Not Conflict** The Project includes a total of 803 multi-family residential units within two Planning Areas. The Planning Areas would easily be accessed through non-vehicular modes of transportation. Biking and walking would be accommodated through a system of trails, multi-modal roads, and walkways.
Objective B-4: Bicycle Circulation. Plan, provide and maintain a comprehensive bicycle trail network that, together with the regional trail system, encourages increased use of bicycle trails for commuters and recreational purposes.	
Policy (a): Use the Trails Network diagram (Figure B-4) as a basis for detailed planning of the bicycle trail system. Detailed planning shall occur through the development processes outlined in the City's Zoning and Subdivision Ordinances. **Policy (b):** Require a system of bicycle trails, both on- and off-street, in each planning area. Such trails shall be linked to the system shown in Figure B-4. The on-street trails shall be designed for the safety of the cyclist. **Policy (c):** The trail system shall be designed to accommodate cyclists of all levels of experience and shall provide for both recreation and transportation. **Policy (d):** Require bicycle trail linkages between residential areas, employment areas, schools, parks, community facilities, commercial centers, and transit facilities. **Policy (e):** Require pedestrian and bicycle circulation plans detailing access to the subject property, and adjacent properties in conjunction with new development. **Policy (f):** Require that bicycle trip destinations, including community facilities, commercial centers, and transit facilities be equipped with appropriate bicycle facilities	**Project Would Not Conflict** The proposed Project promotes use of bicycles as an alternative mode of transportation within the Project site by encouraging bicycle amenities to make it easy, safe, and convenient for future residents to use bicycles. The Project also promotes connections to the Class II bike lane on Irvine Boulevard, the OCGP, and other nearby properties as well as providing sharrows (a shared vehicle and bike lane) on internal streets. The nearest trail or bike lane identified in the City's network is a Class II bike lane within Irvine Boulevard right-of-way. The proposal will not obstruct the development or connectivity of this or other bike lanes or trails identified on Figure B-4.

TABLE 4.10-1
PROJECT COMPARISON TO CITY OF IRVINE GENERAL PLAN ELEMENTS

Policy	Compliance with Policy
including, but not limited to, the provision of showers and bike racks. **Policy (g):** Require traffic control devices and traffic signal phasing for bicycle crossing, turning, and through movements. **Policy (h):** Require grade-separate crossings for Class I bikeways at major intersections, wherever feasible, to increase safety and efficiency. **Policy (i):** Provide off-street bicycle trails in areas with minimal cross traffic, such as open space spine, flood control and utility easements, where feasible. **Policy (j):** Support programs to increase public awareness of bicycle safety and bicycling as an alternative mode of transportation. **Policy (k):** Incorporate, where appropriate, school and park locations within the design of the bikeway system.	
Housing Element	
Goal 1.0: Provide Adequate Sites. Provide suitable sites for housing development which can accommodate a range of housing by type, size, location, price, and tenure.	
Policy 1.1: Ensure a mix of housing for all economic segments across all planning areas.	**Project Would Not Conflict** The policies of the General Plan are designed to address the needs of the City as a whole, rather than apply in their entirety to each project. The Project would provide a variety of multi-family residential products for future residents, including stacked flats or lofts within the low-rise attached housing types and wrap buildings within the mid-rise attached housing types. These units would vary in size and offer a wide range of rental housing choices and housing prices. The Project would provide an increase in the multi-family, rental housing market in the City. Approximately 58 percent of the City's housing units are single-family homes (Irvine 2015a). Additionally, of the total 803 units, 10 percent (80 units) will be committed to affordable housing and 1 percent (8 units) will be designated as transitional housing.
Policy 1.2: Strive to improve the City's jobs-to-housing balance. **Policy 1.5:** Advocate balanced residential and employment growth in the region, to ensure all jurisdictions share the responsibility for housing in the region.	**Project Would Not Conflict** As stated in Section 4.12, Population and Housing, the City of Irvine is jobs-rich and is expected to remain jobs-rich as a result of economic and demographic forces. The proposed Project would introduce a total of 803 residential units, including 10 percent affordable and 1 percent transitional units. The Project would generate minimal employment. It is estimated that approximately 15 people would be employed to service the facilities; therefore, the Project would create a better jobs-housing balance in a jobs-rich region.
Policy 1.6: Ensure proper land use planning for adequate infrastructure, services, and facilities is provided to serve existing and future residents.	**Project Would Not Conflict** The Project does not require the extension of infrastructure, services and facilities to previously undeveloped areas. The Project includes various infrastructure improvements to support the development. Such infrastructure improvements include, but are not limited to, the installation of potable and recycled water lines, storm water detention and conveyance systems, electricity, phone lines, gas pipelines, and

TABLE 4.10-1
PROJECT COMPARISON TO CITY OF IRVINE GENERAL PLAN ELEMENTS

Policy	Compliance with Policy
	sanitary sewers. Additionally, the Project provides services that would meet the needs of future residents of the development.
Goal 2.0: Assist in the Development of Affordable Housing. Assist in the provision of housing that meets the needs of all economic segments of the community.	
Policy 2.1: Provide density and regulatory incentives to facilitate permanent affordable housing development. **Policy 2.2:** Assist developers to access financing to produce a mix of housing. **Policy 2.3:** Coordinate with housing developers to access funding sources for permanent affordable housing. Assist in creating partnerships between nonprofits and market rate developers. **Policy 2.4:** Assist developers, through new construction, to increase supply of permanent affordable rental units with supportive services that target seniors and persons with disabilities and extremely low income households.	**Project Would Not Conflict** These policies identify actions for the City to take. Nonetheless, the Project would provide a variety of multi-family residential products, which would vary in size and offer a wide range of rental housing choices and housing prices. Additionally, the proposed residential development would include 10 percent (80 units) affordable housing units and 1 percent (8 units) transitional housing units.
Seismic Element	
Objective D-2: Response to Hazards. Require appropriate measures to protect public health and safety and to respond to seismic hazards in all public and private developments.	
Policy (g): Require a detailed geological and soils study as needed, in accordance with the requirements of the City's Subdivision Ordinance, before approving development.	**Project Would Not Conflict** As discussed in Section 4.6, Geology and Soils, a Preliminary Geotechnical Investigation has been prepared to determine if there are any geologic or soils constraints that would result in potential environmental impacts with implementation of the proposed Project. Additionally, DR GEO-1 requires the preparation of a geotechnical report per the County Grading Manual requirements, prior to implementation of grading permits. Based on the findings of Section 4.6, Project-specific and cumulative impacts related to geology and soils would be less than significant.
Policy (h): Continue to require structures to conform to the seismic design requirements found in the Uniform Building Code. **Policy (i):** Ensure that the most recent adopted seismic standards are used for new construction.	**Project Would Not Conflict** The Project site is not within an Alquist-Priolo Earthquake Fault Zone. However, because the Project site is located in a seismically active region, as is all of Southern California, the Preliminary Geotechnical Investigation reported that the Project site would likely experience strong ground shaking during the life of any project developed thereon. The Preliminary Geotechnical Investigation recommends that seismic design be performed in accordance with the 2013 California Building Code (CBC). DR GEO-1 requires preparation of a geotechnical report prior to the issuance of a grading permit. Appropriate site-specific design-level geotechnical investigations would be required and specific design measures would be incorporated consistent with the requirements of the Orange County Grading Manual.

TABLE 4.10-1
PROJECT COMPARISON TO CITY OF IRVINE GENERAL PLAN ELEMENTS

Policy	Compliance with Policy
Cultural Resources Element	
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 (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.	**Project Would Not Conflict** No structures currently exist on the Project site. The development immediately adjacent to the Project site consists of water storage facilities and an industrial/office building, which were constructed 1966 and would not be considered historic. No impacts to historical resources are expected from the Project.
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 (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.	**Project Would Not Conflict** Section 4.5, Cultural Resources, of the EIR discusses and analyzes the potential impacts of the proposed Project on cultural resources. The analysis identifies potential impacts to cultural resources for which mitigation measures are proposed to provide for monitoring during construction when grading activities are in native soils. This would serve to mitigate potential impacts to unexpected, buried cultural resources.
Noise Element	
Objective F-1: Mobile Noise. Ensure that City residents are not exposed to mobile noise levels in excess of the CNEL Interior and Exterior Noise Standards (Table F-1), and Single Event Noise Standard.	
Policy (c): Ensure that all proposed development projects are compatible with the existing and projected noise level by using the Land Use Noise Compatibility Matrix (Table F-2).	**Project Would Not Conflict** Section 4.11, Noise, addresses noise levels that would be experienced by the uses proposed to be allowed on the Project site, including noise from adjacent roadways. As described in the analysis, with implementation of identified mitigation measures, future development would comply with the applicable Noise Ordinance.
Policy (d): 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.	**Project Would Not Conflict** Based on the compatibility analysis conducted in this section of the EIR, without mitigation, the proposed Project would be not be Clearly Compatible with the future noise level at the Project site. Mitigation measures applicable to the Project include the preparation of more acoustical studies to confirm that required noise levels are met prior to issuance of building permits.
Policy (f): Require noise studies to identify all the mitigation measures necessary to reduce noise levels to meet the CNEL standard (Table F-1) and Single Event Noise Standard.	**Project Would Not Conflict** Section 4.11, Noise of this EIR includes a mitigation program to reduce potential noise impacts to less than significant levels. The required measures include the preparation of acoustical studies to confirm that required noise levels would be met prior to issuance of building permits.
Objective F-2: Stationary Noise. Ensure that City residents are not exposed to stationary noise levels in excess of the City Noise Ordinance standards.	
Policy (a): Require any new construction to meet the City Noise Ordinance standards as a condition of building permit approval.	**Project Would Not Conflict** The development requirements require that the Project comply with applicable noise standards for new construction. The mitigation program identified in Section 4.11, Noise, identifies required acoustical analysis and limits on construction to ensure compliance.
Policy (c): Condition subdivision approval of the projects adjacent to any developed/occupied uses by requiring the developer to submit a construction-related	**Project Would Not Conflict** Section 4.11, Noise, analyzes potential noise impacts associated with construction activities on the Project site. The closest existing sensitive receptors in proximity to the Project site are classroom buildings in the

TABLE 4.10-1
PROJECT COMPARISON TO CITY OF IRVINE GENERAL PLAN ELEMENTS

Policy	Compliance with Policy
noise mitigation plan to the Director of Community Development for review and approval prior to issuance of grading permits. The plan must depict the location of construction equipment and how the noise from this equipment will be mitigated during construction of the project, through the use of such methods as the following: • Temporary noise attenuation fences. • Preferential location of equipment. • Use of current technology and noise suppression equipment.	new Portola High School, approximately 1,200 feet from the Project site. Thus, there are no sensitive adjacent/occupied uses and no construction-related noise mitigation plan is required.
Public Facilities & Services Element	
Objective G-1 Public Facilities Development. Coordinate planning and development of Irvine's public facilities and services with the private sector, University of California, Irvine, the Irvine Unified School District, Orange County and other public agencies.	
Policy (i): Achieve desired levels of service from service providers, such as the Orange County Fire Authority and local school and college districts, through coordinated land use and facility planning.	**Project Would Not Conflict** Section 4.13, Public Services, of the EIR discussed and analyzed the potential impacts of the proposed Project on public service providers. With implementation of fire protection development requirements identified in Section 4.13, Project impacts on fire protection services would be less than significant. In addition, consistent with the requirements of Section 65995 of the California Government Code, the County or its designee shall pay developer fees to the IUSD.
Policy (l): Continue to include school districts in the review of new developments that, by location and function, could impact any school facility.	**Project Would Not Conflict** The Project would not conflict with any facilities planning being conducted by the school district. Existing capacity exists at the Irvine Unified School District (IUSD) to accommodate the Project. Consistent with the requirements of Section 65995 of the California Government Code, the County or its designee shall pay developer fees to the IUSD.
Integrated Waste Management Element	
Objective H-1: Solid Waste. 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 (g): Require, to the extent necessary to comply with state law, during discretionary application review, solid waste reduction and recycling efforts for residential, commercial, industrial, institutional and recreational land uses to reduce the amount of waste disposed at landfills.	**Project Would Not Conflict** As provided in Section 4.16, Utilities and Service Systems, the Project would comply with all applicable solid waste regulations and would comply with ongoing waste management and recycling programs/ requirements implemented by the County.
Objective H-3: Waste Water. Control waste water and storm runoff in a manner to minimize impact on adjacent existing or planned land uses.	
Policy (a): Encourage the use of recycled water sources for secondary water uses, such as fire hydrants, on-site fire sprinkler systems, and waste water systems, and for irrigation purposes to the greatest extent feasible.	**Project Would Not Conflict** The Project would have a backbone recycled water network with connection to an Irvine Ranch Water District (IRWD) recycled water line. All common landscaped areas would be irrigated with an automatic system that would use recycled water, unless otherwise prohibited by code.

TABLE 4.10-1
PROJECT COMPARISON TO CITY OF IRVINE GENERAL PLAN ELEMENTS

Policy	Compliance with Policy
Policy (b): Require developers of new projects located adjacent to or upstream of natural water courses to develop surface drainage systems which will direct low flows (those which carry the most pollutants) away from natural water sources into an area designed to remove pollutants. Require evidence be provided that any proposed development will have adequate sewer service, including assurance that collection and treatment capacity can be accommodated.	The proposed drainage pattern will follow the existing drainage pattern. In Planning Area 1, the majority of the development, Subarea A, will direct runoff westward through a storm drain system to an on-site detention basin. The detention basin will discharge Planning Area 1 site runoff to the existing open channel trench adjacent to Irvine Boulevard that is currently serving this area. The development in Planning Area 2 will direct runoff westward through several storm drain systems to two main on-site storm water detention basins. The on-site basins will eventually discharge to the existing 30-inch RCP in Irvine Boulevard that currently serves as the Planning Area's existing stormwater conveyance system. A Conditional Water and Sewer Will Serve Letter has been issued by IRWD (December 17, 2015) indicating IRWD has sufficient capacity and will provide serve the Project. As discussed in Section 4.16, Utilities, IRWD would have available wastewater treatment capacity to treat wastewater flows from the proposed Project.
Policy (c): Require a National Pollution Discharge Elimination System (NPDES) permit to be obtained from the State Water Resources Control Board whenever surface water is collected anywhere for discharge as a point source, or if a point source discharge is contemplated, a NPDES permit must be obtained from the State Water Resources Control Board. Encourage the use of alternatives Best Management Practices (BMPs) to control and minimize urban pollutant runoff.	**Project Would Not Conflict** A Conceptual WQMP has been prepared for the Project in compliance with the requirements of the County of Orange Natural Pollutant Discharge Elimination System (NPDES) Storm Water Program requiring the preparation of the plan. An NPDES Permit is required for Waste Discharge Requirements for the County of Orange, the Orange County Flood Control District, and the incorporated cities of Orange County within the Santa Ana Region. For Best Management Practices (BMPs), see analysis for Policy (e) below.
Policy (e): Minimize changes in hydrology and pollutant loading; require incorporation of control; including structural and non-structural BMPs, to mitigate the projected increases in pollutant loads and flows; ensure that post-development runoff rates and velocities from a site have no significant adverse impact on downstream erosion and stream habitat; minimize the quantity of stormwater directed to impermeable surfaces and the Municipal Separate Storm Systems (MS4s) and maximize the percentage of permeable surfaces to allow more percolation of stormwater into the ground. **Policy (g):** Encourage the use of water quality wetlands, biofiltration swales, watershed scale retrofits, etc., where such measures are likely to be effective and technically and economically feasible. **Policy (h):** Provide for appropriate permanent measures to reduce storm water pollutant loads from the development site.	**Project Would Not Conflict** As discussed in Section 4.9, Hydrology and Water Quality, erosion-control BMPs are designed to prevent erosion, whereas sediment controls are designed to trap or filter sediment once it has been mobilized. In addition to erosion- and sediment-control BMPs, the following types of BMPs would be implemented, as needed, during construction: waste and materials management; non-storm water management; training and education; and inspections, maintenance, monitoring, and sampling. The BMPs would be implemented in compliance with the Construction General Permit. In the long-term, evapotranspiration and evaporation BMPs are not feasible. In locations where Infiltration BMP's are not feasible, Proprietary Biotreatment BMP's with upstream underground detention will be utilized for this Project.

TABLE 4.10-1
PROJECT COMPARISON TO CITY OF IRVINE GENERAL PLAN ELEMENTS

Policy	Compliance with Policy
Energy Element	
Objective I-1: Energy Efficiency. Maximize energy efficiency through land use and transportation planning.	
Policy (b): Encourage and promote incorporation of energy conservation measures. The measures should be developed in conjunction with the applicant and may include: • Active solar water and/or space heating. • Passive design features for heating and cooling. • Use of energy efficient devices.	**Project Would Not Conflict** Solar applications are not required by the Development Plan; however, as a development requirement for GHG Emissions (DR GHG-3), the Project will incorporate renewable energy generation for the entirety of the Project in an amount equivalent to 1.25 kilowatts (kW) per dwelling unit. The Project provides a number of potential solar sites. In addition to the roof-top solar zones, potential locations for solar photovoltaic (PV) panels include expanded solar zones on individual buildings, parking shade structures (atop a parking structure or in surface lots), pool shading structures, picnic area shading, and trellis features. A number of recommendations are provided in the Development Plan to encourage future developers to explore opportunities for energy efficiency. For instance, developers are encouraged to: • Utilize passive sustainability design strategies, where feasible, to minimize overall energy consumption needed to heat and cool buildings. Strategies include daylighting, natural sources of heating and cooling, operable windows, shading on south-facing windows, ceiling fans, and well-designed building envelops with high U-values (insulation rating). • Coordinate with Southern California Edison (SCE) to identify opportunities, optimize energy infrastructure while minimizing cost and avoiding barriers that may prevent future entry or expansion of energy-efficient systems. • Explore next generation solutions for enhanced efficiency and reduced operating costs, such as smart-grid, switching controls, communications (including a community dashboard), and storage and monitoring in servicing the Districts to reduce utility and operating costs of the Project.
Policy (c): Encourage development of shared energy facilities in major commercial projects where cost effective, such as: • Heating/cooling system. • Solar water heating. • Photovoltaic (e.g., solar panel).	
Policy (g): Promote use of alternative modes of transportation by the following programs: • Encourage use of regional public transportation (e.g., rail service) by: 1. Supporting the development of regional transportation stations in Irvine. 2. Making schedules available at City Hall and other public agencies. 3. Requesting Orange Transportation Authority (OCTA) to establish and provide information on bus connection for regional transportation passengers. • Encourage use of the bus system by working with OCTA to provide: 1. Bus circulation between residential, commercial and industrial uses. 2. More efficient transfers between	**Project Would Not Conflict** The proposed Project consists of 803 multi-family residential units within two Planning Areas. Easy access to on- and off-site uses are supported by a circulation system that is envisioned as a multi-model system that balances and optimizes the use of automobiles, bicycles, pedestrian, transit, and low speed vehicles by providing facilities that improve safety and efficiency. The circulation system accommodates a range of convenient transportation choices that reduce traffic congestion and dependence on the automobile, increase mobility, and promote active lifestyles. The Project would have access to a number of Class I, bike trail, Class II bike lane, and Class III bike routes on- and off-site, which would promote biking throughout the development and out to the Irvine Boulevard. Use of bikes are further supported by ample bicycle amenities in strategic locations to make it easy, safe, and convenient for future residents to use bicycles as an alternative mode of transportation. It is also encouraged to provide shared community bicycles and electric bikes that would be used by residents throughout the Project site. Additionally, sidewalks, walking paths, and walkways are proposed to provide internal connections between different neighborhoods and amenities.

TABLE 4.10-1
PROJECT COMPARISON TO CITY OF IRVINE GENERAL PLAN ELEMENTS

Policy	Compliance with Policy
bus routes. 3. Posted schedules at bus stops. 4. Widely distributed bus schedules. 5. Shuttle services from regional transportation stations to final destination. • Encourage use of public transit and ridesharing by promoting and participating in public information programs aimed at schools, sports clubs and other institutions and organizations.	
Safety Element	
Objective J-1: Hazard Occurrence. Identify actions that the City, in concert with other jurisdictions, must take to reduce the probability of hazard occurrence.	
Policy (e): Require development proposals to be reviewed by the Orange County Fire Authority to ensure adequate fire protection and precautions occur.	**Project Would Not Conflict** The County has coordinated with OCFA regarding the potential effects of the proposed Project on OCFA's facilities and staffing. As part of the environmental review process, the County would continue to coordinate with the OCFA regarding the Fuel Modification Zone and to ensure that an adequate level of service and facilities exist to serve the proposed Project.
Objective J-2: Disaster Response. Identify actions that the City, in conjunction with other jurisdictions, must take to reduce the severity of disasters.	
Policy (a): Ensure that developments will be properly served by police and fire service.	**Project Would Not Conflict** The proposed Project would increase the demand for fire protection and emergency services and the associated demand on fire protection and emergency service apparatus, equipment, and personnel beyond existing levels. The Project is anticipated to create the typical range of service calls for residential, including structural fires; emergency medical and rescue services; and hazardous materials inspections and response. The OCFA has indicated that Stations 38 and 27 would be able to serve the Project. The increase in population would also generate increased demand for police protection services, which would require more police personnel and, potentially, the associated equipment and vehicles. The City's standard staffing formula for police officers needed to serve residential areas is expected to be sufficient to meet all law enforcement service needs of the proposed residential development.
Policy (b): Ensure that each development will have adequate emergency ingress and egress.	**Project Would Not Conflict** Both Planning Areas and their neighborhoods would have the minimum ingress/egress points required by the OCFA onto the internal circulation network. Once on this network, a driver would have multiple opportunities to reach Irvine Boulevard. The southern portion of the Project site also includes a secondary emergency access through the adjacent IRWD facility to Alton Parkway.
Policy (d): Continue to maintain and implement the City of Irvine's Emergency Plan.	**Project Would Not Conflict** The Project would not obstruct any public access nor would it obstruct any necessary emergency response. The southern portion of the Project site includes a secondary emergency access through the adjacent IRWD facility to Alton Parkway.

TABLE 4.10-1
PROJECT COMPARISON TO CITY OF IRVINE GENERAL PLAN ELEMENTS

Policy	Compliance with Policy
Park and Recreation Element	
Objective K-1: Recreational Opportunities. 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.	
Policy (a): Provide community parks which serve residents of a planning area to citywide level by providing facilities appropriate for citizens of various ages and interests, such as: • Community centers. • Athletic facilities. • Competition level swimming pools. • Picnic areas. • Cultural centers. • Day care centers. **Policy (c):** Provide neighborhood parks that respond to recreational needs at a local level.	**Project Would Not Conflict** The policies of the General Plan are designed to address the needs of the City as a whole, rather than apply in their entirety to each project. Not every project in the City would provide all the identified facilities. City PA 51 includes the OCGP, which will provide all the facilities identified in this policy. The Project is located approximately 2.0 miles to the east of the OCGP. As discussed in Section 4.14, Recreation, the Project would provide approximately 4.11 acres of open space that would include neighborhood parks, private recreation areas, focal gardens, pocket parks, and a system of trails and walkways throughout the development.
Objective K-2: Park Dedication. Require developers of residential land to dedicate land or fees for parks, consistent with the Quimby Act, Subdivision Map Act, Irvine Subdivision and Zoning Ordinances and General Plan standards.	
Policy (d): Require park land dedicated by developers to meet minimum improvement standards to ensure a functional use of land. Use the Local Park Code as the standard for design and siting of neighborhood parks.	**Project Would Not Conflict** As discussed in Section 1.0 through 3.0 and Section 4.14, Recreation, of this EIR the Project site is property of the County, and the County retains exclusive land use control over the Project. The Project would provide a minimum of 2.5 acres per 1,000 residents for a total of 4.02 acres. However, the Project has incorporated provisions for providing approximately 4.11 acres of parkland.
Growth Management Element	
Objective M-3: Roadway Maintenance and Capacity Enhancement. Continue to implement the City's pavement management program, and pursue all funding options available to meet the rehabilitation needs of the City of Irvine infrastructure and minimize the deferred maintenance of City streets. Further, future development shall contribute its "fair share" towards the improvement of the local transportation system and the regional roadway network.	
Policy (d): Ensure that development contributes its "fair share" to the improvement of the local transportation system and the regional roadway network by constructing necessary roadway improvements through identified mitigation measures and/or payment of circulation improvement fees through established mitigation fee programs.	**Project Would Not Conflict upon Participation in NITM or a Fair-Share Agreement** As discussed in Section 4.15, Transportation and Traffic, a mitigation measure for impacts to the local roadway intersections is the participation in NITM or having a fair-share agreement between the County and the City. Implementation of the mitigation program would be outside the jurisdiction and control of the County; however, if agreed to by the City, the proposed Project would not conflict with this policy.
Objective M-4: Transportation Demand Management. Provide and encourage the use of a full range of alternative modes of transportation including transit systems.	
Policy (b): Require the applicants of new developments to submit, at the time of tentative tract map submittal or conditional use permit or master plan review, pedestrian and bicycle circulation plans detailing such access to the subject and adjacent properties in accordance with the Land Use, Conservation and Open Space, Urban Design, and Circulation Elements of the General Plan.	**Project Would Not Conflict** Easy access to uses on the Project site is supported by a circulation system that is envisioned as a multi-model system that balances and optimizes the use of automobiles, bicycles, and pedestrian by providing facilities that improve safety and efficiency. The Project would provide and have access to bike trail, bike lanes, and bike route network.

TABLE 4.10-1
PROJECT COMPARISON TO CITY OF IRVINE GENERAL PLAN ELEMENTS

Policy	Compliance with Policy
Objective M-6: Balanced Growth. Promote balanced growth of residential and non-residential land uses and supporting public facilities and services.	
Policy (h): Encourage the establishment and development of facilities and services consistent with policies concerning, but not limited to, police/fire facilities, libraries, parks, and flood control as identified in the Public Facilities Element.	**Project Would Not Conflict** As described in Sections 4.13, Public Services, and 4.14, Recreation, the Project would address the projected demand for public services and parks associated with the population generated by the Project.
Objective M-7: Phased Growth. A Comprehensive Phasing Program (CPP) shall be prepared to ensure that infrastructure, such as roadways, public facilities, and other services, is provided to commensurate with demand and to ensure that development is phased in a manner which quantitatively links development and infrastructure improvements. Adequate provisions, on a "fair share" basis, for roads, transit, and other public facilities and services including, but not limited to, libraries, police, fire, parks and flood control, shall be identified within the CPP.	
Policy (e): Public facility performance standards shall be used to evaluate the availability of and need for public facilities for any proposed development. The performance standards are established as public facility goals and shall be utilized within the Comprehensive Phasing Program. It is not necessary that the performance standards be achieved in all circumstances. The performance standards for fire, police, libraries, flood control, parks and recreation, and schools shall be established by the agency authorized by law to provide those services at the time the development proposal is evaluated by the City.	**Project Would Not Conflict** The public facility performance standards have been identified in Section 4.13, Public Services, and are used to evaluate the availability of services to the future population generated by the Project. Public service providers have been contacted. Performance standards for all would be achieved.
Source (objectives and policies): Irvine 2015a.	

Southern California Association of Governments

The fundamental goals of SCAG's RTP/SCS effort are to make the SCAG region a better place to live, work, and play for all residents regardless of race, ethnicity, or income class. Table 4.10-2, below, presents the Project's consistency with the relevant adopted 2016-2040 RTP/SCS goals. The adopted 2016-2040 RTP/SCS seeks to link the goal of sustaining mobility with the goals of fostering economic development; enhancing the environment; reducing energy consumption; promoting transportation-friendly development patterns; and encouraging fair and equitable access to residents impacted by socioeconomic, geographic, and commercial conditions. Implementation of the proposed Project would be consistent with the goals and the intent of the 2016-2040 RTP/SCS. The analysis of the Project's consistency with the 2016-2040 RTP/SCS goals is provided in Table 4.10-2.

TABLE 4.10-2
CONSISTENCY WITH REGIONAL TRANSPORTATION PLAN/SUSTAINABLE COMMUNITIES STRATEGY GOALS

RTP/SCS Goal	CONSISTENCY ANALYSIS
RTP/SCS G1: Align the plan investments and policies with improving regional economic development and competitiveness.	**Project Would Not Conflict** The proposed Project involves the reuse of a portion of the former MACS El Toro. As discussed in the *West Alton Parcel Development Plan* document, the Project proposes a multi-family residential development. While the Project does not include an employment-generating component, however, the Project would generate approximately 15 employees to service the facilities. The Project would serve to meet the demand for housing in the area and reduce the jobs/housing imbalance, thereby supporting regional economic development.
RTP/SCS G2: Maximize mobility and accessibility for all people and goods in the region.	**Project Would Not Conflict** This goal would be implemented at a regional level and by city or county jurisdictions. The proposed Project is implementing a land use plan that would result in 803 multi-family residential units with goals for promoting efficient, safe, and convenient access/connections internally and in the surrounding area. The Development Plan promotes walking and biking as alternatives to automobile use. In addition, the Project site is located approximately 1.7 miles northeast of the Irvine Station, which includes an Amtrak/Metrolink Station and bus facilities. While Irvine Station is not within walking distance of the Project site, it can easily be accessed through Alton and Barranca Parkways.
RTP/SCS G3: Ensure travel safety and reliability for all people and goods in the region.	**Project Would Not Conflict** Project implementation would ensure travel safety and reliability for people and goods through the proposed on-site circulation system consisting of roads, sidewalks, trails and bicycle lanes in a setting near major transportation thoroughfares and the Irvine Station, a major transit center located approximately 1.7 miles southwest of the Project site.
RTP/SCS G4: Preserve and ensure a sustainable regional transportation system.	**Project Would Not Conflict** The Project proposes a multi-family residential development that would promote and encourage walking or biking by creating a system of sidewalks, trails, and walks throughout the Project site. The location of the Project also helps reduce the jobs/housing imbalance in the area by putting additional multi-family housing closer to employment generating uses. Thus, the Project promotes reduced vehicle use that would result in decreased traffic congestion, air pollution, greenhouse gas (GHG) emissions. Proximity to Irvine Station (approximately 1.7 miles to the southwest) also provides an option for the residents to use public transportation. These benefits would contribute to a more sustainable regional transportation system.
RTP/SCS G5: Maximize the productivity of our transportation system.	**Project Would Not Conflict** The proposed Project would provide an internal circulation system that would provide convenient, safe, and efficient access and connections to the two Planning Areas on the Project site and between the residential neighborhoods and other uses in the area. The Project would include sidewalks, trails, and bicycle routes.
RTP/SCS G6: Protect the environment and health for our residents by improving air quality and encouraging active transportation (e.g., bicycling and walking).	**Project Would Not Conflict** The CEQA process ensures that plans at all levels of government consider environmental impacts. Various sections of this EIR appropriately address the potential environmental impacts of the proposed development and outline mitigation measures and development requirements that would reduce environmental impacts, as applicable and feasible. Project implementation would also strive to maximize the protection of the environment and the improvement of air quality by encouraging walking and biking. The availability and use of alternative transportation systems and

TABLE 4.10-2
CONSISTENCY WITH REGIONAL TRANSPORTATION PLAN/SUSTAINABLE COMMUNITIES STRATEGY GOALS

RTP/SCS Goal	CONSISTENCY ANALYSIS
	locating additional multi-family housing in an area with a jobs/housing imbalance would reduce pollutant emissions from vehicle use (see Section 4.3, Air Quality, of this EIR) and would promote an active lifestyle.
RTP/SCS G7: Actively encourage and create incentives for energy efficiency, where possible.	**Project Would Not Conflict** Section 6.0 discusses energy conservation and identifies how the Project would avoid and reduce inefficient, wasteful, and unnecessary consumption of energy during construction and operation. Proposed development under the Development Plan would comply with the applicable Title 24 Energy Efficiency Standards for Residential Buildings. Also, transportation fuel use by future development would be reduced over traditional development due to the density of development, its location in an area with a jobs/housing imbalance and planned pedestrian and bicycle facilities. Proximity to Irvine Station (approximately 1.7 miles to the southwest) also provides an option for the residents to use public transportation.
RTP/SCS G8: Encourage land use and growth patterns that facilitate transit and active transportation.	**Project Would Not Conflict** The proposed project would facilitate non-vehicular circulation through the provision of pedestrian and bicycle facilities on the Project site. Design guidelines ensure that alternative modes of transportation are considered. Additionally, the Project proposes development of a type of multi-family residential development that is an efficient and sustainable use of the land.
RTP/SCS G9: Maximize the security of the regional transportation system through improved system monitoring, rapid recovery planning, and coordination with other security agencies.	**Project Would Not Conflict** The proposed Project does not involve the construction or expansion of the regional transportation system or improvements that would have an adverse impact on the same. Therefore, security associated with regional transportation systems is not applicable to the proposed Project. The potential impact of the proposed Project to public services, including police and fire protection, is discussed in Section 4.13, Public Services, of this EIR.
Source (policies): SCAG 2016.	

SCAG, in their January 19, 2015, Notice of Preparation (NOP) comment letter requested a consistency evaluation with then applicable RTP/SCS strategies. The comment letter identified specific strategies from the 2012-2035 RTP/SCS. Though the RTP/SCS has been subsequently updated, SCAG requested a consistency evaluation with the 2012-2035 RTP/SCS strategies, which is provided in Table 4.10-3.

TABLE 4.10-3
CONSISTENCY WITH REGIONAL TRANSPORTATION PLAN/SUSTAINABLE COMMUNITIES STRATEGIES

Proposed Action/Strategy	CONSISTENCY ANALYSIS
Land Use Actions and Strategies	
Collaborate with local jurisdictions and agencies to acquire a regional fair share housing allocation that reflects existing and future needs.	**Project Would Not Conflict** The proposed Project would provide a maximum of 803 residential units in PA 51. The proposed housing units would assist the region in meeting the State-mandated fair share housing production target.
Support projects, programs, and policies that support active and healthy community environments that encourage safe walking, bicycling, and physical activity by children, including, but not limited to development of complete streets, school siting policies, joint use agreements, and bicycle and pedestrian safety education.	**Project Would Not Conflict** The Project proposes sidewalks, trails, and walks throughout the Project site, which would promote a pedestrian-friendly environment. The multiple proposed parks would be linked by the trails throughout the Project; this design concept would encourage walking and promote ease of access to various elements of the development. The design concept is also intended to promote the use of alternative modes of travel (i.e., biking and walking) and increase vehicle travel efficiency.
Support projects, programs, policies and regulations that encourage the development of complete communities, which includes a diversity of housing choices and educational opportunities, jobs for a variety of skills and education, recreation and culture, and a full-range of shopping, entertainment and services all within a relatively short distance.	**Project Would Not Conflict** Future development under the Development Plan would create a residential development that would include a variety of housing types, open space and park uses. Further, a new high school recently opened on the opposite side of Irvine Boulevard and existing industrial development is adjacent to the Project site. Other types of uses and services identified in this strategy are also located in relatively close proximity to the Project site.
Pursue joint development opportunities to encourage the development of housing and mixed-use projects around existing and planned rail stations or along high-frequency bus corridors, in transit-oriented development areas, and in neighborhood-serving commercial areas.	**Not Relevant** The Project site is located only 1.7 miles from the Irvine Station rail transit site, but the Project would not be considered a transit-oriented development. However, the Irvine Transit Station can be easily accessed from the Project Site through Alton and Barranca Parkways.
Transportation Network Actions and Strategies	
Explore and implement innovative strategies and projects that enhance mobility and air quality, including those that increase the walkability of communities and accessibility to transit via non-auto modes, including walking, bicycling, and neighborhood electric vehicles (NEVs) or other alternative fueled vehicles.	**Project Would Not Conflict** The Project would create a multi-family residential development with sidewalks, trails, and bicycle lanes. Additionally, the Development Plan's design guidelines encourage the use of alternative modes of transportation, including neighborhood electric vehicles (NEVs).
Collaborate with local jurisdictions to plan and develop residential and employment development around current and planned transit stations and neighborhood commercial centers.	**Project Would Not Conflict** Although the Irvine Station, a major transit center, is not within walking distance of the Project site and is located approximately 1.7 miles to the southwest of the site, it can be easily accessed through Alton and Barranca Parkways. Irvine Station provides an option for the future residents of the Project to use public transportation.

TABLE 4.10-3
CONSISTENCY WITH REGIONAL TRANSPORTATION PLAN/SUSTAINABLE COMMUNITIES STRATEGIES

Proposed Action/Strategy	CONSISTENCY ANALYSIS
Transportation Demand Management (TDM) Actions and Strategies	
Encourage the implementation of a Complete Streets policy that meets the needs of all users of the streets, roads and highways – including bicyclists, children, persons with disabilities, motorists, neighborhood electric vehicle (NEVs) users, movers of commercial goods, pedestrians, users of public transportation and seniors – for safe and convenient travel in a manner that is suitable to the suburban and urban contexts within the region.	**Project Would Not Conflict** The Project proposes a multi-family residential development with trails and walks throughout the Project site, which would promote a pedestrian-friendly environment. The multiple proposed parks would be linked by the trails throughout the Project; this design concept would encourage walking and promote ease of access to open space and recreation components of the development. The design concept is also intended to promote the use of alternative modes of travel (i.e., biking and walking). Additionally, the Development Plan's design guidelines encourage the use of alternative modes of transportation, including neighborhood electric vehicles (NEVs).
Encourage the development of telecommuting programs by employers through review and revision of policies that may discourage alternative work options.	**Not Relevant** The proposed Project is an 803-unit multi-family residential development and does not include employment generating uses; however, the Project would generate approximately 15 employees to service the facilities. Therefore implementation of this strategy is outside of the purview of this Project; however, it should be noted that the Project would provide a better jobs-housing balance in a jobs-rich region.
Source (actions/strategies): SCAG 2012.	

The 2016-2040 RTP/SCS addresses the same general issues as the 2012-2035 RTP/SCS but it eliminated the list of specific strategies in favor of narratives on the issues. The land use and transportation strategies are discussed in Chapter 5 of the 2016-2040 RTP/SCS. Specifically, the 2016-2040 RTP/SCS states: "The 2016 RTP/SCS reaffirms the 2008 Advisory Land Use Policies that were incorporated into the 2012 RTP/SCS." These foundational policies, have guided the development of the RTP/SCS's strategies for land use. Though the foundational policies are intended to guide regional development patterns, this Project reflects this vision through the design and locational context. Not all the foundational policies are applicable to individual development projects. The following provides a discussion of the consistency of the Project with fundamental policies identified in the 2016-2040 RTP/SCS:[1]

- *Identify regional strategic areas for infill and investment.* The 2008 RTP encourages the identification of opportunity areas for infill development in aging and underutilized areas and increased investment in order to accommodate future growth. The focus of this strategy is to place an emphasis on the efficient use of existing and planned infrastructure, revitalizing communities, and maintaining or improving quality of life. As discussed throughout the EIR, the entire Project site was previously disturbed during its use as part of MCAS El Toro. The remaining portions of the MCAS El Toro are currently being redeveloped with a mix of uses, including residential. The Project would allow the reuse of the parcel, which is presently occupied by a green waste recycling operation, with residential development to help meet the increased housing demand in the region. Based on its location in central Orange County, with nearby access to

[1] As disclosed in the 2016-2040 RTP/SCS, the foundational policies were incorporated into the 2012-2035 RTP/SCS and are based on the advisory land use policies and strategies discussed in the 2008 RTP (SCAG 2008b).

employment, the Irvine Station, the OCGP and access to the arterial highway network, the Project would be consistent with the policy of identifying regional strategic areas for infill and investment.

- *Develop "Complete Communities"*. This policy emphasizes the creation of mixed-use districts or "complete communities" in strategic growth areas through a concentration of activities with housing, employment, and a mix of retail and services, located in close proximity to each other. By providing residents with an opportunity to meet these needs within a short distance of home, the policy encourages those residents to patronize business in their local area and run daily errands by walking or cycling rather than traveling by automobile. Though the Development Plan only provides for residential development on the Project site, the development would be in the context of the larger reuse of the MCAS El Toro and the surrounding region. As discussed in Section 4.12, Population and Housing, Orange County as a whole and the Regional Statistical Area where the Project is located, are jobs rich. The Project would provide a housing development in close proximity to major employment centers, retail, and office uses. In addition, the Project would have easy access to the recreational and cultural facilities at the OCGP. In the context of surrounding community, the Project would be consistent with the policy of providing for "Complete Communities."
- *Plan for additional housing and jobs near transit*. The concept for this policy is to provide pedestrian-friendly environments and more compact development patterns in close proximity to transit to support and improve transit use and ridership. Focusing housing and employment growth in transit-accessible locations through this transit-oriented development approach will serve to reduce auto use and support more multimodal travel behavior. As discussed above, the Project provides additional housing with bus access to the nearby Irvine Station and would take advantage of the surrounding existing and planned development in the OCGP and Irvine Spectrum area. The Project would be consistent with the policy of planning for additional housing with access to transit.
- *Plan for changing demand in types of housing*. This policy recognizes that shifts in the labor force, as the "baby boomers" retire and are replaced by new immigrants, "echo boomers", and others will likely induce a demand shift in the housing market for additional development types such as multi-family and infill housing in central locations, which would appeal to the needs and lifestyles of these large populations. The 2016-2040 RTP/SCS reflects a continuation of the shift in demographics and household demand in the region. This shift is trending toward a land use development pattern, which assumes an increase in small-lot, single-family and multifamily housing that will mostly occur in infill locations near bus corridors and other transit infrastructure. The Development Plan is consistent with this trend by providing multifamily housing near employment centers. The Project would be consistent with this policy.
- *Continue to protect stable, existing single-family areas.* This policy recognizes the importance of protecting stable existing single-family neighborhoods, as future growth and a more diverse housing stock are accommodated in infill locations near transit stations and in existing centers. Concurrently, by focusing growth in central areas and maintaining less development in outlying areas, the policy seeks to preserve the housing option for large-lot single-family homes, while reducing the number of long trips and vehicle miles traveled to employment centers. The Project would provide an

infill, mixed use development. It is not immediately adjacent to existing single-family developments and would not introduce elements that would destabilize existing residential areas or intensify growth in the outlying areas, thereby resulting in increased vehicle miles traveled. The Project would be consistent with this policy.

- *Ensure adequate access to open space and preservation of habitat.* This policy recommends that development provides for access to open space and habitat preservation despite competing quality-of-life demands driven by growth, housing and employment needs, and traditional development patterns. The policy recognizes that having development patterns that focus growth in centers and corridors would make the most efficient use of developed land and minimize encroachment on public open space and natural habitat. This approach would ensure improved access to existing large-scale and neighborhood-scale open space. The Project would include new open space areas, which provide the neighborhood-scale open space identified in this policy. Additionally, the Project is consistent with the regional planning programs that focus on providing open space and preserving habitat areas. As discussed in Section 4.4, Biological Resources, the Project is located in the Orange County Central/Coastal NCCP/HCP (approved on July 10, 1996). This NCCP/HCP is intended to ensure the long-term survival of the coastal California gnatcatcher and other special status, coastal sage scrub-dependent plant and wildlife species in accordance with State-sanctioned NCCP program guidelines. The Project site is in a NCCP/HCP development area and would not impact the 37,000 acre Reserve identified as part of the NCCP/HCP. The Project would be consistent with this policy.

As previously indicated, the current RTP/SCS's land use strategies are presented in a narrative format rather than the numbered strategies used in the 2012-2036 RTP/SCS and discussed in Table 4.10-3. The key land use strategies and the Project's consistency with those strategies are discussed below.

Reflect the Changing Population and Demands. On a regional level, the RTP/SCS is designed to accommodate the projected growth needed to accommodate the anticipated increase of 3.8 million people in the SCAG region by 2040. This 2016 RTP/SCS reflects a continuation of the shift in demographics and household demand since 2012. This shift is reflected in the land use development pattern, which assumes a significant increase in small-lot, single-family and multifamily housing that will mostly occur in infill locations near bus corridors and other transit infrastructure. The RTP/SCS indicates that the SCAG region will benefit from higher-density infill development. As discussed above, the Development Plan is consistent with this trend and would provide multifamily housing near employment centers with access to transit. The Project is consistent with this land use strategy.

Focus New Growth Around Transit. This strategy promotes the trend of growth in housing and employment in the region's high quality transit areas. The strategy is intended to reduce vehicle miles traveled, promote greater transit use, avoid greenfield development and allow for more focused roadway investments. Though not immediately adjacent to a rail station or major bus corridor, the Project site does have access to transit (bus route 480), which provides a connection to the Irvine Station. The Project is consistent with this strategy, as it is proposed on an underutilized, previously disturbed site located in proximity to the Irvine Station. The Project is also in proximity to employment centers, retail, open space and entertainment, which

would serve to reduce vehicle miles traveled. The Project is compatible with this land use strategy.

Plan for Growth Around Livable Corridors. The Livable Corridors strategy seeks to revitalize commercial strips through integrated transportation and land use planning that results in increased economic activity and improved mobility options. Though the Project is not located along an identified livable corridor arterial highway, the Project does integrate the livable corridor strategies of creating pedestrian friendly neighborhood, which are accessible by walking and biking. The Project is consistent with this land use strategy.

Provide More Options For Short Trips. The 2016-2040 RTP/SCS includes land use strategies, Complete Streets integration, and a set of state and local policies to encourage the use of alternative modes of transportation for short trips. The Project would create residential neighborhoods with trails and off-street walkways of various types (i.e., curb-separated walks, concrete walks, paseo walks, and decomposed granite trails) and widths that connect to parks and trails throughout the development. The Project's proximity to employment, recreation, retail, and transit is also consistent with this land use strategy.

Support Local Sustainability Planning. This strategy reflects SCAG's support for local planning practices that help lead to a reduction of greenhouse gas (GHG) emissions. Specifically, the 2016-2040 RTP/SCS states: "Many of the local policy documents that SCAG has reviewed are based on best practices that encourage infill and mixed-use development. Mixed-use design guidelines embrace and encourage increased densities and a mixing of uses, while also reflecting community character." The Development Plan incorporates design measures that encourage walking and bicycling. As discussed in Section 4.7, Greenhouse Gas Emissions, the Development Plan includes provisions for a number of development requirements that would reduce GHG emissions, including DR GHG-3 that requires renewable energy generation for the entirety of the Project in an amount equivalent to 1.25 kilowatts (kW) per dwelling unit. The Project is consistent with this land use strategy.

Protect Natural and Farm Lands. The Project site was previously developed as part of the MCAS El Toro and has not been under agricultural production since 2009. As discussed in Section 4.2, Agricultural Resources, there are no areas listed as "Prime", "Unique", or of "Statewide Importance" based on the 2014 Orange County Important Farmland Map prepared by the California Department of Conservation (CDC 2016). Additionally, the Project site is not identified as protected natural lands. As discussed above, the Orange County Central-Coastal NCCP/HCP was approved in 1996 to ensure the long-term survival of the coastal California gnatcatcher and other special status, coastal sage scrub-dependent plant and wildlife species. The Project site is in a development area and would not impact the 37,000 acre Reserve Area identified as part of the NCCP/HCP. The Project is consistent with this land use strategy.

As it pertains to transportation strategies, the 2016-2040 RTP/SCS states: "The strategies for land use are tightly integrated with considerations for transportation, and that relationship is vital for our region to achieve its long-term regional goals. The same applies to our discussion of transportation strategies". The following provides a discussion of the Project's consistency with the transportation strategies.

Maximizing Our Current System. The RTP/SCS places a priority on making sure the existing transportation system is operating at maximum efficiency. A component of this strategy is the

maintenance of the existing network and ensuring it is being operated as safely, efficiently, and effectively as possible. SCAG is committed to identify and support new sustainable funding sources and/or increased funding levels for preservation and maintenance. This component of the strategy is based on coordination with the agency stakeholders that have responsibility for the network maintenance. As discussed above, the Project is located in proximity to the Irvine Station and adjacent to transit (bus route 480). The additional of this multi-family residential development will also improve the jobs/housing balance in the area. Thus, the Project is consistent with this transportation strategy.

Completing Our System. The RTP/SCS identifies the need to complete the planned system for many modes of transportation. Much of the focus is on transit, which is outside of the jurisdiction of this Project or the County of Orange. However, as discussed above, the Project is located near the Irvine Station to maximize the benefits of transit. The Project proposes to help complete the roadway network through its participation in either the North Irvine Transportation Mitigation (NITM) Program or by entering into a separate formal agreement with the City of Irvine for the payment of their fair-share for planned and needed improvements (see Section 4.15, Transportation/Traffic, MM TRAN-3). The Project is consistent with this transportation strategy.

Although consistent with the RTP/SCS policies and goals, the Project is not included in the RTP/SCS growth projections as information about the Project was not known at the time of the development of the RTP/SCS. The 2014 OCP dataset, upon which the 2016 RTP/SCS relies, is based on information available prior to 2014 and the Project was not yet proposed when that dataset was prepared (CDR 2014). MM LU-1 requires the County to coordinate with the Center for Demographic Research to get the Project incorporated into the next update to the OCP dataset. Inclusion of the Project within the updated OCP would allow future regional planning programs, such as the RTP/SCS to incorporate the development levels identified for the Project. Given the timing of the Project approvals, the earliest the Project would be included within the RTP/SCS would be the 2020 planning programs. As a land use plan consistency issue, upon inclusion of the Project in the RTP/SCS growth projections, any potentially significant impact would be reduced to a less than significant level. However, in the interim, before the planning programs are updated, the impact would be significant and unavoidable as the County does not control the adoption or timing of the RTP/SCS.

Impact Conclusion: *For the reasons disclosed above, the Project is not subject to the City of Irvine General Plan and Zoning Ordinance or any implementing requirements of the same and thus those are not applicable plans as defined by the CEQA significance threshold. For purposes of informed decision making, the above compares the Project to City General Plan goals and policies and analyzes whether the Project conflicts.*

Pursuant to Threshold 4.10-1, Project, is consistent with the goals and strategies of RTP/SCS. As the Project is not included in the OCP-2014 projections, or earlier versions of the same, the Project is not included within the growth projections of regional planning programs like the RTP/SCS. With implementation of MM LU-1, as part of the next updates, the regional planning programs would be modified to reflect the growth associated with the Project and any potential land use planning inconsistency impact would be reduced to less than significant. However, in

the interim, until these planning programs are amended, this impact has been identified as a significant, unavoidable impact for regional planning programs as revisions to those programs is not within the jurisdiction or control of the County.

Compatibility with Existing and Planned Land Uses

Land use compatibility with existing adjacent land uses considers the impacts associated with locating different and incompatible land uses interfacing with each other. Future development within the Project site would not conflict with existing and planned land uses around the Project site. Existing and planned uses would either be compatible with the Project's residential, open space and parks uses and/or buffered by roadways and landscaping.

The Project site is within the Central-Coastal Subregion of the Natural Communities Conservation Plan/Habitat Conservation Plan (NCCP/HCP); however, it is not located within a Habitat Reserve (Reserve) area, special linkage area, non-reserve open space area, or transportation corridor wildlife crossing. Indirect impacts on the NCCP/HCP Reserve area are evaluated in Section 4.4, Biological Resources. Minimization measures, set forth in Section 7.5.3 of the NCCP/HCP EIR/EIS, which have been identified as DR BIO-2, would ensure that the Project would be consistent with the provisions and policies of the NCCP/HCP Implementation Agreement. Additionally, the Project proposes fuel modification zones and other measures along this edge with the purpose of minimizing the spread of fires and protecting the Project site from wildland fires. These measures also serve as a buffer from the adjacent open space areas.

Along the shared boundaries with the Wildlife Movement Corridor, in addition to the Fuel Modification Zones, both Planning Areas would include neighborhood parks, pocket parks, walks, and landscaping to soften the edges and avoid potential incompatibility impacts. Moreover, Magazine Road (along the southern boundary of Planning Area 1 interfacing the Wildlife Movement Corridor) would provide a buffer.

Along Irvine Boulevard, the Project proposes a 45-foot setback that would include a 5-foot curb-separated walk and landscaping. Along its southern boundary, Planning Area 2 interfaces with the existing business park, IRWD Zone 3 reservoirs, and the RV storage area. The introduction of multi-family residential uses adjacent to the existing uses would not be incompatible because there are no elements of either use that would conflict with each other. Additionally, there is existing mature landscaping along the perimeter of these uses interfacing Planning Area 2 and, within the business park, parking spaces are located along the boundaries of the site, which create a buffer with the proposed Project. Also, in addition to a five-foot prescribed setback, the Project includes substantial landscaping along the southern boundary of Planning Area 2 interfacing the business park, the IRWD facility, and the RV storage area.

Therefore, based on the above discussion, potential compatibility issues with the existing surrounding uses would be less than significant and no mitigation is required.

Land use compatibility with future adjacent land uses is discussed since undeveloped lands near the Project site are planned for development within a similar time frame or prior to future development of the proposed Project. The undeveloped lands adjacent and to the west across Irvine Boulevard and immediately to the north of the Project site are proposed for

development of Districts 5 and 7 of the Great Park Neighborhoods, respectively. As described under Planned Uses above, the proposed uses in these areas would include residential and community commercial, which would be compatible with the multi-family residential and parks of the proposed Project. Additionally, the Project would interface with District 7 to the northwest at its narrowest width of less than 250 feet, and Irvine Boulevard creates a buffer between the proposed Project and District 5 of the Great Park Neighborhoods. Therefore, no potential incompatibility related impacts would result with the planned uses.

No long-term direct or indirect impacts to surrounding uses would occur with the proposed Project. Potential short-term, construction-related compatibility issues related to air quality, noise, traffic, and aesthetics are discussed in separate sections of this EIR. Mitigation measures are provided in other EIR sections to address any potentially significant adverse impacts on adjacent existing and future land uses.

Impact Conclusion: *The Development Plan would introduce multi-family residential uses that would be compatible with the existing and planned land uses around the site. Additionally, the Project would have a fuel modification zone in addition to a number of neighborhood parks, focal garden, pockets parks, and ample landscaping along the Project site's perimeter that would create buffer(s) with adjacent existing and planned uses. Hence, the impacts would be less than significant pursuant to Threshold 4.10-1 as it pertains to consistency with land use plans and no mitigation is required.*

4.10.6 CUMULATIVE IMPACTS

Future development on the Project site and in the surrounding area would be accompanied by changes in existing land uses. A number of residential, commercial, and business park developments and public facilities are proposed on the former MCAS El Toro site, the OCGP, and near the Project site (see Table 4-1, Approved and Pending Projects in the City of Irvine) that would lead to new development, redevelopment, and increasing urbanization in the area. New development on vacant areas and underutilized lots would lead to an intensification of housing development, commercial and industrial land uses, and public and institutional uses throughout surrounding area.

Past projects in the City of Irvine and general area have converted undeveloped and agricultural land to urban uses resulting in residential and employment population increases and associated land use impacts. These changes in land uses would not necessarily be considered adverse land use impacts because the proposed Project and the cumulative projects would not disrupt or divide established communities and would not result in the introduction of incompatible uses in the area. Additionally, future development of cumulative projects would be evaluated for compatibility with the surrounding uses and for consistency with the local and regional jurisdictions' land use plans, policies, and regulations, including the Irvine General Plan and Zoning Ordinance. Each proposed development project would be subject to the development review and permit process, which would include determination of project conformity to applicable land use plans and policies. Thus, these projects would be approved in accordance with adopted land use plans and policies and would not lead to land use incompatibilities and conflict. Moreover, the conversion of previously developed or underdeveloped land to urban uses is anticipated in the *City of Irvine General Plan*; therefore, growth would occur in areas of the City determined to be more suitable for development.

Similar to the Project, the El Toro, 100-Acre Parcel Development Plan Project has not been included in the growth projections of the regional planning programs. That project is located on County-owned or controlled property, at the southerly edge of the former MCAS El Toro, east of the interchange of Interstate 5 (I-5) and State Route 133 (SR-133), within the City of Irvine. Similar to the proposed Project, the El Toro, 100-Acre Parcel Development Plan project is not included in the OCP-2014 projections or the growth projections of regional planning programs like the RTP/SCS. Similar to the proposed Project, in the interim until these planning programs are amended, the land use planning impact of the 100-Acre Parcel Development Plan project would be significant and unavoidable as revisions to those programs is not within the jurisdiction or control of the County. Thus, cumulatively, the 100-Acre Parcel Development Plan project and the proposed Project would have significant and unavoidable impacts associated with consistency with the regional planning programs.

4.10.7 MITIGATION PROGRAM

Development Requirements

No applicable development requirements pertaining to land use and planning have been identified for the proposed Project.

Mitigation Measures

The following mitigation measure is proposed for consistency with the regional planning programs.

MM LU-1 The County shall provide the Project data to the Center for Demographic Research and request inclusion of the Project into the Orange County Projections (OCP) dataset, which will be used for the regional planning programs. This shall occur either through a mid-cycle update or in conjunction with the next scheduled update (anticipated in 2018).

4.10.8 LEVEL OF SIGNIFICANCE AFTER MITIGATION

While consistent with the intent of the RTP/SCS goals and strategies, the Project is not included in the growth projections of the regional planning programs. With implementation of MM LU-1, as part of the next updates, the County will request inclusion of the Project in the regional planning programs growth projects. Upon inclusion, any potential land use planning impact would be reduced to less than significant. However, in the interim, until these planning programs are amended, this impact has been identified as a significant, unavoidable impact for regional planning programs as revision to those programs is not within the jurisdiction or control of the County. Additionally, the proposed Project and the 100-Acre Parcel Development Plan project would result in cumulative significant and unavoidable impacts with respect to consistency with the regional planning programs.

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4.11 NOISE

This section discusses Project-related impacts to the human noise environment in the vicinity of the West Alton Parcel Development Plan Project site. The noise analysis in this section provides background information on noise and community noise assessment criteria; presents existing noise levels at the Project site; and examines noise impacts that would potentially occur during construction and operation of the proposed Project.

4.11.1 REGULATORY SETTING

State

California Noise Insulation Standards

Title 24 of the *California Code of Regulations*, also known as the California Building Standards Code or, more commonly, the California Building Code, requires that residential structures other than detached single-family dwellings be designed to prevent exterior noise intrusion so that the interior Day-Night Average Sound Level (L_{dn}) or Community Noise Equivalent Level (CNEL) attributable to exterior sources does not exceed 45 A-weighted decibels (dBA) in any habitable room with closed windows (CBSC 2015).

County of Orange

According to Section 7-9-20(i) of the Orange County Zoning Code, land owned or leased by the County is not subject to land use regulations of the County, including the Zoning Code, specific plans, and planned communities. Therefore, the County local noise requirements would be not be applicable to this Project. However, for information disclosure purposes pursuant to CEQA, consistency with the County's standards, including the policies of the General Plan and the Noise Ordinance, are discussed below.

General Plan

The Noise Element, one of nine elements of the *County of Orange General Plan*, contains official County policies on the conservation and management of resources (County of Orange 2005). The Noise Element defines a Noise Referral Zone as "that area with a total noise environment of 60 decibels Community Noise Equivalent Level (CNEL) or more . . . The intent of the Noise Referral Zone is to act as a triggering mechanism or flag for development proposals in areas potentially adversely affected by high noise levels . . . [U]nless it can be shown with certainty that the project is outside the area that has a CNEL of 60 or more decibels, an acoustical analysis report will be required".

The Noise Element states, "A key objective of this Noise Element is to ensure that each County resident's quality of life is not affected adversely by high noise levels". The information from Tables VIII-2 and VIII-3 of the Noise Element, shown as Table 4.11-1 in this Section, defines the County's land use/noise compatibility standards. The Noise Element states that these standards apply to "situations where a new use is being proposed that is impacted by an existing noise source" and also "when an existing use is impacted by a new or expanded source

of noise". For the latter case, "the project proponent is obliged to mitigate the impacts of the new source of noise".

TABLE 4.11-1
ORANGE COUNTY COMPATIBILITY MATRIX FOR LAND USE AND COMMUNITY NOISE EQUIVALENT LEVELS

Type of Use	65+ dB CNEL	60 to 65 dB CNEL
Residential	3a, b, e	2a, e
Commercial	2c	2c
Employment	2c	2c
Open Space		
Local	2c	2c
Community	2c	2c
Regional	2c	2c
Educational Facilities		
Schools (K through 12)	2c, d, e	2c, d, e
Preschool, college, other	2c, d, e	2c, d, e
Places of Worship	2c, d, e	2c, d, e
Hospitals		
General	2a, c, d, e	2a, c, d, e
Convalescent	2a, c, d, e	2a, c, d, e
Group Quarters	1a, b, c, e	2a, c, e
Hotel/Motels	2a, c	2a, c
Accessory Uses		
Executive Apartments	1a, b, e	2a, e
Caretakers	1a, b, c, e	2a, c, e

dB: decibel; CNEL: Community Noise Equivalent Level

EXPLANATION AND DEFINITIONS

Action Required to Ensure Compatibility Between Land Use and Noise From External Sources

1 = Allowed if interior and exterior community noise levels can be mitigated.

2 = Allowed if interior levels can be mitigated.

3 = New residential uses are prohibited in areas within the 65-dB CNEL contour from any airport or air station; allowed in other areas if interior and exterior community noise levels can be mitigated. The prohibition against new residential development excludes limited "infill" development within an established neighborhood.

Standards Required for Compatibility of Land Use and Noise

a = Interior Standard: CNEL of less than 45 dB (habitable rooms only).

b = Exterior Standard: CNEL of less than 65 dB in outdoor living areas.

c = Interior Standard: $L_{eq(h)}$ = 45 to 65 dB interior noise level, depending on interior use.

d = Exterior Standard: $L_{eq(h)}$ of less than 65 dB in outdoor living areas.

e = Interior Standard: As approved by the Board of Supervisors for sound events of short duration such as aircraft flyovers or individual passing railroad trains.

Key Definitions

Habitable Room – Any room meeting the requirements of the Uniform Building Code or other applicable regulations which is intended to be used for sleeping, living, cooking or dining

TABLE 4.11-1
ORANGE COUNTY COMPATIBILITY MATRIX FOR LAND USE AND COMMUNITY NOISE EQUIVALENT LEVELS

Type of Use	65+ dB CNEL	60 to 65 dB CNEL
purposes, excluding such enclosed spaces as closets, pantries, bath or toilet rooms, service rooms, connecting corridors, laundries, unfinished attics, foyers, storage spaces, cellars, utility rooms and similar spaces. **Interior** – Spaces that are covered and largely enclosed by walls. **$L_{eq(h)}$** – The A-weighted equivalent sound level averaged over a period of "h" hours. An example would be $L_{eq(12)}$ where the equivalent sound level is the average over a specified 12-hour period (such as 7:00 AM to 7:00 PM). Typically, time period "h" is defined to match the hours of operation of a given type of use. **Outdoor Living Area** – Outdoor living area is a term used by the County of Orange to define spaces that are associated with residential land uses typically used for passive private recreational activities or other noise-sensitive uses. Such spaces include patio areas, barbecue areas, jacuzzi areas, and other outdoor areas associated with residential uses; outdoor patient recovery or resting areas associated with hospitals, convalescent hospitals, or rest homes; outdoor areas associated with places of worship which have a significant role in services or other noise-sensitive activities; and outdoor school facilities routinely used for educational purposes which may be adversely impacted by noise. Outdoor areas usually not included in this definition are front yard areas, driveways, greenbelts, maintenance areas, and storage areas associated with residential land uses; exterior areas at hospitals that are not used for patient activities; outdoor areas associated with places of worship and principally used for short-term social gatherings; and outdoor areas associated with school facilities that are not typically associated with educational uses prone to adverse noise impacts (for example, school play yard areas). Source: County of Orange 2005 (see Tables VIII-2 and VIII-3 of the Noise Element).		

Noise Ordinance

The County Noise Ordinance is codified as Title 4, Division 6 of the Codified Ordinances of the County of Orange. The Noise Ordinance designates the entire County, including incorporated and unincorporated areas, as Noise Zone 1. The Noise Ordinance establishes exterior and interior standards for Noise Zone 1 as shown in Tables 4.11-2 and 4.11-3.

TABLE 4.11-2
ORANGE COUNTY EXTERIOR NOISE STANDARDS

Noise Zone	Noise Level	Time Period
1	55 dBA	7:00 AM–10:00 PM
	50 dBA	10:00 PM–7:00 AM
dBA: A-weighted decibels Source: County of Orange 2015		

TABLE 4.11-3
ORANGE COUNTY INTERIOR NOISE STANDARDS

Noise Zone	Noise Level	Time Period
1	55 dBA	7:00 AM–10:00 PM
	45 dBA	10:00 PM–7:00 AM
dBA: A-weighted decibels Source: County of Orange 2015		

With respect to exterior noise levels, the Noise Ordinance states the following:

(a) In the event the alleged offensive noise consists entirely of impact noise, simple tone noise, speech, music, or any combination thereof, each of the above noise levels shall be reduced by five (5) dB(A).

(b) It shall be unlawful for any person at any location within the unincorporated area of the County to create any noise, or to allow the creation of any noise on property owned, leased, occupied, or otherwise controlled by such person, when the foregoing causes the noise level, when measured on any other residential property, either incorporated or unincorporated, to exceed:

(1) The noise standard for a cumulative period of more than thirty (30) minutes in any hour; or

(2) The noise standard plus five (5) dB(A) for a cumulative period of more than fifteen (15) minutes in any hour; or

(3) The noise standard plus ten (10) dB(A) for a cumulative period of more than five (5) minutes in any hour; or

(4) The noise standard plus fifteen (15) dB(A) for a cumulative period of more than one (1) minute in any hour; or

(5) The noise standard plus twenty (20) dB(A) for any period of time.

(c) In the event the ambient noise level exceeds any of the first four (4) noise limit categories above, the cumulative period applicable to said category shall be increased to reflect said ambient noise level. In the event the ambient noise level exceeds the fifth noise limit category, the maximum allowable noise level under said category shall be increased to reflect the maximum ambient noise level.

With respect to interior standards, the Noise Ordinance states the following:

(a) In the event the alleged offensive noise consists entirely of impact noise, simple tone noise, speech, music, or any combination thereof, each of the above noise levels shall be reduced by five (5) dB(A).

(b) It shall be unlawful for any person at any location within the unincorporated area of the County to create any noise, or to allow the creation of any noise on property owned, leased, occupied, or otherwise controlled by such

person, when the foregoing causes the noise level, when measured within any other dwelling unit on any residential property, either incorporated or unincorporated, to exceed:

(1) The interior noise standard for a cumulative period of more than five (5) minutes in any hour; or

(2) The interior noise standard plus five (5) db(A) for a cumulative period of more than one (1) minute in any hour; or

(3) The interior noise standard plus ten (10) db(A) for any period of time.

(c) In the event the ambient noise level exceeds either of the first two (2) noise limit categories above, the cumulative period applicable to said category shall be increased to reflect said ambient noise level. In the event the ambient noise level exceeds the third noise limit category the maximum allowable noise level under said category shall be increased in reflect the maximum ambient noise level.

Section 4-6-7 of the Noise Ordinance exempts the following activities:

(a) Activities conducted on the grounds of any public or private nursery, elementary, intermediate or secondary school or college.

(b) Outdoor gatherings, public dances and shows, provided such events are conducted pursuant to a license issued by the County of Orange pursuant to Title 5 of the Codified Ordinances of the County of Orange.

(c) Activities conducted on any park or playground, provided such park or playground is owned and operated by a public entity.

(d) Any mechanical device, apparatus or equipment used, related to or connected with emergency machinery, vehicle or work.

(e) Noise sources associated with construction, repair, remodeling, or grading of any real property, provided said activities do not take place between the hours of 8:00 p.m. and 7:00 a.m. on weekdays, including Saturday, or at any time on Sunday or a federal holiday.

(i) Noise sources associated with the maintenance of real property, provided said activities take place between 7:00 a.m. and 8:00 p.m. on any day except Sunday or a federal holiday, or between the hours of 9:00 a.m. and 8:00 p.m. on Sunday or a federal holiday.

(j) Any activity to the extent regulation thereof has been preempted by State or federal law.

City of Irvine

For the reasons described in Section 2.4.3 of this DEIR, the City of Irvine General Plan Noise Element and Noise Ordinance do not apply to the Project site. Nonetheless, for purposes of information disclosure under CEQA, the following discusses the City requirements and later sections analyze how the Project compares to those documents.

General Plan Noise Element

The *City of Irvine General Plan's* Noise Element defines limits on noise levels from transportation noise sources, vehicles on public roadways, railroads, and aircraft. These limits are imposed on all new developments. The new developments must incorporate the appropriate measures necessary to ensure that noise limits are not exceeded.

Interior and Exterior Noise Standards

The General Plan's Noise Element has established maximum noise levels by land use type. Table F-1 of the Noise Element, shown as Table 4.11-4 below, defines indoor and outdoor noise standards for various land use categories. The Noise Element requires that multi-family developments with balconies that do not meet the 65 dBA CNEL provide occupancy disclosure notices to all future tenants regarding potential noise impacts.

TABLE 4.11-4
CITY OF IRVINE INTERIOR AND EXTERIOR NOISE STANDARDS

Land Use Categories		Energy Average CNEL	
Categories	**Uses**	**Interior[a]**	**Exterior[b]**
Residential	Single Family, Duplex, Multiple Family	45[c] 55[d]	65[e]
	Mobile Home	–	65[f]
Commercial/ Industrial	Hotel, Motel, Transient Lodging	45	65[g]
	Commercial, Retail, Bank, Restaurant	55	–
	Office Building, Professional Office, Research and Development	50	–
	Amphitheater, Concert Hall, Auditorium, Meeting Hall	45	–
	Gymnasium (Multipurpose)	50	–
	Health Clubs	55	–
	Manufacturing, Warehousing, Wholesale, Utilities	65	–
	Movie Theater	45	–
Institutional	Hospital, School Classroom	45	65
	Church, Library	45	–
Open Space	Parks	–	65

TABLE 4.11-4
CITY OF IRVINE INTERIOR AND EXTERIOR NOISE STANDARDS

Land Use Categories		Energy Average CNEL	
Categories	**Uses**	**Interior[a]**	**Exterior[b]**

CNEL: Community Noise Equivalent Level; UBC: Uniform Building Code

a Indoor environment excludes bathrooms, toilets, closets, corridors.

b Outdoor environment limited to private yard of single-family and multi-family residences' private patios, which are served by a means of an exit from inside the unit; hospital patios; park picnic areas; school playgrounds; and hotel and motel recreation areas.

c Noise level requirement with closed windows. Mechanical ventilating system or other means of natural ventilation shall be provided pursuant to Appendix Chapter 12, Section 1205 of UBC.

d Noise level requirement with open windows, if they are used to meet natural ventilation requirement.

e Multi-family developments with balconies that do not meet the 65 CNEL are required to provide occupancy disclosure notices to all future tenants regarding potential noise impacts.

f Exterior noise level should be such that the interior noise level will not exceed 45 CNEL.

g Except those areas affected by aircraft noise.

Source: City of Irvine 2015a (see Table F-1 of the Noise Element).

Land Use Noise Compatibility

Table F-2 of the City of Irvine Noise Element, shown as Table 4.11-5 below, presents the land use compatibility standards for community noise exposure. The noise compatibly matrix criteria are designed to ensure that proposed land uses are compatible with the predicted future noise environment. At different exterior noise levels, individual land uses are identified as "clearly compatible", "normally compatible", "normally incompatible", or "clearly incompatible". For purposes of this analysis the standards for single-family uses have been applied to the Project because the City's Land Use Noise Compatibility matrix does not have a separate category for multi-family uses. This is consistent with the categories shown in Table 4.11-4.

TABLE 4.11-5
CITY OF IRVINE LAND USE NOISE COMPATIBILITY

Land Use Categories		Energy Average (CNEL)						
Categories	**Uses**	**<**	**55**	**60**	**65**	**70**	**75**	**80>**
Residential	Single Family	A	A	B	B	C	D	D
Residential	Mobile Home	A	A	B	C	C	D	D
Commercial Regional	Hotel, Motel, Transient Lodging	A	A	B	B	C	C	D
Commercial Regional Community	Commercial Retail, Bank, Restaurant, Movie Theater	A	A	A	A	B	B	C
Commercial Community Industrial & Institutional	Office Building, Research & Development Professional Office, City Office Building	A	A	A	B	B	C	D

TABLE 4.11-5
CITY OF IRVINE LAND USE NOISE COMPATIBILITY

Land Use Categories		Energy Average (CNEL)						
Categories	**Uses**	**<**	**55**	**60**	**65**	**70**	**75**	**80>**
Commercial Recreation Institutional General	Amphitheater, Concert Hall Auditorium, Meeting Hall	B	B	C	C	D	D	D
Commercial Recreation	Children's Amusement Park, Miniature Golf, Go-Cart Track, Health Club, Equestrian Center	A	A	A	B	B	D	D
Commercial Community Industrial General	Automobile Service Station, Auto Dealer, Manufacturing, Warehousing, Wholesale, Utilities	A	A	A	A	B	B	B
Institutional General	Hospital, Church, Library, School Classrooms	A	A	B	C	C	D	D
Open Space	Parks	A	A	A	B	C	D	D
Open Space	Golf Courses, Nature Centers, Cemeteries, Wildlife Reserves, Wildlife Habitat	A	A	A	A	B	C	C
Agricultural	Agriculture	A	A	A	A	A	A	A

CNEL: Community Noise Equivalent Level

Zone A Clearly Compatible	Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction without any special noise insulation requirements.
Zone B Normally Compatible	New construction or development should be undertaken only after detailed analysis of the noise reduction requirements are made and needed noise insulation features in the design are determined. Conventional construction, with closed windows and fresh air supply systems or air conditioning, will normally suffice.
Zone C Normally Incompatible	New construction of development should normally be discouraged. If new construction of development does proceed, a detailed analysis or noise reduction requirements must be made and needed noise insulation features must be included in the design.
Zone D Clearly Incompatible	New construction or development should generally not be undertaken.

Source: City of Irvine 2015a (see Table F-2 of the Noise Element).

Noise Ordinance

The *City of Irvine Municipal Code* (Title 6, Division 8, Chapter 2) contains the City of Irvine Noise Ordinance. The Noise Ordinance is designed to control unnecessary, excessive, and annoying sounds from sources on private property by setting limits that cannot be exceeded at adjacent

properties. Noise Ordinance requirements cannot be applied to mobile noise sources (e.g., heavy trucks traveling on public roadways, trains, or aircraft). Control of noise generated by these transportation sources is preempted by federal and State laws, and is therefore not subject to the provisions of the Noise Ordinance. However, the Noise Ordinance does apply to vehicles while they are on private property.

The Noise Ordinance, Section 6-8-204 specifies that noise generated on a site cannot exceed defined noise levels at adjacent properties for a specified period of time as shown in Table 4.11-6. Both interior and exterior noise level limits are specified by noise zones. The applicable noise zone is based on the land use being exposed to the noise.

TABLE 4.11-6
CITY OF IRVINE NOISE ORDINANCE STANDARDS

Noise Levels for a Period Not Exceeding (minutes/hour)							
Noise Zone[a]		**Time Period**	**Minutes**				
			30	**15**	**5**	**1**	**0 (anytime)**
			Noise Level – dBA				
1	Exterior	7:00 AM–10:00 PM	55	60	65[b]	70	75
		10:00 PM–7:00 AM	50	55	60	65[b]	70
	Interior	7:00 AM–10:00 PM	–	–	55	60	65
		10:00 PM–7:00 AM	–	–	45	50	55
2	Exterior	Any time	55	60	65	70	75
	Interior	Any time	–	–	55	60	65
3	Exterior	Any time	60	65	70	75	80
	Interior	Any time	–	–	55	60	65
4	Exterior	Any time	70	75	80	85	90
	Interior	Any time	–	–	55	60	65

dBA: A-weighted decibel(s)

[a] Noise zone 1: All hospitals, libraries, churches, schools and residential properties.
Noise zone 2: All professional office and public institutional properties.
Noise zone 3: All commercial properties excluding professional office properties.
Noise zone 4: All industrial properties.

[b] This standard does not apply to multi-family residence private balconies. Multi-family developments with balconies that do not meet the 65 CNEL are required to provide occupancy disclosure notices to all future tenants regarding potential noise impacts.

[c] Each of the noise standards specified above shall be reduced by five dB(A) for impact, or predominant tone noise or for noises consisting of speech or music.

Source: City of Irvine 2015b.

Section 6-8-205(A) of the Noise Ordinance allows construction between 7:00 AM and 7:00 PM Mondays through Fridays, and 9:00 AM and 6:00 PM on Saturdays. No construction activities shall be permitted outside these hours or on Sundays and federal holidays unless a temporary waiver is granted by the Chief Building Official or his or her authorized representative. The hours restrictions extend to deliveries, loading, equipment maintenance, and on-road hauling associated with construction work.

Section 6-8-205(A) also restricts the hours for deliveries to or pickups from any commercial property sharing a property line with any residential property to the hours between 7:00 AM and 10:00 PM daily.

Section 6-8-205(B) allows noise from maintenance of real property to exceed the noise standards between 7:00 AM and 7:00 PM on any day except Sundays, or between 9:00 AM and 6:00 PM on Sundays or a federal holiday.

California Environmental Quality Act Manual

The City also adopted the *City of Irvine CEQA Manual*, which provides guidance in preparing CEQA documents for the City, including guidance on significance thresholds. The manual's guidance for determining the significance of traffic noise increases is as follows (City of Irvine 2012):

> Consequently, the noise threshold for increase in traffic noise levels is based on the potential for traffic noise to become considerably louder than the ambient noise level. In general, noise levels must increase by 10 dBA in order to double ambient noise levels. An increase of 5 dBA is readily perceptible to the public and a 3 dBA increase is barely perceivable to the average healthy human ear.

4.11.2 METHODOLOGY

Noise Basics and Terminology

"Sound" is a vibratory disturbance created by a moving or vibrating source and is capable of being detected. "Noise" is defined as a sound that is loud, unpleasant, unexpected, or undesired and may therefore be classified as a more specific group of sounds. Although the terms "sound" and "noise" are often used synonymously, perceptions of sound and noise are highly subjective (Caltrans 2013). The effects of noise on people can include general annoyance; interference with speech communication; sleep disturbance; and, in the extreme, hearing impairment.

Decibels and Frequency

In its most basic form, a continuous sound can be described by its frequency or wavelength (pitch) and its amplitude (loudness). Frequency is expressed in cycles per second, or hertz. Frequencies are heard as the pitch or tone of sound. High-pitched sounds produce high frequencies; low-pitched sounds produce low frequencies. Sound pressure levels are described in units called the decibel (dB).

Decibels are measured on a logarithmic scale that quantifies sound intensity in a manner similar to the Richter scale used for earthquake magnitudes. A doubling of the energy of a noise source, such as doubling of traffic volume, would increase the noise level by 3 dB.

Perception of Noise and A-Weighting

A typical noise environment consists of a base of steady "background" noise that is the sum of many distant and indistinguishable noise sources. Superimposed on this background noise is the sound from individual local sources. The local sources can vary from an occasional aircraft

or train passing by, to intermittent periods of sound (such as amplified music), to virtually continuous noise from, for example, traffic on a major highway.

The human ear is not equally sensitive to all frequencies within the sound spectrum. To accommodate this phenomenon, the A-scale was devised; the A-weighted decibel scale (dBA or db[A]) approximates the frequency response of the average healthy ear when listening to most ordinary everyday sounds. When people make relative judgments of the loudness or annoyance of a sound, their judgments correlate well with the A-weighted sound levels of those sounds. Therefore, the "A-weighted" noise scale is used for measurements and standards involving the human perception of noise.

Human perception of noise has no simple correlation with acoustical energy. Due to subjective thresholds of tolerance, the annoyance of a given noise source is perceived very differently from person to person. The most common sounds vary between 40 dBA (very quiet) to 100 dBA (very loud). Normal conversation at 3 feet is approximately 60 dBA, while loud jet engine noises at 1,000 feet equate to 100 dBA, which can cause serious discomfort. Table 4.11-7 shows the relationship of various noise levels in dBA to commonly experienced noise events.

TABLE 4.11-7
NOISE LEVELS FOR COMMON ACTIVITIES

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
–	110	Rock Band
Jet Fly-over at 300 m (1,000 ft)	100	–
Gas Lawn Mower at 1 m (3 ft)	90	–
Diesel Truck at 15 m (50 ft) at 80 km/hr (50 mph)	80	Food Blender at 1 m (3 ft); Garbage Disposal at 1 m (3 ft)
Noisy Urban Area, Daytime Gas Lawn Mower at 30 m (100 ft)	70	Vacuum Cleaner at 3 m (10 ft)
Commercial Area, Heavy Traffic at 90 m (300 ft)	60	Normal Speech at 1 m (3 ft)
Quiet Urban Daytime	50	Large Business Office Dishwasher in Next Room
Quiet Urban Nighttime	40	Theater, Large Conference Room (Background)
Quiet Suburban Nighttime	30	Library
Quiet Rural Nighttime	20	Bedroom at Night, Concert Hall (Background)
--	10	Broadcast/Recording Studio
Lowest Threshold of Human Hearing	0	Lowest Threshold of Human Hearing

dBA: A-weighted decibels, m: meter, km/hr: kilometers per hour, ft: feet, mph: miles per hour.
Source: Caltrans 2013b.

Two noise sources do not "sound twice as loud" as one source. As stated above, a doubling of noise sources results in a noise level increase of 3 dBA. It is widely accepted that (1) the average healthy ear can barely perceive changes of a 3 dBA increase or decrease; (2) a change of 5 dBA is readily perceptible; and (3) an increase (or decrease) of 10 dBA sounds twice (or

half) as loud (Caltrans 2013b). In community situations, noise exposure and changes in noise levels occur over a number of years, unlike the immediate comparison made in a field study situation. The generally accepted level at which changes in community noise levels become "barely perceptible" typically occurs at values greater than 3 dBA.

Noise Propagation

From the source to the receiver, noise changes both in level and frequency spectrum. The most obvious change is the decrease in noise level as the distance from the source increases. The manner in which noise reduces with distance depends on the factors described below.

Geometric Spreading from Point and Line Sources: Sound from a small localized source (approximating a "point" source) radiates uniformly outward as it travels away from the source in a spherical pattern. For point sources, such as Heating, Ventilation and Air Conditioning (HVAC) units or construction equipment, the sound level attenuates (or drops off) at a rate of 6 dBA for each doubling of the distance (i.e., if the noise level is 70 dBA at 25 feet, it is 64 dBA at 50 feet). Vehicle movement on a road makes the source of the sound appear to emanate from a line (line source) rather than a point when viewed over some time interval. The sound level attenuates or drops off at a rate of 3 dBA per doubling of distance for line sources.

Ground Absorption: To account for the ground-effect attenuation (absorption), two types of site conditions are commonly used in noise prediction: soft site and hard site conditions. Hard sites (i.e., sites with a reflective surface between the source and the receiver, such as parking lots or smooth bodies of water) receive no excess ground attenuation, and the changes in noise levels with distance (drop-off rate) are simply the geometric spreading of the source. Soft sites are sites that have an absorptive ground surface (e.g., soft dirt, grass, or scattered bushes and trees) and receive an excess ground attenuation value of 1.5 dBA per doubling of distance.

Atmospheric Effects: Wind speed will bend the path of sound to "focus" (increase) it on the downwind side and make a "shadow" (reduction) on the upwind side of the source. At short distances, the wind has minor influence on the measured sound level. For longer distances, the wind effect becomes appreciably greater. Temperature gradients create effects similar to those of wind gradients, except that they are uniform in all directions from the source. On a sunny day with no wind, temperature decreases with altitude, giving a shadow effect for sound. On a clear night, temperature may increase with altitude, focusing sound on the ground surface.

Shielding by Natural and Man-Made Features, Noise Barriers, Diffraction, and Reflection: A large object in the path between a noise source and a receiver can significantly attenuate noise levels at that receiver location. The amount of attenuation provided by this "shielding" depends on the size of the object and the frequencies of the noise levels. Natural terrain or landform features as well as man-made features (e.g., buildings and walls) can significantly alter noise levels. For a noise barrier to work, it must be high enough and long enough to block the view from the receiver to a road or to the noise source. Effective noise barriers can reduce outdoor noise levels at the receptor by up to 15 dB.

Noise Descriptors

Several rating scales (or noise "metrics") exist to analyze effects of noise on a community. These scales include the equivalent noise level (L_{eq}), the community noise equivalent level (CNEL), and the day-night average sound level (DNL or L_{dn}). Average noise levels over a period of minutes or hours are usually expressed as dBA L_{eq}, which is the equivalent noise level for that period of time. The period of time averaging may be specified; for example, $L_{eq(3)}$ would be a 3-hour average. When no period is specified, a one-hour average is assumed. Noise of short duration (i.e., substantially less than the averaging period) is averaged into ambient noise during the period of interest. Thus, a loud noise lasting many seconds or a few minutes may have minimal effect on the measured sound level averaged over a one-hour period.

To evaluate community noise impacts, L_{dn} was developed to account for human sensitivity to nighttime noise. L_{dn} represents the 24-hour average sound level with a penalty for noise occurring at night. The L_{dn} computation divides the 24-hour day into two periods: daytime (7:00 AM to 10:00 PM) and nighttime (10:00 PM to 7:00 AM). The nighttime sound levels are assigned a 10 dBA penalty prior to averaging with daytime hourly sound levels. CNEL is similar to L_{dn} except that it separates a 24-hour day into 3 periods: daytime (7:00 AM to 7:00 PM), evening (7:00 PM to 10:00 PM), and nighttime (10:00 PM to 7:00 AM). The evening sound levels are assigned a 5 dBA penalty and the nighttime sound levels are assigned a 10 dBA penalty prior to averaging with daytime hourly sound levels.

Several statistical descriptors are often used to describe noise including L_{max}, L_{min}, and $L_{\%}$. L_{max} and L_{min} are respectively the highest and lowest A-weighted sound levels that occur during a noise event. The $L_{\%}$ signifies the noise level that is exceeded x percent of the time; for example, L_{10} denotes the level that was exceeded 10 percent of the time.

Traffic Noise

The analysis of traffic noise impacts is evaluated based on two criteria:

1. The change in traffic noise (increase or decrease) attributable to traffic generated by the Project and
2. The absolute traffic noise level that results with inclusion of traffic from the Project being evaluated in combination with other vehicle traffic.

Both criteria must be exceeded for a significant impact to occur. With respect to Criterion 1, changes in traffic noise levels were calculated based on the changes in traffic volumes.[1] Traffic volumes used to calculate traffic noise level changes for the Project are included in the Project's traffic study described in Section 4.15, Traffic/Transportation of this EIR and in Appendix K.

Consistent with the City and County practices, the noise levels for roadways in the Project traffic study area were estimated using the Federal Highway Administration's (FHWA's) Highway Traffic Noise Prediction Model (RD-77-108). The FHWA model determines a predicted noise level through a series of adjustments to a reference sound level. These

[1] Changes in traffic noise are calculated by taking ten times the base 10 logarithm of the ratio of the two traffic volumes of interest. These may be the future and existing traffic volumes or the future traffic volumes with and without the Project/Alternative.

adjustments account for traffic flows, speed, truck mix, varying distances from the roadway, length of exposed roadway, and noise shielding. The calculations do not take into account the effect of any noise barriers or topography that may affect ambient noise levels.

Point Source Noise

The distance from the noise source to a receptor is a primary consideration in determining the actual noise level experienced at the receptor. Most reference noise levels are specified at a distance of 50 feet from the source. The calculation of noise from a point source, such as construction or HVAC equipment, at other distances uses the equation below.

$L_D = L_{50} - 20 \log (D/50)$, where

L_D is the noise level at a distance D from the noise source, and

L_{50} is the noise level at a distance of 50 feet from the source.

The equation is the mathematical expression for a noise level being reduced by 6 dBA for each doubling of distance from the source.

Construction equipment can be considered to operate in two modes: stationary and mobile. Noise impacts from stationary equipment are assessed from the center of the equipment, while noise impacts for mobile construction equipment are assessed as emanating from the center of the equipment activity or construction site. For construction equipment, the average noise level, L_{eq}, is related to the maximum noise level, L_{max}, by the following equation:

$L_{eq} = L_{max} + 10 \log (UF)$, where,

L_{eq} is the average noise level from a piece of construction equipment at 50 feet,

L_{max} is the maximum noise level from a piece of construction equipment at 50 feet, and

UF is the acoustic utilization factor, which is the fraction of time that a piece of construction equipment is typically at full power.

The L_{max} and UF data for construction equipment are tabulated in the impact analysis in Section 4.11.5, Threshold 4.11-4.

Groundborne Vibration

In contrast to airborne noise, groundborne vibration is not a common environmental problem. Some common sources of groundborne vibration are construction activities such as blasting, pile driving, and operating heavy earth-moving equipment. Trains and similar rail vehicles can also produce vibration. It is unusual for vibration from sources such as buses and trucks to be perceptible.

In quantifying vibration, the peak particle velocity (ppv) is most frequently used to describe vibration impacts and is typically measured in inches per second (in/sec). Vibration levels that may cause annoyance to humans are described using the vibration decibel (VdB). Typically,

groundborne vibration generated by man-made activities attenuates rapidly with distance from the source.

Vibration propagation is calculated using the following formula:

$$PPV_{equip} = PPV_{ref} \times (25/D)^n \text{ where}$$

PPV_{equip} is the ppv in inches per second (in/sec) adjusted for distance of the receiver from the source,

PPV_{ref} is the ppv in in/sec at the reference distance of 25 feet,

D is the distance from the source to the receiver, and

n is a value based on soil material (FTA 2006).

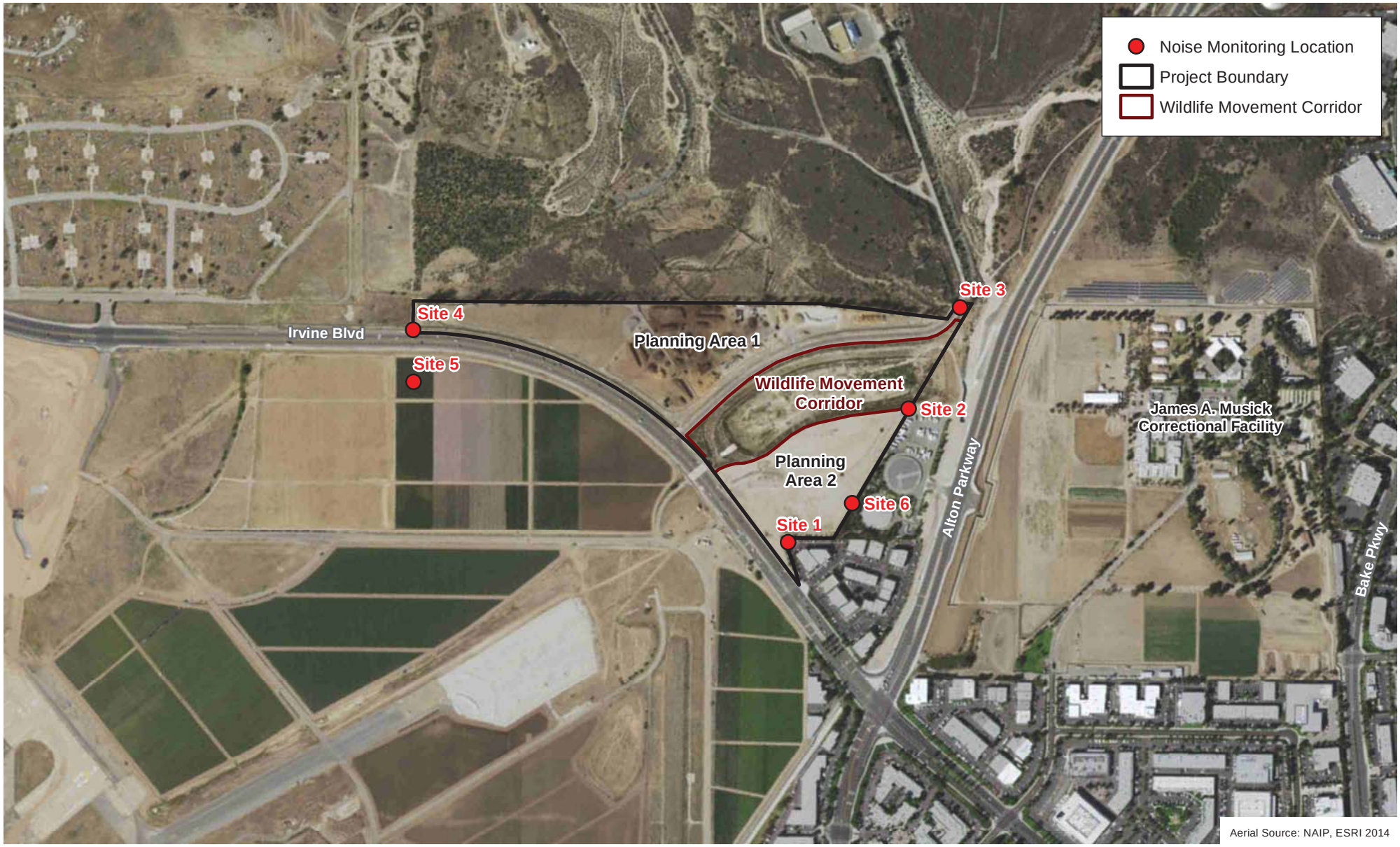
The Federal Transit Administration (FTA), Office of Planning's *Transit Noise and Vibration Impact Assessment* (FTA Impact Assessment) suggests using a value of 1.5 for n for all equipment (FTA 2006).

4.11.3 EXISTING CONDITIONS

The primary noise source that affects the Project area is traffic noise. Currently, the Project site is used for plant container nursery and green waste operations. The Wildlife Movement Corridor, Magazine Road, and an existing access road are the only other improvements on the Project site; see Exhibit 4.11-1. Outside the Project boundaries, Irvine Boulevard is immediately adjacent to the Project site western boundary and Alton Parkway is approximately 400 ft from the southern boundary. These two main arterials contribute traffic noise. Adjacent to the southern Project site boundary are a business park and an Irvine Ranch Water District (IRWD) facility. Commercial and light industrial land uses are located further away from the Project site to the south and minor noise from these land uses is masked by traffic noise of Irvine Boulevard and Alton Parkway. To the north of the Project site are natural open space and Federal Bureau of Investigation (FBI) shooting range. Approximately 250 feet northwest of the Project site across Irvine Boulevard is Portola High School, which opened in fall of 2016. The planned District 5 of the Great Park Neighborhoods is adjacent and to the west of the site across Irvine Boulevard, and District 7 is immediately to the northwest of the site, on the east side of Irvine Boulevard.

BonTerra Psomas conducted ambient noise surveys to document the existing noise environment at six locations along the Project boundary, which are identified in Exhibit 4.11-1. The surveys were conducted on December 16, 2015 and December 18, 2015, and each lasted 20 minutes. As shown in Table 4.11-8, average noise levels (L_{eq}) ranged from 55.3 to 71.3 dBA. Maximum noise levels occurred during heavy vehicle passbys.

Additional noise monitoring was conducted on December 16 through 18 for a continuous period of approximately 45 hours at Location 1. The purpose of the monitoring was to determine the existing CNEL at the Project site. The results are shown in Table 4.11-8. The measured existing CNEL at 110 feet from the roadway edge of Irvine Boulevard is 49 dBA.



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Noise Monitoring Locations

Exhibit 4.11-1

West Alton Parcel Development Plan EIR

750 375 0 750 Feet

TABLE 4.11-8
EXISTING MEASURED NOISE LEVELS

Location ID	Location Description (latitude, longitude)	Time Started/ Duration[a]	Major Noise Sources	Noise Level (dBA)			Comments
				L_{eq}	L_{max}[b]	L_{min}[b]	
1	Southern corner of site boundary, (approximately 110 feet from roadway edge of Irvine Blvd)	7:00 AM/ 20 min	Traffic on Irvine Blvd	63.0	72.8	49.7	N/A
2	Gate along the eastern fence on privacy road (approximately 370 feet from roadway edge of Alton Pkwy)	7:41 AM/ 20 min	Traffic on Alton Pkwy	55.3	63.1	43.7	N/A
3	Northeast corner of site boundary (approximately 250 feet from roadway edge of Alton Pkwy)	8:09 AM/ 20 min	Traffic on Alton Pkwy	59.4	66.9	47.9	N/A
4	Western corner of site boundary, outside fence (approximately 25 feet from roadway edge of Irvine Blvd)	8:36 AM/ 20 min	Traffic on Irvine Blvd	71.3	80.0	52.7	N/A
5	South of roadway edge of Irvine Blvd in proposed school and residential development (approximately 200 feet from roadway edge of Irvine Blvd)	9:01 AM/ 20 min	Traffic on Irvine Blvd	55.5	66.6	44.1	Minor construction Equipment noise from new high school
6	At the fence line back of IRWD facility (approximately 500 feet from roadway of Alton Pkwy)	7:21 AM/ 20 min	Traffic on Irvine Blvd and Alton Pkwy	54.8	60.8	50.5	N/A
1	Southern corner of site boundary, (approximately 110 feet from roadway edge of Irvine Blvd)	9:32 AM/ 45 hrs, 34 min	Traffic on Irvine Blvd	–	75.9	17.3	CNEL is 49 dBA

dBA: A-weighted decibels; L_{eq}: average noise level, L_{max}: maximum noise level, L_{min}: minimum noise level; Pkwy: Parkway; Blvd: Boulevard

[a] Locations 1–5 were measured on December 16, 2015; Location 6 was measured on December 18, 2015.

[b] Locations 1 through 6 short-term measurements utilize 1-minute data (average) increments, the Location 1 long-term measurement utilizes 15-minute data (average) increments.

Noise measurement data in Appendix J.

Sensitive Noise Receptors

The Orange County General Plan Noise Element defines sensitive land uses as residential, schools, hospitals, and places of worship. The Irvine General Plan Noise Element states that land uses in which people are especially sensitive to noise include residential uses, convalescent and rest homes, hospitals, libraries, churches, and schools. Only part of Project site is currently used and that is by R&S Soils for green waste operations and as a container plant nursery. Therefore, there are no existing sensitive receptors on the Project site.

The area immediately surrounding the Project site consists primarily of commercial, industrial, agricultural, and undeveloped land. Classroom buildings in the Portola High School, which are approximately 1,200 feet from the western edge of the Project site at the closest point, will be noise sensitive receptors. Athletic facilities at the high school may be as close as 250 feet from the western edge of the Project site, but these facilities are not sensitive noise receptors. The nearest existing residential sensitive receptors to the proposed Project site are residences located approximately 0.6 miles southeast of the Project site, south of Bake Parkway. There are no other sensitive receptors within one mile of the Project site.

Future residents of the Project would be sensitive noise receptors.

Some threated and endangered biological species are sensitive noise receptors and are located near the Project site. Potential Project impacts on these receptors are described in Section 4.3 of this EIR, Biological Resources.

4.11.4 THRESHOLDS OF SIGNIFICANCE

The Initial Study (provided in Appendix B) for the proposed Project concludes that additional analysis of the following thresholds of significance is required in this EIR. In accordance with the County of Orange *Environmental Analysis Checklist* and Appendix G of the California Environmental Quality Act (CEQA) Guidelines, a Project would result in a significant impact to noise if it will:

Threshold 4.11-1 Result in exposure of persons to or generation of noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies.

Threshold 4.11-2 Result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.

Threshold 4.11-3 Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

Threshold 4.11-4 Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

4.11.5 IMPACT ANALYSIS

As discussed in Section 4.0, Impact Analysis Introduction, the Development Plan identifies a number of development requirements which serve to minimize potential impacts (the development requirements are in Appendix C of the Development Plan). The inclusion of these requirements as appropriate, will be verified during the development review and/or ministerial permit process (e.g., building permit). The development requirements also include others measures that will reduce or avoid potentially significant Project impacts. The County intends to implement the development requirements as part of the Project and has included the development requirements in the Development Plan for that purpose. These measures are listed in Section 4.11.7, Mitigation Program because these measures will be tracked as part of the Mitigation Monitoring and Reporting Program.

Construction activities are exempt from the quantitative limits of the Orange County Noise Ordinance provided the construction does not take place between the hours of 8:00 PM and 7:00 AM on weekdays, including Saturday, or at any time on Sunday or a federal holiday. The City of Irvine states that construction cannot occur between 7:00 PM and 7:00 AM Mondays through Fridays, and between 6:00 PM and 9:00 AM on Saturdays without securing certain approvals. Although the Project need not comply with the City or the County ordinance, the County has imposed Development Requirement (DR) NOI-1 to limit hours of Project construction. With the implementation of DR NOI-1, the Project's construction noise would not generate or expose persons to noise levels in excess of established standards and potential construction noise impacts would be less than significant.

Threshold 4.11-1

Would the Project result in exposure of persons to or generation of noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies?

Construction

Construction activities are exempt from the quantitative limits of the Orange County Noise Ordinance provided the construction does not take place between the hours of 8:00 PM. and 7:00 AM on weekdays, including Saturday, or at any time on Sunday or a federal holiday. The City of Irvine states that construction cannot occur between 7:00 PM and 7:00 AM Mondays through Fridays, and between 6:00 PM and 9:00 AM on Saturdays without securing certain approvals. Although the Project need not comply with the City or the County ordinance, the County has imposed DR NOI-1 to limit hours of Project construction. With the implementation of DR NOI-1, the Project's construction noise would not generate or expose persons to noise levels in excess of established standards and potential construction noise impacts would be less than significant. The Project may involve onsite crushing of asphalt resulting from the removal of the existing onsite roadways. This is discussed under Threshold 4.11-4.

Noise Generated by Operational On-Site Sources

The primary on-site noise sources at residential buildings would be HVAC systems. Measures to address potential noise from HVAC systems are described below. There would also be the typical noise sources associated with residential development including, but not limited to, children playing, home and yard maintenance activities, and barking dogs. As discussed in Section 4.11.1, home and yard maintenance activities during the daytime are exempt from the noise ordinance limits. Noise from playing, parties, and other residential activities may exceed 55 dBA occasionally at other residential property lines. However, by law, the activities by residents must comply with applicable regulations that limit the duration of noises above identified thresholds. Thus, compliance with laws ensures that impacts would be less than significant.

The City of Irvine Noise Ordinance limits exterior noise levels as shown in Table 4.11-4. The proposed Project would have 803 multi-family residential units (Irvine noise zone 1). For purposes of this noise component of the impact analysis, each building is considered as a separate property. Because the detailed design of buildings that include the location of HVAC systems will not be determined until Project implementation, it would be too speculative to

approximate future noise levels from residential sources. Although there are no existing residential receptors within ½ mile of the Project site, there is a potential for future residential development adjacent to the northwest end of the Project site and across Irvine Boulevard from the Project site. Project-generated HVAC noise at those future receptors could exceed City of Irvine noise ordinance standards. In order to ensure that on-site noise sources would not result in significant impacts, the Project incorporates Mitigation Measure (MM) NOI-1. MM NOI-1 requires an acoustical analysis for HVAC systems at all proposed buildings demonstrating compliance with the 50 dBA and time period limits. Those thresholds are the same as the County and City Noise Ordinance limit for nighttime for continuous noise sources at the nearest residential building.

Noise and Land Use Compatibility

As described in Section 4.11.1, the Orange County General Plan Noise Element includes the noise compatibility guidelines shown in Table 4.11-1, and the Irvine General Plan Noise Element includes the noise compatibility guidelines shown in Table 4.11-4. These guidelines and applicable sections of the State Building Code are used to evaluate the proposed Project's compatibility with future ambient noise levels.

The primary and highest noise levels at the Project site would be from automobile and truck traffic on Irvine Boulevard. The highest forecasted traffic volume on Irvine Boulevard at the Project site is in the 2035 Plus Project scenario; this volume, 36,600 average daily trips (ADT) provides the anticipated maximum noise impact (Fehr & Peers 2015). The 2035 Plus Project traffic noise level on Irvine Boulevard was calculated as described in Section 4.11.2. Future maximum traffic noise levels along the southwest side of the Project site are calculated at approximately 74 dBA CNEL at a distance of 100 feet from the roadway centerline. The forecasted traffic volume in the 2035 Plus Project scenario on Alton Parkway southeast of the Project site is 45,300 ADT. Future noise levels at the Project site boundary facing Alton Parkway are estimated at 64 to 68 dBA CNEL, depending on the noise attenuation provided by the intervening structures and foliage.

Therefore, proposed residential uses facing Irvine Boulevard would be in the 65+ decibels CNEL category of Table 4.11-1, the County Land Use/Noise Compatibility Matrix. With respect to the Irvine Land Use Compatibility Matrix, Table 4.11-5, 2035 noise levels at proposed residential receptors (i.e., residents of the Project) facing Irvine Boulevard would be in the Normally Incompatible category and may be in the Clearly Incompatible category. Future noise levels at residences facing Alton Parkway would potentially be in the 65+ decibels CNEL or the 60 to 65 decibels CNEL category of Table 4.11-1, the County Land Use/Noise Compatibility Matrix and in the Normally Compatible and Normally Incompatible category under the City's matrix. In order to avoid potentially significant noise/land use compatibility impacts, MM NOI-2 would be incorporated into the Project. MM NOI-2 requires, for residences facing Irvine Boulevard and Alton Parkway, an acoustical analysis demonstrating that Project design features would ensure that residential exterior and interior noise levels would not exceed applicable State Building Code, County General Plan, and Irvine General Plan standards. The Project would also incorporate MM NOI-3, which implements the Irvine General Plan requirement that disclosure or potential noise impacts be provided to occupants of multi-family residential units that may have noise levels exceeding 65 dBA CNEL at balconies. With the implementation of MM NOI-2, and MM NOI-3, the traffic noise impact would be less than significant.

A secondary noise source to the Project site would be noise from the Portola High School athletic field and bleachers during athletic events. A bleacher facility noise analysis is included in the *Final High School No. 5 Supplemental Environmental Impact Report* (Irvine Unified School District 2013). The analysis included bleachers on the south and north sides of the athletic field with a total of 2,940 attendees. Noise impacts were not modeled on the proposed Project site but were modeled at a location on Great Park Neighborhoods District 7 (point D7-A) that is similar in distance from the bleachers and distance from Irvine Boulevard as the northwestern portion of the proposed Project site. The predicted high school event sound level at location D7-A is a minimum (L_{min}) of 43 dBA, a maximum (L_{max}) of 65 dBA, and an L_{50} (the noise level that would be exceeded 50 percent of the time) of 50 dBA. When combined with measured ambient noise, the predicted noise increase during high school events for L_{min}, L_{max}, and L_{50} is 4.6, 0.5, and 0.3 dBA, respectively. It should be noted that these noise levels are evaluated at the residences facing and directly exposed to the high school and Irvine Boulevard. Event noise levels at residences behind the first row of buildings or not directly facing the high school would be less because of shielding or distance effects.

The noise analysis states,

> "People within approximately 2,000 feet of the stadium center may experience event-related sound levels that could be discernible and potentially annoying for the four- to five-hour event durations (including pre-event crowd arrivals and post-event departures). However, the City of Irvine Municipal Code standards for stationary noise sources exempts school functions from its limitations. Further, the District will implement Project Design Feature IUSD 6-2, and Mitigation Measures T-2 and T-3 to control noise at its source, including ending events prior to 10 PM. With these factors, combined with the limited number of maximum attendance events (typically five football games per year), the noise impact is considered less than significant."

The high school event noise analysis indicates that some residents of the proposed Project would hear noise from events at the athletic field. However, because of the relative infrequency of events, the interior noise level limit required by MM NOI-2, and the exterior noise level notification provided by MM NOI-3, the impact would be less than significant.

Impact Conclusion: *Noise-generating construction activities would be limited to the hours specified in DR NOI-1, and the impact would be less than significant pursuant to Threshold 4.11-1. On-site stationary equipment and noise-generating activities have the potential to exceed the noise level limits. Impacts would be less than significant, pursuant to Threshold 4.11-1, with the implementation of MM NOI-1. Future traffic noise and event noise from Portola High School could create a potential noise incompatibility with proposed land uses. MM NOI-2 and MM NOI-3 would require Project design to reduce exterior and interior noise levels to the levels specified therein, and to provide disclosure of potential noise to residents of units with balconies. With implementation of MM NOI-2 and MM NOI-3, the impact would be less than significant pursuant to Threshold 4.11-1.*

Threshold 4.11-2

Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Construction

There are no Orange County or City of Irvine standards for excessive groundborne vibration or groundborne noise levels. The Federal Transit Administration (FTA) states that ground vibrations from construction activities very rarely reach the level that can damage structures, but can achieve the audible and feelable ranges in buildings very close to the site. Notwithstanding, the FTA and the California Department of Transportation (Caltrans) have developed guideline thresholds for evaluating both the potential for construction activity to cause human annoyance and damage to buildings. For this analysis, the vibration that has the potential to cause structural damage or vibration that is distinctly perceptible is considered excessive. The vibration damage thresholds are shown in Table 4.11-9.

TABLE 4.11-9
VIBRATION DAMAGE THRESHOLD CRITERIA

Structure and Condition	Maximum ppv (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

ppv: peak particle velocity; in/sec: inch(es) per second

Note: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

Source: Caltrans 2013a.

The nearest structures to the Project construction areas are the commercial buildings to the southwest of the Project site. In terms of the classifications in Table 4.11-9, these buildings are considered to be modern industrial/commercial buildings. Therefore, the criterion for a significant impact for continuous/frequent intermittent sources is 0.5 peak particle velocity (ppv) inch per second (in/sec).

The Caltrans vibration annoyance potential guideline thresholds are shown in Table 4.11-10. Based on the guidance in Table 4.11-10, the "distinctly perceptible" vibration level of 0.24 ppv in/sec is used in this analysis as the threshold for a potentially significant vibration impact for human annoyance.

TABLE 4.11-10
VIBRATION ANNOYANCE CRITERIA

Average Human Response	ppv (in/sec)
Severe	2.0
Strongly perceptible	0.9
Distinctly perceptible	0.24
Barely perceptible	0.035
ppv: peak particle velocity; in/sec: inch(es) per second Source: Caltrans 2013a.	

Pile driving and blasting are generally the sources of the most severe vibration during construction. Blasting is not anticipated during Project construction. The need for pile driving is not known and is addressed further below. Conventional heavy construction equipment would be used for mass grading. Table 4.11-11 summarizes typical vibration levels measured during construction activities for various vibration-inducing pieces of equipment at a distance of 25 feet.

TABLE 4.11-11
VIBRATION LEVELS FOR CONSTRUCTION EQUIPMENT

Equipment		ppv at 25 ft (in/sec)
Pile driver (impact)	upper range	1.518
	typical	0.644
Pile driver (sonic)	upper range	0.734
	typical	0.170
Vibratory roller		0.210
Large bulldozer		0.089
Caisson drilling		0.089
Loaded trucks		0.076
Jackhammer		0.035
Small bulldozer		0.003
ppv: peak particle velocity; ft: feet; in/sec: inches per second. Source: Caltrans 2013a; FTA 2006.		

Rock crushing equipment, required for the removal of the existing roadways, is not included on the Caltrans or FTA lists of equipment that are expected to result in substantial levels of vibration. Additionally, the rock crushing activities, if done on the Project site, would be located in proximity to the two roadways being removed as part of the initial site preparation. The roadway in Planning Area 2 is located approximately 300 feet from the closest building in the Allred Centre. Given the distance to the nearest building, the rock crushing activities would not result in significant vibration impacts. The closest buildings are located even further away from Magazine Road in Planning Area 1.

Grading and construction would occur no less than 60 feet from the commercial buildings south of the Project site. Based on the data in Table 4.11-11, the maximum construction vibration at the commercial buildings from the use of a vibratory roller, large bulldozer, drilling for cast-in-place piles, or similar equipment would not exceed 0.07 ppv in/sec. The vibration level would not exceed the structural damage significance threshold of 0.5 ppv in/sec as stated in the text following Table 4.11-9 or the annoyance significance criterion of 0.24 ppv in/sec. Further, as shown in Table 4.11-11, these thresholds would not be exceeded with this equipment within 25 feet of the building. The impact would be less than significant.

Construction of later Project elements would occur after initial buildings are completed and occupied. Because mass grading activity requiring heavy equipment would be completed before any residences are occupied, there would be a very low potential for the grading and excavation activities that cause vibration to occur near occupied buildings.

If it is determined that pile driving, by either impact or vibratory/sonic methods is required for building construction, MM NOI-4 would apply to the Project; MM NOI-4 requires analysis demonstrating that the pile installation has been designed to limit vibrations to 0.24 ppv in/sec or less at occupied buildings. With the implementation of MM NOI-4, the impact would be less than significant.

Operational

There are no anticipated project-generated or adjacent off-site operational land uses that would produce discernable vibration that would cause a potentially significant impact pursuant to Threshold 4.11-2

Impact Conclusion: *Vibration-generating construction activities could occur within the requisite distance of adjacent commercial buildings or future on-site buildings. The potential annoyance or structural damage impact, with the exception of pile-driving equipment would be less than significant, pursuant to Threshold 4.11-2. Pile-driving operations have the potential to exceed vibration impact thresholds. Impacts would be less than significant, pursuant to Threshold 4.11-2, by implementation of MM NOI-4, which requires the pile driving activities to be designed to limit vibration to less than 0.24 peak particle velocity (ppv) inch per second (in/sec) or less at occupied buildings.*

Threshold 4.11-3

Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

Off-Site Traffic-Related Noise Impacts

Long-term, off-site noise impacts are associated with increased noise from traffic generated by the proposed Project. The noise levels for roadways in the Project traffic study area were estimated using the FHWA's Highway Traffic Noise Prediction Model described in Section 4.11.2. To estimate noise level increases and impacts due to the development of the

proposed Project, noise levels were calculated from the traffic volumes provided for four scenarios included in the Project traffic report (Fehr & Peers 2015), as discussed below.

- **Existing Conditions Without/With Project:** This scenario refers to noise conditions for existing traffic volumes on the existing roadway network without and with construction of the proposed Project. With-Project traffic volumes represent full buildout of the proposed Project, i.e. 803 apartments.
- **Year 2017 Without/With Project:** This scenario refers to the noise conditions forecasted for 2017 both Without and With the proposed Project. For Interim Year 2017 conditions, development is assumed to be the full development of 803 apartment units.
- **2035 Without/With Project:** This scenario refers to the noise conditions in 2035 both Without and With the proposed Project, assuming proposed development would include 803 apartments.
- **General Plan Post-2035 Without/With Project:** This scenario refers to the noise conditions both Without and With the proposed Project, assuming full buildout of the Irvine General Plan land uses and circulation improvements in Irvine and the surrounding areas. Project development would include 803 apartments.

Long Term Off-Site Noise Impact Criteria

Neither Orange County nor the City of Irvine have established thresholds for significant noise impacts caused by Project-generated traffic. Typically, long-term, off-site impacts from traffic noise are measured against two criteria. Both of the following criteria must be met for a significant impact to be identified:

1. Project traffic must cause a substantial noise level increase on a roadway segment adjacent to a noise-sensitive land use.
2. The With Project noise level must exceed the exterior noise-land use impact criterion for the noise-sensitive land use.

Noise increases of 3 dBA or 5 dBA are often used as thresholds for a substantial increase. As stated in Section 4.11.1, a 3 dBA increase is barely perceivable to the average healthy human ear and an increase of 5 dBA is readily perceptible. Therefore, the County uses the following threshold for this analysis:

- If the Project results in more than a 3.0-dBA increase and the future With Project noise level is in excess of 65 dBA CNEL for residential, hospital, hotel, motel, transient lodging, school, and places of worship land uses, the Project would result in a significant noise impact. If the future With Project noise level does not exceed 65 dBA CNEL, a significant noise impact would result if the noise increase is more than 5.0 dBA.

Analysis

The Project's traffic analysis provides With Project and Without Project traffic volumes for up to 365 roadway segments in the Project study area for the 4 above-listed scenarios. Noise level increases were calculated and all noise level increases would be less than the 3 dBA screening criterion. Tables 4.11-12 through 4.11-15, respectively show the five segments with the largest Project-generated traffic noise increases for the existing, 2017, 2035, and post-2035 scenarios.

TABLE 4.11-12
EXISTING PLUS PROJECT CONDITIONS - 5 LARGEST OFF-SITE TRAFFIC NOISE INCREASES

Street	No Project	With Project	Project Contribution	Adjacent Sensitive Receptor?	Potential Impact?
Alton Pkwy (Commercentre Dr to Irvine Blvd)	76.3	76.5	0.2	No	No
Irvine Blvd (Alton to Bake)	74.3	74.5	0.2	No	No
Alton Pkwy (Rancho Pkwy to Commercentre Dr)	75.9	76.0	0.1	Yes	No
Alton Pkwy (South of SR-241)	73.8	73.8	<0.1	Yes	No
Toledo Way (Ridge Route to El Toro Rd)	65.6	65.7	0.1	Yes	No

dBA: A-weighted decibels; CNEL: Community Noise Equivalency Level; Pkwy: Parkway; Blvd: Boulevard
Numbers may not add due to rounding.

TABLE 4.11-13
2017 - 5 LARGEST OFF-SITE TRAFFIC NOISE INCREASES

Street	No Project	With Project	Project Contribution	Adjacent Sensitive Receptor?	Potential Impact?
"LY" St (North of "LQ" St)	54.6	55.9	1.3	No	No
Irvine Blvd (west of Alton Pkwy)	77.9	78.1	0.2	No	No
Alton Pkwy (Rancho Pkwy to Commercentre Dr)	79.2	79.3	0.1	Yes	No
Alton Pkwy (Commercentre Dr to Irvine Blvd)	78.8	78.9	0.1	No	No
Irvine Blvd (Alton Pkwy to Bake Pkwy)	77.4	77.5	0.1	No	No

dBA: A-weighted decibels; CNEL: Community Noise Equivalency Level; Pkwy: Parkway; Blvd: Boulevard
Numbers may not add due to rounding.

TABLE 4.11-14
2035 - 5 LARGEST OFF-SITE TRAFFIC NOISE INCREASES

Road/Segment	CNEL at 50 feet from roadway centerline (dBA)			Adjacent Sensitive Receptor?	Potential Impact?
	No Project	With Project	Project Contribution		
"LY" St (North of "LQ" St)	55.2	55.7	0.5	No	No
"F" St ("E" St to Irvine Blvd)	58.4	58.7	0.3	Yes	No
Irvine Blvd (North of Alton Pkwy)	78.5	78.7	0.2	No	No
"C" St (North of Trabuco Rd)	62.2	62.4	0.2	Yes	No
Tesla (Irvine Center Dr to Lake Forest Dr)	63.8	63.9	0.1	No	No

CNEL: Community Noise Equivalency Level; dBA: A-weighted decibels; Pkwy: Parkway; Blvd: Boulevard
Numbers may not add due to rounding.

TABLE 4.11-15
POST-2035 - 5 LARGEST OFF-SITE TRAFFIC NOISE INCREASES

Road/Segment	CNEL at 50 feet from roadway centerline (dBA)			Adjacent Sensitive Receptor?	Potential Impact?
	No Project	With Project	Project Contribution		
"F" St ("E" St to Irvine Blvd)	58.2	58.4	0.3*	Yes	No
"LN" St (East to "LY" St)	58.7	58.9	0.2	No	No
Irvine Blvd (North of Alton Pkwy)	79.3	79.5	0.2	No	No
Alton Pkwy (Commercentre Dr to Irvine Blvd)	79.3	79.4	0.1	No	No
"LQ" St (East of "B" St)	62.4	62.5	0.1	No	No

dBA: A-weighted decibels; CNEL: Community Noise Equivalency Level
*Numbers may not add due to rounding.

As shown in Tables 4.11-12 through 4.11-15, the noise increase from Project-generated traffic would be less than 3 dBA for all the scenarios. Therefore, the Project's long term off-site noise impacts would be less than significant.

Noise Generated by Operational On-Site Sources

As discussed under Threshold 4.11-1, on-site noise sources would include HVAC systems and on-site vehicle travel. With implementation of the mitigation measures and development requirements identified under Threshold 4.11-1, the ambient noise increase resulting from those sources would not be substantial and would be less than significant.

Impact Conclusion: *Project-generated traffic noise increases at sensitive receptors would be less than significant pursuant to Threshold 4.11-3. With the*

implementation of MM NOI-1, permanent ambient noise increases in the vicinity of the Project site generated by on-Project site sources would be less than significant pursuant to Threshold 4.11-3.

Threshold 4.11-4

Would the Project result in a substantial temporary or periodic increase in ambient noise levels in the Project vicinity above levels existing without the Project?

There would be a temporary increase in ambient noise levels in the Project vicinity due to Project construction. As described under Threshold 4.11-1 and in DR NOI-1, construction activities for the proposed Project would be limited to the daytime hours Monday through Saturday and would not take place on Sundays or federal holidays.

Construction noise is related primarily to the use of heavy equipment. Typical maximum noise levels generated by representative pieces of construction equipment are listed in Table 4.11-16. Each phase of construction has a different equipment mix depending on the work to be accomplished during that phase. Each phase also has its own noise characteristics; some will have higher continuous noise levels than others, and some have high-impact noise levels. The activities that typically cause the highest noise levels are pile driving, blasting, and rock crushing.

Project construction would involve demolition of the existing on-site roads (Magazine Road in Planning Area 1 and the private road in Planning Area 2). The demolished material may be crushed on site for reuse or may be trucked off site. For purposes of the construction noise evaluation, conducting the crushing onsite would be the worst-case scenario. In addition to potential crushing, the loudest phase of the proposed Project are anticipated to be grading. Following grading, construction noise levels are less because fewer pieces of construction equipment are used and the equipment used is generally smaller and quieter than grading equipment.

TABLE 4.11-16
TYPICAL MAXIMUM CONSTRUCTION NOISE LEVELS

Equipment	Noise Level (dBA) at 50 ft	Acoustic Usage Factor
Auger Drill Rig	85	20%
Backhoe	80	40%
Blasting	94	1%
Chain Saw	85	20%
Clam Shovel	93	20%
Compactor (ground)	80–82	20%
Compressor (air)	80	40%
Concrete Mixer Truck	85	40%
Concrete Pump	82	20%
Concrete Saw	90	20%
Crane (mobile or stationary)	85	20%
Dozer	85	40%
Dump Truck	84	40%
Excavator	85	40%
Front End Loader	80	40%
Generator (25 KVA or less)	70	50%
Generator (more than 25 KVA)	82	50%
Grader	85	40%
Hydra Break Ram	90	10%
In situ Soil Sampling Rig	84	20%
Jackhammer	85	20%
Mounted Impact Hammer (hoe ram)	90	20%
Paver	85	50%
Pile Driver, Impact (diesel or pneumatic)	95–101	20%
Pile Driver, Vibratory	95	20%
Pneumatic Tools	85	50%
Pumps	77	50%
Rock Drill	85	20%
Scraper	85	40%
Tractor	84	40%
Vacuum Excavator (vac-truck)	85	40%
Vibratory Concrete Mixer	80	20%

dBA: A-weighted decibels; ft: foot/feet; KVA: kilovolt amps
Source: Thalheimer 2000; FTA 2006

Crushing would occur before any homes are occupied on the Project site. Crushing would generate noise that would potentially be audible at Portola High School to the northwest of the Project site, but not at any other sensitive receptors. Crushers can be moved around a site but are stationary sources when operating. Crushers may generate noise levels as high as 89 dBA at a distance of 50 feet. Crusher noise typically varies depending on the position of the receptor relative to the machine and can vary as much as 10 dBA. Noise levels of crushers also vary as equipment use ranges from full power to idle. The typical percentage of time that equipment is at full power is indicated by the acoustic usage factor. The FTA does not provide an acoustic usage factor for crushers; therefore, a conservative acoustic usage factor of 50 percent was used for this analysis, which is the FTA's default acoustic usage factor for equipment greater than 5 horsepower for which an acoustic usage factor is not provided. The nearest location that a crusher would operate relative to the school would be adjacent to the western end of Magazine Road just east of Irvine Boulevard, where the crusher would be approximately 2,350 feet from Portola High School classroom buildings (see MM NOI-5). At a distance of 2,350 feet, the maximum noise level would be approximately 55 dBA L_{max} and the average noise level at the classroom buildings would be approximately 52 dBA L_{eq}. The average noise level at the nearest athletic facilities, i.e., the track and stadium, would be approximately 55 dBA L_{eq}. At the high school, crushing noise would generally be masked by Irvine Boulevard traffic noise but may be occasionally audible during lulls in the traffic. Thus, the noise increase due to rock crushing would not be substantial and the impact would be less than significant with implementation of MM NOI-5.

Site preparation and grading equipment would typically include dozers, excavators, backhoe/loaders, scrapers, graders, and heavy trucks. Noise levels at any receptor point vary as equipment moves around a site. Noise levels of individual pieces of equipment also vary as equipment use ranges from full power to idle. The typical percentage of time at full power is indicated by the acoustic usage factors in Table 4.11-16. For example, assuming that six pieces of construction equipment (i.e., 2 dozers, 2 backhoe/loaders, 2 dump trucks) are operating at an average distance of 250 feet from a receptor, the average noise level at that receptor would be approximately 73 dBA L_{eq}.

Portola High School classroom buildings are located approximately 1,200 feet from the northwestern edge of the Project site. Using the above example with six pieces of grading equipment operating, average construction noise levels at Portola High School classroom buildings would be approximately 59 dBA L_{eq}. When grading would occur near the northern part of the Project site, average noise levels at the nearest athletic facilities, i.e., the tennis courts, would be less than 70 dBA L_{eq}, with intermittent noise events in the 70 to 75 dBA range. After site grading is complete, there would be less equipment operating; building construction typically requires forklifts, cranes, loaders, and welders. This equipment has lower noise levels and less time at full power than grading equipment. Therefore, noise levels would be less during building construction than during grading.

Temporary noise would also be generated on Irvine Boulevard by trucks exporting soil and demolition material, if deemed necessary. As previously discussed, a doubling of traffic volume results in an increase in the noise level by 3 dB, which is considered barely perceptible. The baseline traffic counts on Irvine Boulevard south of Alton Parkway is 16,500 ADT and 22,300 ADT north of Alton Parkway. The transportation of demolition material has the highest daily

trip generation, which is estimated at 72 passenger car equivalent one-way trips.[2] This would equate to an average of approximately nine one-way trucks trips per hour. The addition of nine truck trips per hour on Irvine Boulevard would be less than one percent of the traffic volume. Therefore, the additional truck trips generated by the transport of soil/demolition material would not result in a substantial increase in the traffic volumes on Irvine Boulevard and the increase in noise due to any exporting of soil and demolition materials would not be audible as it would be well below the 3 dB threshold.

Neither pile driving nor blasting is anticipated for the proposed Project; however, similar to the discussion under Threshold 4.11-2, abatement measures are included should a need for pile driving be determined. MM NOI-6 would reduce the potential temporary noise associated with pile driving through (1) selection of lower noise level equipment; (2) the use of cushion blocks; and (3) the use of temporary noise barriers. Additionally, the implementation of DR NOI-1, which limits the timing of construction activities would minimize construction noise impacts. Cushion blocks are blocks of material that are used with impact hammer pile drivers. They consist of blocks of material placed atop a pile during pile driving to minimize the noise generated while driving the pile. Materials typically used for cushion blocks include wood, nylon, and Micarta™ blocks (Caltrans 2009). Other materials also may be used. Studies conducted generally indicate the following reductions in sound pressure levels with various cushion block types:

- Wood – 11 to 26 dB
- Micarta – 7 to 8 dB
- Nylon – 4 to 5 dB

Construction on the Project site would continue while the initial residential buildings are completed and occupied. New residents of the Project would hear some of the ongoing construction noise. However, at the time of occupancy of the initial residential buildings all site preparation and grading in the planning area, which are the louder construction activities, will have been completed. If the site preparation of the planning areas is done in separate phases, the Wildlife Movement Corridor, which is approximately 300-feet wide, would provide a buffer between the two planning areas. This would reduce the potential noise impacts on residents in the planning area that is developed first. DR NOI-2, included in Section 4.11-7, would require all construction equipment to be equipped with properly operating and maintained mufflers. DR NOI-2 also requires that stockpiling and/or vehicle staging areas be located as far as practicable from occupied dwellings. Further, early occupants of a development under construction would be expecting to hear noise from the continuing construction activity. In addition, DR BIO-1 through DR BIO-3 provide measures to reduce potential construction impacts on sensitive species. This includes construction-related Minimization Measures that are required by the Orange County Central/Coastal Natural Community Conservation Plan/Habitat Conservation Plan. Therefore, the impact would be less than significant.

[2] Table 4.15-12 in Section 4.15, Traffic/Transportation provides a breakdown of construction-related trips for each phase of development. The demolition would result in 72 daily haul trips and the grading would result in 48 daily haul trips.

Based on the analysis above, temporary increases in ambient noise levels due to Project construction would not be substantial because construction activities would be in compliance with the provisions of the County Noise Ordinance, as required by DR NOI-2 and the hours of restriction on construction activities as provided by DR NOI-1. Therefore, impacts associated with substantial temporary or periodic increase in ambient noise levels would be less than significant.

Impact Conclusion: *There would be a temporary increase in ambient noise levels in the Project vicinity due to Project construction, including rock crushing and pile driving. With distance, traffic noise, and implementation of MMs NOI-5 and NOI-6 the noise increase from construction activities, including rock crushing and pile driving would be less than significant at off-site sensitive receptors. Additionally, new residents of the Project would hear some of the ongoing construction noise; however, with implementation of MMs NOI-5 and NOI-6, the noise increase would be less than significant. Therefore, with implementation of mitigation measures, temporary increases in ambient noise levels due to Project construction would be less than significant for Threshold 4.11-4.*

4.11.6 CUMULATIVE IMPACTS

Cumulative Short term (Construction) Noise and Vibration Impact

Adverse noise and vibration impacts during construction of the Project would be localized and would occur intermittently for varying periods of time throughout the construction period. Short-term cumulative impacts related to ambient noise and vibration levels could occur if construction associated with the proposed Project as well as surrounding current and future development were to occur simultaneously. Noise or vibration associated with construction of the proposed Project in combination with another project within approximately 500 feet of the Project site boundaries could adversely impact sensitive receptors in the vicinity of the Project with a cumulative noise level greater than the noise generated solely at the Project site. The nearest projects are the Portola High School (now under construction, as previously discussed), Great Park Neighborhoods District 5, and Great Park Neighborhoods District 7. The nearest existing noise-sensitive receptors to the Project site are residences south of Bake Parkway, approximately 0.6 miles to the southeast; therefore, there would be no cumulative construction noise or vibration impacts. Potential construction noise impacts on future noise-sensitive land uses proposed by the Project and cumulative projects would be minimized with the consistent application of requirements such as complying with the applicable noise ordinance. At this time, it would be speculative to assess the potential cumulative impact associated with construction of the adjacent cumulative projects because there are numerous unknown factors, such as the timing of construction, the type and location of uses, and design attributes. Further, all those potential cumulative projects will be required to comply with applicable noise limits imposed by law.

Cumulative Long-Term (Operation) Noise Impact

Cumulative traffic noise impacts are measured based on projected long-term future traffic noise level increases over existing conditions. This analysis considers the forecasted traffic volumes in the Post-2035 scenario (build-out of the General Plan) plus all the proposed and pending projects. This is inclusive of the cumulative growth associated with the long-term socioeconomic projections (OCP-2014) and the approved and pending projects identified in Table 4-1, Approved and Pending Projects in the City of Irvine, of this EIR.[3] For purposes of the discussion in the EIR, this is simply referenced as "the cumulative scenario". Long-term cumulative off-site impacts from traffic noise are measured as follows. First, a substantial cumulative noise increase would occur if future traffic noise levels increase by more than 3 dBA compared to existing conditions. Then, the following three criteria must be met for a significant impact to be identified: (1) the roadway segment is adjacent to a noise-sensitive land use; (2) the resulting future With-Project noise level must exceed the criteria level for the noise-sensitive land use (i.e., 65 dBA CNEL for residential, schools, hospitals, and places of worship); and (3) the Project contribution to the cumulative noise increase must be cumulatively considerable, which is 1 dBA or greater.

For the Post-2035 cumulative scenario, a total of 301 roadway segments were evaluated. Table 4.11-17 shows that cumulative noise level increases greater than 3 dBA are projected to occur along 25 roadway segments when compared to Existing Conditions. However, the Project contribution to the traffic noise level increases at those roadway segments would be less than 1 dBA. Thus, the cumulative traffic noise impact would be less than significant.

TABLE 4.11-17
POST-2035 PLUS PENDING PROJECTS CUMULATIVE OFF-SITE TRAFFIC NOISE INCREASES GREATER THAN THREE A-WEIGHTED DECIBELS

Roadway/ Segment	Average Daily Traffic Volume			Cumulative Traffic Noise Increase dBA	Project Contribution to Cumulative Noise Increase dBA	Potential Significant Impact?
	Existing	Post-2035 Without Project	Post-2035 With Project			
Trabuco (east of Sand Canyon)	1,100	43,600	43,700	16.0	<0.05	No
Portola (Portola Springs to SR-241)	1,000	30,800	30,800	14.9	0.0	No
Marine (east of Sand Canyon)	5,200	50,000	50,100	9.8	<0.05	No
Moulton (Ridge Route to Santa Maria)	5,000	44,300	44,300	9.5	0.0	No
Modjeska (Portola Springs to Irvine)	3,300	14,800	14,800	6.5	0.0	No
Bake (Irvine Center to Lake Forest)	3,600	15,300	15,300	6.3	0.0	No
Tustin Ranch (Jamboree to Portola)	3,300	13,800	13,800	6.2	0.0	No
Lake Forest (Laguna Canyon to Bake)	8,600	32,100	32,100	5.7	0.0	No
Portola (west of Alton)	6,300	20,000	20,000	5.0	0.0	No
Lake Forest (Bake to Scientific)	8,600	25,600	25,600	4.7	0.0	No
Sand Canyon (I-5 to ICD)	17,100	45,700	45,700	4.3	0.0	No
Portola (Ridge Valley to Portola	6,500	16,800	16,800	4.1	0.0	No

[3] It should be noted that the Project's Transportation Impact Analysis also evaluated 2017 and 2035 traffic conditions with proposed and pending projects. However, to ensure the worst-case cumulative conditions are evaluated, the noise analysis focuses on the Post-2035 conditions with pending projects.

TABLE 4.11-17
POST-2035 PLUS PENDING PROJECTS CUMULATIVE OFF-SITE TRAFFIC NOISE INCREASES GREATER THAN THREE A-WEIGHTED DECIBELS

Roadway/ Segment	Average Daily Traffic Volume			Cumulative Traffic Noise Increase dBA	Project Contribution to Cumulative Noise Increase dBA	Potential Significant Impact?
	Existing	Post-2035 Without Project	Post-2035 With Project			
Springs)						
Alton (Rancho to Commercentre)	19,200	49,000	49,600	4.1	0.1	No
Portola Springs (Portola to Modjeska)	2,700	6,500	6,500	3.8	0.0	No
Oak Canyon (Valley Oak to Sand Canyon)	6,100	14,200	14,200	3.7	0.0	No
Trabuco (Yale to Jeffrey)	8,200	18,900	18,900	3.6	0.0	No
Research (Irvine Center to Hubble)	6,300	14,200	14,200	3.5	0.0	No
Rancho (east of Lake Forest)	14,400	31,000	31,000	3.3	0.0	No
Irvine (Alton to Bake)	16,500	34.000	34,700	3.2	0.1	No
Bake (Research to Irvine Center)	7,400	15,400	15,400	3.2	0.0	No
Jeffrey (Portola to Irvine)	9,100	18,700	18,700	3.1	0.0	No
Gateway (Alton to Fortune)	5,400	10,800	11,000	3.1	0.1	No
Portola (Sand Canyon to Ridge Valley)	12,100	24,500	24,600	3.1	<0.05	No
Ridge Valley (south of Portola)	3,300	6,600	6,700	3.1	0.1	No
Alton (Commercentre to Irvine)	21,200	41,900	42,800	3.1	0.1	No
CNEL: Community Noise Equivalency Level; dBA: A-weighted decibels						

4.11.7 MITIGATION PROGRAM

Development Requirements

DR NOI-1 Construction activities shall be limited to the hours of 7:00 AM to 7:00 PM, Monday through Friday and 9:00 AM and 6:00 PM on Saturday and will not take place on Sundays or federal holidays.

DR NOI-2 Prior to the issuance of any grading permits, the County or designee shall produce evidence acceptable to the Manager of Building & Safety, or designee, that:

- All construction vehicles or equipment, fixed or mobile, operated within 1,000 feet of an occupied dwelling unit shall be equipped with properly operating and maintained mufflers.
- Stockpiling and/or vehicle staging areas shall be located as far as practicable from occupied dwellings.

Notations in the above format, appropriately numbered and included with other notations on the front sheet of the Project's permitted grading plans, will be considered as adequate evidence of compliance with this condition.

Mitigation Measures

MM NOI-1 Prior to the issuance of each building permit, the County or designee shall obtain the approval of the Manager of Building & Safety, or designee, for an Acoustical Analysis Report and appropriate plans that demonstrate that the noise levels generated by heating, ventilation, and air conditioning (HVAC), and similar mechanical equipment that can operate continuously at nighttime, would not exceed the nighttime noise limit of 50 dBA for a time period of 30 minutes at the nearest existing or potential future residential receptor as specified in the City of Irvine Noise Ordinance. This same 50 dBA threshold shall apply to nighttime noise levels at the Wildlife Movement Corridor and the Reserve Area.

MM NOI-2 Prior to the issuance of each building permit for a residential building, the County or designee shall obtain the approval of the Manager of Building & Safety, or designee, of an Acoustical Analysis Report and appropriate plans that demonstrate that the proposed site and architectural design features would provide an interior noise level of 45 A-weighted decibels (dBA) Community Noise Equivalent Level (CNEL) or less (based on buildout traffic conditions) in all habitable rooms of the proposed buildings facing Irvine Boulevard and Alton Parkway. The County or designee shall also submit building plans and specifications showing that the following occur:

- All residential units shall be provided with a means of mechanical ventilation, as required by the California Building Code, for occupancy with windows closed.
- All exterior use areas shall be located behind the buildings, shielded by a sound wall or other barrier, or at an adequate distance from the noise source to provide exterior noise levels not exceeding 65 dBA CNEL. Exterior use areas are defined in footnote 2 to Table 4.11-4, Irvine Interior and Exterior Noise Standards

MM NOI-3 Prior to the issuance of each occupancy permit for a residential building with balconies with forecasted future noise levels exceeding 65 dBA CNEL, the County or designee shall obtain the approval of the Manager of Building & Safety, or designee, of the process that the Project Applicant will use to provide occupancy disclosure notices to all future tenants regarding potential noise impacts that future noise levels at the balconies may exceed 65 dBA CNEL

MM NOI-4 Prior to the issuance of each building permit that would include pile driving, the County or designee shall obtain the approval of the Manager of Building & Safety, or designee of a vibration analysis demonstrating that the pile installation has been designed to limit vibrations to 0.24 peak particle velocity (ppv) inch per second (in/sec) or less at occupied buildings.

MM NOI-5 Prior to the issuance of a demolition permit if rock crushing is to occur on site, the County or designee Project plans shall demonstrate that the rock crusher would operate no closer than 2,350 feet from Portola High School classroom buildings or at a closer distance where it can be demonstrated that the

maximum noise level with the rock crushing activities would not exceed 55 dBA L_{max} and the average noise level with the rock crushing activities at the classroom buildings would be 52 dBA L_{eq}.

MM NOI-6 Prior to the issuance of each building permit that would include pile driving, the County or designee shall obtain the approval of the Manager of Building & Safety, or designee of plans and specifications that stipulate that the Contractor shall:

a. Survey pile driving equipment appropriate for the Project, which is available in the region and commercially reasonable, and select the model with the lowest noise level.

b. Use cushion blocks or noise curtains or both, to minimize the pile driving noise impact to the residences, the Portola High School, and occupied buildings adjacent to the site.

c. Limit, by measures (a) and (b), the maximum pile driving impact noise to the residences, the Portola High School, and occupied buildings adjacent to the site to 75 dBA L_{max}.

d. Submit a memorandum to the Manager of Building & Safety, or designee documenting the equipment survey and selection, pile driving noise reduction measures, and anticipated noise levels at nearby receptors.

4.11.8 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Project-specific and cumulative noise impacts would be less than significant with implementation of mitigation measures. No significant unavoidable impacts would occur.

4.11.9 REFERENCES

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4.12 POPULATION AND HOUSING

This section discusses Project-related impacts to population and housing in the vicinity of the West Alton Parcel Development Plan (Development Plan) Project site. The analysis in this section is based on information from the Center for Demographic Research at the California State University, Fullerton (CDR); Orange County Council of Governments projections for housing, population and employment for Orange County for the period of year 2012 through year 2040, adopted in September 2014 (OCP-2014); the Southern California Association of Governments' (SCAG's) 2016–2040 Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS) Growth Forecast; and the City of Irvine General Plan 2013–2021 Housing Element (2012).

4.12.1 REGULATORY SETTING

Several regulations pertaining to population and housing are adopted at the State level and implemented at a regional and local level. Additionally, the planning for the long-term growth in the State and region is interconnected with policies related to air quality, greenhouse gas emissions (GHG), and transportation. The following regulatory setting provides some insight into this interconnectivity of issues to help facilitate informed decision making regarding this issue. However, more detailed discussion regarding compliance with Senate Bill (SB) 375 and consistency with the RTP/SCS policies are provided in other sections of this EIR (RTP/SCS policies are discussed in Section 4.10, Land Use and Planning and SB 375 is more fully discussed in Section 4.7, Greenhouse Gas Emission).

State Requirements

California Housing and Community Development Department Projections

California housing law calls upon local jurisdictions to provide a fair-share of housing. In implementing this law, the California Housing and Community Development Department (HCD) assigns fair share housing targets to each of the Council of Governments (COG) in the state based on the Department of Finance population projections and regional forecasts. SCAG, a Joint Powers Agency established under Sections 6502 *et seq*. of the *California Government Code*, is designated as a Council of Governments (COG), a Regional Transportation Planning Agency (RTPA), and a Metropolitan Planning Organization (MPO) for the six-county region of Orange, Los Angeles, Ventura, San Bernardino, Riverside, and Imperial Counties.

Senate Bill 375

As discussed in Section 4.7, Greenhouse Gas Emissions, SB 375 provides for a new planning process to coordinate land use planning and RTPs and funding priorities in order to help California meet the GHG reduction goals established in Assembly Bill (AB) 32. SB 375 requires SCAG, as the MPO, to incorporate a SCS in their Regional Transportation Plan that will achieve GHG emission reduction targets set by California Air Resources Board (CARB). The SCS serves to develop growth strategies that better integrate land use and transportation planning and help reduce the state's greenhouse gas emissions from cars and light trucks. The SCS must consider the state housing goals (California Government Code Section 65080 (b)(2)(B)).

Local Requirements

City of Irvine 2013–2021 Housing Element

The City of Irvine's (City) 2013–2021 Housing Element was certified by HCD in December 2011, and approved by the City Council on January 24, 2012. The City's Housing Element provides a long-term blueprint for housing within the context of local and regional trends and housing production goals. The City's Housing Element analyzes housing needs within the City's demographic context; reviews potential market, governmental, and other constraints to meeting the City's housing needs; evaluates the resources available to meet housing needs; and finally, establishes policies and objectives to make progress in meeting its housing needs during the eight-year period (Irvine 2015c).

4.12.2 METHODOLOGY

The assessment for potential impacts associated with growth inducement is based on the consistency with the applicable planning programs that have been developed to ensure orderly development, while providing sufficient development to meet the long-term projections for the region. A key element of the analysis is an evaluation of consistency with the OCP-2014 dataset, which are developed by CDR. This dataset is developed to provide accurate and timely information regarding population, housing, and employment characteristics in an efficient and cost-effective manner.[1] The OCP data is used to provide a uniform data set for use in local planning applications in the development of the regional planning programs such as the Regional Transportation Plan/Sustainable Community Strategies, Congestion Management, and the Air Quality Management Plan. If the growth associated with a project is included in the OCP dataset, and therefore, in the regional planning programs, then the growth is assumed to be planned growth. (Note Section 6.3 also provides a discussion of growth-inducing impacts, especially potential indirect impacts.)

Recognizing the dynamic nature of development in Orange County, the OCP dataset is updated approximately every four years with input from the jurisdictions, districts, and agencies in Orange County. This allows the data set to reflect changes to General Plans and major trends in the economy, which ensures the projected growth in Orange County is accurately reflected in the regional planning programs that are also updated every four years. In addition to the four-year update cycle, there have been times when the dataset is updated mid-cycle. The mid-cycle updates are characterized as OCP Modified (for example there was an OCP-2010 dataset, which was updated and called OCP-2010 Modified). The OCP-2014 dataset is the twelfth in a series of projections dating back to 1978. The OCP-2014 projections present the data for the County overall, the 35 general government jurisdictions (34 cities and unincorporated County), the 10 Regional Statistical Areas (RSA), 70 Community Analysis Areas (CAAs) and the 582 census tracts from Census 2010. The distribution by CAA and census tracts are available for programmatic applications and information purposes. OCP-2014 identifies that three of the RSAs are projected to account for over 49 percent of the population growth between 2012 and 2040. This is due to the large scale developments proposed in these three RSAs. RSA C-43 is

[1] The CDR is governed and supported by the following sponsor agencies: County of Orange, the Orange County Council of Governments, Orange County Sanitation District, Orange County Transportation Authority, Transportation Corridors Agencies, SCAG, Municipal Water District of Orange County, Orange County Water District, and California State University, Fullerton. Orange County Local Agency Formation Commission is a contributing partner.

located in south Orange County and includes the Ranch Plan Planned Community. RSA E-44, which includes the Project site, encompasses the former El Toro and Tustin Marine Bases with the proposed Orange County Great Park Neighborhoods and Tustin Legacy. The final RSA projected to have substantial growth is RSA H-37, which includes the Platinum Triangle development in the City of Anaheim.

To determine population-related impacts, the residential population from the proposed number of dwelling units (i.e., 803 dwelling units proposed as part of the Project) was compared with the growth assumption in the OCP-2014 projections for the City, County, and regional statistical area (RSA) in which the Project is located.

In an effort to quantify the potential population increase associated with the proposed Project, the County's population generation factor of 1.99 persons per dwelling unit was used, resulting in a total population of 1,598 persons. This population generation factor is based on County Local Park Code (Orange County Codified Ordinances [OCCO] Section 7-9-522) factor used for residential developments with a density of 15.6 to 25.5 units per acre. The population generation factor varies with the density of the project.[2]

4.12.3 EXISTING CONDITIONS

Existing and Projected Population

Population growth in Orange County has maintained a strong but diminishing pace in recent decades. From 1980 to 1990, the population increased by 47,785 people annually, slowing to an average annual increase of 43,573 people during the 1990s. From 2000 to 2010, the average annual population increase dropped to 16,943 people per year. However, the Census estimates show an increase between 2010 and 2014. According to the U.S. Census Bureau, the Orange County population increased from 2,965,525 people in 2010 to 3,086,331 people in 2014, which is an annual increase of 30,202 people (U.S. Census Bureau 2016).

OCP-2014 was adopted by the Orange County Council of Governments in September 2014, and provides projections for housing, population, and employment for Orange County for the period of year 2012 through year 2040. Input for OCP-2014 includes demographic estimates and projections provided by jurisdictions in Orange County. The OCP-2014 offers the best available local demographic data for the County, including the City. OCP-2014 is the dataset that is being used for ongoing updates for regional planning efforts, such as the SCAG's 2016 Regional Growth Forecast projections and the 2016–2040 RTP/SCS.

[2] The County Local Park Code has population generation factors for various density housing. These factors are used to determine the population projects would generate for purposes of determining the amount of parkland required to serve the project. For consistency between the sections of this EIR, these population generation factors are used throughout the document for all applicable discussion of population growth. The County of Orange population generation factors are being used because the County is the lead agency for the Project. For informational purposes, the City of Irvine also has a population generation factor by residential density category. For purposes of the proposed Project, a 2.25 persons per dwelling unit population generation factor would apply. This standard applies to projects with a density of 12.6 to 31.0 dwelling units per acre, based on Section 5-5-1004(D), Park Dedication (Manner of Compliance), of the City of Irvine Municipal Code. Using the City's generation factors, the Project would generate a population of 1,807.

OCP-2014 projections at the County, City, and RSA levels are provided in Table 4.12-1 below. The County is divided into ten RSAs, which are combinations of census tracts designated by SCAG for planning purposes. The City is split between RSA E-44 and RSA F-39, which are both along Interstate (I) 405. The Project site is located in RSA E-44, which covers an area of Orange County to the north of I-405. Based on Orange County's historic share of California's and the region's employment growth, migration and immigration trends, fertility rates, and local General Plans and zoning, OCP-2014 projects that the County will grow by 392,949 residents (an average of 14,034 people per year) from 2012 to 2040.

The 2010 Census reports that the City's population was 212,375, up from 143,072 in 2000 (U.S. Census Bureau 2015a). Thus, the average annual population increased by 6,930 people over the past decade. It should be noted that this population increase was accompanied by an increase in the City's territory. As shown in Table 4.12-1, OCP-2014 projects a population increase for the City of 100,175 people (approximately 3,578 annually) between 2012 and 2040. The City's share of the total County population is projected to increase to 9.4 percent in 2040, up from 7.4 percent in 2012.

TABLE 4.12-1
ORANGE COUNTY PROJECTIONS: 2012–2040

Area	2012	2015	2020	2025	2030	2035	2040	Change 2012–2040	Percent Change
Population									
Orange County	3,071,544	3,153,190	3,264,955	3,347,128	3,400,720	3,434,443	3,464,493	392,949	12.8
Irvine	227,094	258,092	296,264	317,998	325,390	326,733	327,269	100,175	44.1
RSA E-44	182,705	209,139	241,385	259,539	265,577	265,468	265,196	82,491	45.1
Dwelling Units									
Orange County	1,056,157	1,082,882	1,131,401	1,162,028	1,179,590	1,193,601	1,205,608	149,451	14.1
Irvine	86,755	98,779	115,796	124,730	127,038	127,812	128,153	41,398	47.7
RSA E-44	70,339	79,834	93,417	100,041	101,713	101,725	101,725	31,386	44.6
Employment									
Orange County	1,526,227	1,623,643	1,730,085	1,791,784	1,836,197	1,870,025	1,898,685	372,458	24.4
Irvine	224,435	252,693	280,649	295,491	305,862	313,960	320,033	95,598	42.6
RSA E-44	183,257	206,269	233,068	247,845	258,711	265,939	271,357	88,100	48.1

RSA: regional statistical area
Source: CDR 2014

Existing and Projected Housing

According to the 2010 Census, Orange County had 1,048,907 households, with an average of 2.87 persons per occupied housing unit (U.S. Census Bureau 2015b, 2015c). Of the County housing stock, 63.5 percent are single-family units. As of January 2014, the Department of Finance reports a vacancy rate of 5.40 percent within the County (DOF 2014).

Between 2012 and 2040, OCP-2014 projects a 47.7 percent increase of 41,398 housing units (an average of 1,500 units per year) in the City. The projections anticipate development of 31,386 housing units within RSA E-44 where the Project site is located within that same time frame. The City General Plan includes an average population generation factor of 2.49 persons per unit (Irvine 2015a, 2015b, 2015c). OCP-2014 projects 2.56 persons per dwelling units in 2040.[3] Table 4.12-2 summarizes the City's housing stock as of 2012. Multi-family housing with 5 or more units accounts for approximately 35 percent of the City's total housing units, with single-family detached and attached housing accounting for approximately 58 percent of the City's units.

TABLE 4.12-2
CITY OF IRVINE 2012 HOUSING UNITS BY TYPE

Housing Type	Units	Percent of Total Units
Single-Family Detached	31,947	38.1
Single-Family Attached	16,722	20.0
Multi-Family, 2–4 Units	4,420	5.3
Multi-Family, 5 or More Units	29,538	35.3
Mobile Homes	1,165	1.4
Total Units	**83,792**	**100.0**

Note: totals may not balance due to rounding.
Source: City of Irvine 2013 (see Table C-15).

By 2040, OCP-2014 projects that the City's housing units will grow to 10.6 percent of the County total, up from 8.2 percent in 2012. As shown in Table 4.12-1, OCP-2014 projects that, from 2012 through 2040, the County will continue to grow by 149,451 housing units, an average of 5,338 housing units per year. This constitutes a 14.1 percent increase over the 28-year period.

Existing and Projected Employment

As shown in Table 4.12-1, OCP-2014 projects that, from 2012 through 2040, the County will continue to grow by 372,458 jobs, an average of 13,302 jobs per year. This constitutes a 24.4 percent increase over the 28-year period.

The City had 224,435 jobs as of 2012, according to OCP-2014. As shown in Table 4.12-1, between 2012 and 2040, OCP-2014 projects a 42.6 percent employment increase of 95,598 jobs, an annual average increase of 3,414 jobs. The projections anticipate 88,100 jobs will be generated within RSA E-44 where the Project site is located within that same timeframe. In 2012, the City's employment represented 14.7 percent of the total County employment. In 2040, Irvine is projected to garner 16.9 percent of County employment.

[3] It should be noted that these average population generation factors include all housing types. Less population is typically generated for a multi-family unit than for a single-family unit.

Jobs/Housing Ratio

The jobs/housing ratio is a general measure of the "balance" between the number of jobs and number of housing units available in a geographic area, without regard to economic constraints or individual preferences. The jobs/housing ratio is one indicator of a project's effect on growth and quality of life in the project area. No ideal jobs/housing ratio is adopted in State, regional, or City policies; jobs/housing goals and ratios are advisory only. SCAG applies the jobs/housing ratio concept at the regional and subregional levels as a tool for analyzing the fit between jobs, housing, and infrastructure.[4]

As demonstrated in Table 4.12-1, Orange County and the City of Irvine are both jobs-rich. Local plans and projections have acknowledged this condition in the past, for the present, and into the future. According to OCP-2014, Irvine was home to 2.59 jobs for every dwelling unit in the City in 2012, while the County provided 1.45 jobs per household. In the future, the County of Orange and the City of Irvine are expected to remain jobs-rich as a result of economic and demographic forces. OCP-2014 projects the City's jobs/housing ratio to be 2.50 in 2040, with the ratio for the entire County increasing to 1.57 in 2040.

4.12.4 THRESHOLDS OF SIGNIFICANCE

In accordance with the County of Orange Environmental Analysis Checklist the Project would result in a significant impact to population and housing if it would:

Threshold 4.12-1 Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).

4.12.5 IMPACT ANALYSIS

Threshold 4.12-1

Would the Project induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

The Project would result in the provision of multi-family housing and an associated residential population, as well as infrastructure improvements. Adopted projections, plans, and policies provide benchmarks for evaluating the potential population and housing impacts from

[4] SCAG does not have a quantitative ratio between jobs and housing. However, the American Planning Association (APA) is an independent, not-for-profit educational organization that provides leadership in the development of living communities and is a trusted resource for the planning community, including recommendations for assessing jobs-housing ratios. The APA has identified a recommended target for an appropriate jobs/housing ratio as 1.5 with a recommended range of 1.3 to 1.7; however, the APA recognizes that an ideal jobs housing ratio will vary from jurisdiction to jurisdiction (Weitz 2003). The California Planning Roundtable, an organization of experienced planning professionals who are members of the APA, states that "defining what constitutes a balance between jobs and housing is not an easy task. Assuming a simple ratio of one job to one household is inappropriate to modern economies that have many households with more than one person in the workforce" (California Planning Roundtable 2008). Given the geography of Orange County (*i.e.*, multiple cities in close proximity to each other), residents in one city can easily be employed in another jurisdiction in close proximity to their home making the assessment of jobs/housing balance more difficult.

implementation of the Project, particularly with respect to assessing growth associated with the Project. The analysis below provides an assessment of the estimated growth associated with the Project. This data is then evaluated to determine the potential for inducing substantial population growth in the area.

Estimated Growth for the Proposed Project

Table 4.12-3 compares the Project's maximum expected population and housing growth with OCP-2014 projections.

TABLE 4.12-3
COMPARISON OF PROPOSED PROJECT GROWTH WITH CURRENT PROJECTIONS, 2012–2040

Planning Level	2012	2040	Change 2012-2040
Population			
Orange County	3,071,544	3,464,493	392,949
Irvine	227,094	327,269	100,175
RSA E-44*	182,705	265,196	82,491
Project	**0**	**1,598**	**1,598**
Dwelling Units			
Orange County	1,056,157	1,205,608	149,451
Irvine	86,755	128,153	41,398
RSA E-44	70,339	101,725	31,386
Project	**0**	**803**	**803**
Employment			
Orange County	1,526,227	1,898,685	372,458
Irvine	224,435	320,033	95,598
RSA E-44	183,257	271,357	88,100
Project	**0**	**15**	**15**

RSA: regional statistical area; I: Interstate

* RSA E-44: El Toro includes North Irvine and South Tustin area, between Santiago Canyon Road and the San Diego Freeway (I-405).

Source: CDR 2014 (Orange County, RSA, and Irvine data)

Housing Growth Analysis

The Project would result in a maximum of an additional 803 housing units in Irvine Planning Area (PA) 51. The OCP-2014 regional projections for housing growth in the City project an increase of 41,398 units in Irvine from 2012 and 2040. The Project would represent 1.9 percent of the City's OCP-2014 projected housing growth between 2012 and 2040, and approximately 0.5 percent of the OCP-2014 project housing growth for Orange County during the same period. Though this number of units is within the OCP-2014 housing growth projections for the County and the City, the details of the Project were not known at the time the City provided input on the OCP-2014 dataset to CDR, and thus no population was attributed

to the Project site.[5] Therefore, this level of development on the Project site was not anticipated at the time the OCP-2014 regional growth projections were developed. However, the 803 housing units associated with the Project would assist the region in meeting State-mandated fair share housing production targets.

Population Growth Analysis

Using the population generation factors discussed above, the estimated population associated with the proposed Project would be approximately 1,598 persons. For comparison purposes, an analysis using the City population generation factors was also conducted. Though the City reports an average population generation factor of 2.49 persons per unit, the City has developed specific population generation factors based on the density of the development. The City uses 2.25 persons per unit for the 12.6-31.0 dwelling units per acre (du/ac) density. The Project would generate approximately 1,807 residents under the City's methodology. As indicated above, using the County's population generation factor of 1.99 persons per units for the 15.6 to 25.5 dwelling unit per acre (du/ac) density, the Project would generate a total of approximately 1,598 residents. The population increase using the County population generation factor represents approximately 1.6 percent of the City's OCP-2014 projected population growth between 2012 and 2040 and approximately 1.8 percent when using the City's population generation factors. Similar to the housing analysis, though population growth is within the OCP-2014 population projections for the County and the City, the details of the Project were not known at the time the City provided input on the OCP-2014 dataset to CDR. Therefore, population growth associated with the Project was not anticipated at the time the OCP-2014 regional growth projections were developed.

Employment Growth Analysis

As previously indicated, employment projections were developed using the IMPLAN model, which projects the Project would generate approximately 15 long-term jobs in addition to construction related jobs, which are discussed later in this section. The Project represents approximately 0.02 percent of the City's OCP-2014 projected employment growth between 2012 and 2040, and approximately 0.004 percent of the overall growth in Orange County for the same period. The Project would not conflict with OCP-2014 employment growth projections for the County and the City. However, similar to the housing and population discussion, the Project was not anticipated at the time the OCP-2014 regional growth projections were developed.

The Project would also generate approximately 534 temporary construction jobs during the buildout period. Construction jobs would be generated over the construction period of the Project, which is anticipated to be built out in approximately 2022. The precise length of construction would be based on market conditions. These jobs are typically filled by existing residents of the region and do not induce substantial housing demand.

[5] The OCP dataset is developed by using a multi-stage process. Historically, total population, housing, and employment were projected and allocated to smaller geographic areas based on an analysis of local policy, land use capacity, demographic changes, and assumed market focus. Small area projections were developed and these were reviewed by local jurisdictions; adjustments were made based on local jurisdictions' input where warranted.

Jobs/Housing Ratio Analysis

In addition to the absolute population and housing numbers discussed above, the jobs/housing balance is another indicator of a project's effect on growth in the Project area. Over time, Orange County is expected to become more jobs-rich than today as a result of economic and demographic forces. As noted above, the Project site is within the RSA E-44 subregion. The jobs/housing ratio for RSA E-44 was 2.61 in 2012, and is projected to be 2.67 in 2040 due to future developments in the City. Like the County and the subregion, the City is expected to remain jobs-rich. The Project is a residential development and would result in a total of 15 jobs associated with operation and maintenance. Therefore, the Project would not contribute substantially to the existing and projected jobs/housing imbalance in the City. Given the nominal number of jobs generated, the Project would improve the City's jobs /housing ratio by providing increased residential opportunities in the City. Table 4.12-4 compares the proposed Project's estimated jobs/housing ratios with the County, the City as a whole, and RSA E-44.

TABLE 4.12-4
COMPARISON OF PROPOSED PROJECT JOBS/HOUSING RATIOS
2012–2040

	County	City	RSA E-44	Proposed Project
2012 Jobs/Housing Ratio	1.41	2.59	2.61	–
2040 Jobs/Housing Ratio	1.48	2.50	2.67	0.02
Calculations based on OCP-2014 (CDR 2014).				

The proposed Project would provide 803 new dwelling units and approximately 15 new jobs, resulting in a 0.02 jobs/housing ratio upon completion, which is significantly below the jobs/housing ratios for the County and the City. In addition, the Project would contribute to the City's housing stock and provide new housing units located within proximity to a major employment concentration.

Direct Population Growth Potential

The housing, population and jobs/housing analyses provided above, demonstrates that the Project is not included in the current growth projections used as part of the long-range planning programs for the region. This would be expected because the RSA level projections in the OCP-2014 dataset do not exceed growth levels that would be allowed under the local General Plans (CDR 2014).[6] The Project would directly induce growth on the Project site by providing new homes on a site that the City's General Plan and OCP-2014 dataset do not identify for residential development. In light of this, no population growth was expected or included in the OCP-2014, and therefore any growth not previously anticipated, would be considered a direct population increase or growth and considered a significant impact pursuant to Threshold 4.12-1. However, in the context of the long-range plan for the City of Irvine, the Project functions as an infill project because it would be developing in a similar timeframe as the development of the OCGP and Great Park Neighborhoods. The Project would

[6] It should be noted, construction of the Project would be initiated in the same timeframes as the next updates to the OCP dataset; thereby allowing it to be incorporated into the long-range planning assumptions.

not substantially extend infrastructure and other improvements that would encourage development levels and extend beyond what is already planned elsewhere in the City and County. Therefore, substantial indirect growth related to the Project is not anticipated. For further discussion of growth-inducing impacts see Section 6.3, Growth-Inducing Impacts.

The significant physical impacts on the environment associated with the direct growth on the Project site have been evaluated in this EIR. The EIR does identify that the Project would contribute to the need for transportation improvements that may have significant environmental impacts (see Section 4.15, Transportation and Traffic). Additionally, there would be increased air emission (Section 4.3), greenhouse gas emissions (Section 4.7), public services (Section 4.13), and utilities and service systems (Section 4.16). (Note consistency with regional planning programs has been addressed in Section 4.10, Land Use and Planning.)

Impact Conclusion: *The Project proposes new dwelling units, which would generate approximately 1,598 new residents in the City. This growth has not been incorporated into the current long-range planning programs. Therefore, the Project would have a direct growth-inducing impact on the Project site. However, due to the nature of the Project, a substantial indirect growth-inducing impact related to the Project is not anticipated because the Project would not substantially extend infrastructure and other improvements that would encourage development levels beyond what is already planned elsewhere in the City and County. The direct growth-inducing effects would be considered a significant and unavoidable impact, pursuant to Threshold 4.12-1, as no population growth for the proposed Project was expected or included in the OCP-2014.*

4.12.6 CUMULATIVE IMPACTS

The cumulative study area for population and housing is Orange County and is based on the use of the regional growth forecasts provided by OCP-2014 for 2040. The proposed Project would involve development of up to a maximum of 803 residential units and 1,598 new residents. A preliminary assessment of the cumulative projects indicates that the other cumulative projects have been provided for in the long-range growth assumptions, with the exception of the El Toro, 100-Acre Parcel Development Plan project that is located on County-owned property, at the southerly edge of the former MCAS El Toro, east of the interchange of Interstate 5 (I-5) and State Route 133 (SR-133), within the City of Irvine. Similar to the proposed Project, the El Toro, 100-Acre Parcel Development Plan project is not included in the OCP-2014 projections or the growth projections of regional planning programs like the RTP/SCS. Similar to the proposed Project, this impact would be significant and unavoidable, as a revision to those programs is not within the jurisdiction or control of the County. Thus, cumulatively, the 100-Acre Parcel Development Plan project and the proposed Project would have significant and unavoidable cumulative impacts associated with direct population growth.

OCP-2014 estimates that there could be approximately 3.46 million people, 1.2 million dwelling units, and 1.89 million jobs in Orange County by 2040 (CDR 2014). Though the Project's growth may not have been considered at the time the OCP-2014 numbers were developed, it would represent a negligible amount of the future growth forecasts in the County (approximately 0.05 percent of the projected 2040 Orange County population; 0.07 percent of the dwelling units forecasted for 2040; and 0.004 percent of the employment forecasted for 2040). However,

regardless of the negligible amount of growth in comparison to the County, the proposed Project would contribute to a significant and unavoidable cumulative population growth.

Though the overall contribution to the County's growth would be limited, the Project would contribute to the intensification of development in the region at the Project and cumulative levels. However, it should be noted that, as there is more emphasis on a State and regional basis to provide sustainable development, intensification of land uses near existing population centers and on previously disturbed properties is encouraged to minimize overall environmental impacts.

4.12.7 MITIGATION PROGRAM

Development Requirements

No applicable development requirements have been identified for the proposed Project.

Mitigation Measures

There are no mitigation measures that would eliminate or reduce the direct population growth impact associated with the Project.

4.12.8 LEVEL OF SIGNIFICANCE AFTER MITIGATION

The Project would result in a significant, unavoidable direct impact related to population growth because it would be providing population beyond what has been planned for by the long-range planning programs. No population growth for the proposed Project was expected or included in the OCP-2014, and therefore any growth not previously anticipated would be considered a direct population growth. Additionally, the proposed Project would result in cumulative significant and unavoidable population growth in light of the El Toro, 100-Acre project that, similar to the proposed Project, was not anticipated in the regional growth projections.

However, due to the nature of the Project, a substantial indirect growth-inducing impact is not anticipated. For the cumulative analysis, even though the Project's population growth would be a negligible percentage of the overall planned growth in the region, the Project would contribute to a significant and unavoidable cumulative impact with respect to population growth.

4.12.9 REFERENCES

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4.13 PUBLIC SERVICES

This section describes existing public services for the West Alton Parcel Development Plan (Development Plan) Project area and identifies and addresses potential Project impacts related to the following services (the service provider is indicated in parentheses):

- Fire protection (Orange County Fire Authority [OCFA]),
- Police protection (City of Irvine),
- Public schools (Irvine Unified School District),
- Library services (Orange County [OC] Public Libraries).

Project impacts to parks and recreational facilities is discussed in Section 4.14, Recreation.

4.13.1 REGULATORY SETTING

Fire Protection

As part of their review, OCFA utilizes the 2013 California Fire Code, which is based on the 2012 Edition of the International Fire Code (IFC). The IFC includes regulations for the protection of life and property from fire and explosion. The Project would need to comply with the 2013 CFC and voluntarily using the local amendments, as appropriate.

Police Protection

There are no federal, State, or local regulations related to police protection that are applicable to this Project. The Project's consistency with applicable General Plan goals and policies is provided in Section 4.10, Land Use and Planning.

Schools

The proposed Project is located within the boundaries of the Irvine Unified School District (IUSD, District). The IUSD is under the State government's jurisdiction; it is subject to *California Education Code* regulations and is under the governance of the State Board of Education. School capital facility funds come from the following sources: (1) State funding; (2) State bonds; (3) local General Obligation bonds; (4) developer fees; (5) surplus property sale proceeds; and (6) School Facility Improvement and Community Facilities Districts. Limited or no funding is available for school facilities from the federal government.

The IUSD participates in the State funding program actively obtaining approximately $210 million in State funding for new construction and modernization projects districtwide since 1999. The most recent new construction projects in IUSD were constructions of Beacon Park K-8 and Portola High School completed in Fall of 2016. With the recent passage of Proposition 51, IUSD is expecting to begin receiving state funding for recently constructed facilities including Beacon Park K-8 and Portola High School.

The last new construction project to receive state funds was Stonegate Elementary. IUSD has 6,684 elementary school, 1,809 middle school, and 3,215 high school seats in funding eligibility from the State's new construction program (JCJ 2016). State funding eligibility varies with projected enrollment growth as compared to the number of existing seats in the district.

As indicated above, California voters approved the statewide Proposition 51 on November 8, 2016 which authorized $12 billion in funds for the School Facilities Program. IUSD's eligibility estimates are expected to change once the outstanding applications are funded by the State Allocation Board.

Senate Bill (SB) 50, which passed in 1998, provides a comprehensive school facilities financing and reform program and enables a Statewide bond issue to be placed on the ballot. The provisions of SB 50 allow the State to offer funding to school districts to acquire school sites; construct new school facilities; and modernize existing school facilities. SB 50 also establishes a process for determining the amount of fees developers may be charged to mitigate the impact of development on school facilities resulting from increased enrollment. Under this legislation, a school district could charge fees above the statutory cap only under specified conditions and then only up to the amount of funds that the district would be eligible to receive from the State. According to Section 65996 of the *California Government Code,* development fees authorized by SB 50 are deemed to be "full and complete school facilities mitigation".

SB 50 establishes three levels of school impact developer fees that may be imposed upon new development.

- **Level 1** fees are the base statutory fees. These amounts are the maximum that can be legally imposed upon new construction projects by a school district unless the district qualifies for a higher level of funding. Level 1 school fees are a maximum of $3.48 per assessable square foot of residential construction and a maximum of $0.56 per square foot of enclosed and covered space for commercial/industrial development.
- **Level 2** fees allow the school district to impose developer fees above the statutory level, up to 50 percent of new school construction costs. To implement Level 2 fees, the governing board of the school district must adopt a School Facilities Needs Analysis (SFNA) and meet other prerequisites in accordance with Section 65995.6 of the *California Government Code.* The SFNA documents that the district has met prerequisite eligibility tests and calculates the fee per square foot of new development. If the school district is eligible for new construction funding, the State will match the Level 2 fees if funds are available.
- **Level 3** fees apply if the State runs out of bond funds, allowing the school district to impose 100 percent of the cost of the school facility or mitigation minus any local dedicated school monies. The IUSD would not be eligible to charge Level 3 fees with the current Level 1 fee in place.

In June 2016, the IUSD voters approved the School Facilities Improvement Measure E. The $319 million measure will fund school modernization and construction projects districtwide. The tax rate would be $29 per $100,000 of assessed property value for a duration of 30 years. The Project is located outside of the boundaries of this special assessment district.

Libraries

There are no federal, State, or local regulations applicable to this Project related to library services. The Project's consistency with applicable General Plan goals and policies is provided in Section 4.10, Land Use and Planning.

4.13.2 METHODOLOGY

Fire Protection

The OCFA was contacted to determine if the Project would significantly impact OCFA's ability to provide fire protection services. The analysis is based on information reviewed and provided by OCFA. A summary discussion of fire hazards/fuel modification is provided below under Threshold 4.13-1(i) and further discussed in Section 4.8, Hazards and Hazardous Materials.

Police Protection

The Irvine Police Department (IPD) was contacted to determine if the proposed Project would significantly impact its ability to provide services. The analysis is based on information and input reviewed by the IPD.

Schools

The schools analysis is based upon the *Schools Impacts and Mitigation Report for the West Alton Parcel, Environmental Impact Report* (Schools Report) prepared by Jeanette C. Justus Associates (JCJ 2016). The Schools Report is provided in Appendix K of the Draft EIR. The methodology used in this analysis assumes that the number of new students generated from the Project is directly related to the type and amount of the Project's residential construction within the boundaries of the school district. The analysis includes an evaluation of the existing public school sites' capacity and whether it would accommodate Project-generated students.[1]

To evaluate school impacts, a student generation rate was developed and applied to the future development. The student generation rate is a ratio of students per home, and it is usually based on recent construction history or districtwide data. The student generation rate is also usually grouped by product type because different product types and density of units (i.e., single-family or multi-family homes and low to high density) generate students at different rates. The student generation rates used for this analysis are shown in Table 4.13-1.

[1] Private institutions and higher education institutions are not evaluated since they are privately funded and/or are not mandated to provide services.

TABLE 4.13-1
STUDENT GENERATION RATES

Dwelling Unit Type	K–6	7–8	9–12	Total
Multi-Family Student Generation Rate	0.15	0.04	0.07	**0.26***

K: Kindergarten.
* Totals may not add up due to rounding.
Source: JCJ 2016.

The loading factor that the State uses to calculate school building capacity is 25 students per elementary classroom (kindergarten [K]–grade 6) and 27 students per middle and high school classroom (grades 7–12) (JCJ 2016).

Libraries

The OC Public Library (OCPL) was contacted to determine if the proposed Project would significantly impact the library's ability to provide services. Based on correspondence with the OCPL, it does not set a service standard as there is no service standard set forth by the American Library Association (Fried 2015). For informational purposes, an evaluation pursuant to the City of Irvine guidance is also provided.

4.13.3 EXISTING CONDITIONS

Fire Protection

The OCFA is a regional fire service agency that serves 23 cities in Orange County and all unincorporated areas. The City of Irvine is a partner city. The OCFA protects over 1,680,000 residents with its 71 fire stations located throughout Orange County. OCFA also has a network of Reserve Firefighters who operate at 10 stations throughout Orange County (OCFA 2016c).

The OCFA maintains mutual aid agreements with all other cities in Orange County and with the State of California. The OCFA also maintains mutual and/or automatic aid agreements with Los Angeles, Riverside, San Bernardino, and San Diego Counties; the Camp Pendleton Fire Department; and the U.S. Forest Service.

Resources are deployed based on a regional service delivery system, assigning personnel and equipment to emergency incidents without regard to jurisdictional boundaries. Due to the diverse makeup of the County, the equipment used has the versatility to respond to both urban and wildland emergency conditions.

The OCFA has established the following goals for the provision of fire protection and emergency medical services:

- The first engine should reach the emergency scene within 7 minutes 30 seconds from receipt of a call, 90 percent of the time and

- The first paramedic (advanced life support response unit) should reach the emergency scene within 10 minutes from receipt of a call, 90 percent of the time.

There are three OCFA fire stations located in the City of Irvine that are in the general vicinity of the Project area that would provide initial response to the Project site. Table 4.13-2 identifies the locations and resources available at each of these stations. In addition to these three stations, resources and personnel may be dispatched from other OCFA stations, as necessary, to respond to fire and emergency medical calls.

TABLE 4.13-2
OCFA FIRE STATIONS IN PROXIMITY TO THE PROJECT SITE

Fire Station	Address	Equipment	Personnel	Distance to the Project Site
38	26 Parker	Paramedic Engine	12 personnel	1.7 mile
27	12400 Portola Springs	Paramedic Engine/Wildland Engine	12 personnel	2.3 miles
20	6933 Trabuco Road	Paramedic Engine/Water Tender	14 personnel	5.8 miles
Source: Rivers 2016.				

Fire Hazard Severity Zone (FHSZ) maps are created by the California Department of Forestry and Fire Protection (Cal Fire). The maps identify areas where a wildfire is more likely to occur. On February 28, 2012, the Irvine City Council adopted the Very High FHSZ (VHFHSZ). The Project site is not located in but is located adjacent to an area designated as a VHFHSZ (OCFA 2016d).

Police Protection

Police protection services for the City of Irvine, including the Project site, are provided by the IPD. The IPD is headquartered at the Irvine Civic Center complex located at One Civic Center Plaza. The IPD also has a satellite facility located in the Irvine Spectrum, approximately 2.5 miles to the west/southwest of the Project site; however, this facility is only staffed as needed (Mahoney 2016b). The IPD provides all services normally associated with a municipal law enforcement agency, including uniform patrol, investigations, crime analysis, crime prevention, K-9 patrol, Special Operations Unit, forensic investigations, accident investigation/traffic enforcement, Drug Abuse Resistance Education, and emergency management/disaster preparedness. The IPD has access to contract helicopter service through the Orange County Sheriff's Department. Mutual aid assistance agreements exist that provide support from other Orange County law enforcement jurisdictions and State and federal agencies.

The IPD coordinates the City of Irvine Emergency Management Program. Focused on disaster preparedness and using the State of California Standardized Emergency Management System model, the IPD maintains a written plan document and a trained citywide liaison group. The department operates a state-of-the-art Emergency Operations Center and a Mobile Command Center to respond to various types of emergencies.

The IPD headquarters is located approximately 6.9 miles from the Project site, and primary response to the Project site would be by patrol vehicles that are assigned geographically

throughout the City. The Project site is located in the Portola geographic area, which is designated as the section of Irvine north of Interstate (I) 5. Response time to calls for service may vary depending upon their location at the time of dispatch. At any given time, there are a minimum of 9 to 12 sworn officers available to respond to calls for service anywhere in the city.[2] The IPD's 2015–2016 response goals are as follows (City of Irvine 2015a):

- Respond to Priority 0 (emergency calls in progress with potential for serious injury or loss of life) events within 6 minutes, 85 percent of the time.
- Respond to Priority 1 (urgent calls/crimes in progress) events within 10 minutes, 85 percent of the time.
- Respond to Priority 2 (less serious crimes occurring without a threat to victim) events within 20 minutes, 85 percent of the time.
- Respond to Priority 3 (routine calls for service that do not require immediate response) within 60 minutes, 85 percent of the time.
- Process all arrestees in a safe and timely manner, while ensuring compliance with State and local standards.

The current police facilities are adequate to handle the existing personnel and equipment that are employed and utilized by the department. The IPD currently has 217 sworn police officers and 222 non-sworn staff, which includes 93 full-time professional staff members, 129 part-time staff members, and 79 full-time equivalencies (Mahoney 2016a). A staffing goal ratio is used to generate prospective officer requirements. The City analyzes compliance with response time guidelines in its Strategic Business Plan and allocates resources to police services as appropriate.

Although the Project site consists of property that is owned by the County of Orange, the Project site is located in the City of Irvine and is under the jurisdiction of the IPD. Traffic laws on City streets, and private streets within City jurisdiction, are enforced by the IPD while traffic enforcement on freeways and streets in unincorporated Orange County is provided by the California Highway Patrol and the Orange County Sheriff's Department, respectively.

Schools

As indicated above, the Project would be served by the IUSD, which serves grades kindergarten through 12th grade (K–12). The District currently operates 38 schools: 22 elementary schools (K–6), 6 middle schools (7–8), 3 K–8 schools, 5 comprehensive high schools (9–12), and 2 alternative education facilities.

Based on information provided in the October 5, 2016 Weekly Enrollment Report, districtwide enrollment for the 2016 - 2017 school year is 33,265 students with a total school capacity of 39,212 seats. As shown in Table 4.13-3, the IUSD had an enrollment of 18,151 students in grades K–6, 5,270 students in grades 7–8, and 9,844 students in grades 9–12 (JCJ 2016). When

[2] The number of officers working at a given time depends on the time of day. For instance, there are a minimum of 12 officers assigned to work from 1:00 PM to 11:00 PM, when the IPD experiences the largest number of calls for service. However, a minimum of nine officers are assigned to work from 11:00 PM to 6:00 AM, when fewer calls for service are experienced. In general, there are a minimum of ten officers assigned to work from 6:00 AM to 1:00 PM (Mahoney 2015).

enrollment is compared to school capacity aggregated by grade level, an estimated capacity surplus of approximately 5,947 seats is identified for grades K–12. Over the last 10 years, the IUSD has experienced an increase in enrollment of approximately 29 percent or 7,400 students.

TABLE 4.13-3
IRVINE UNIFIED SCHOOL DISTRICT
DISTRICTWIDE SCHOOL CAPACITY AND ENROLLMENT (2016–2017)

School (Grade Level)	School Capacity	Enrollment	Available Capacity
Elementary (K–6)	20,297	18,151	2,146
Middle (7–8)	6,021	5,270	751
High (9–12)	12,894	9,844	3,050
District Total	**39,212**	**33,265**	**5,947**

K: kindergarten.

High School Capacity Calculation uses 2,400 seats at Portola HS. Portola High School opened with 9th grade only in 2016 – 2017 and will add 600 students per year as the 9th grade of 2016-2017 matriculates.

Source: JCJ 2016.

The IUSD schools assigned to the Project site are Portola Springs Elementary School, Jeffrey Trail Middle School, and Portola High School. Table 4.13-4 identifies the capacity of these schools as reported in 2016 (JCJ 2016). The location of these schools, as well as the IUSD boundary, are shown on Exhibit 4.13-1. Additionally, Beacon Park K–8 School, which opened in Fall of 2016, is located near the Project site.

TABLE 4.13-4
ENROLLMENT AND CAPACITY OF SCHOOLS
SERVING THE PROJECT SITE

School Name	Current Permanent Capacity	2016 - 2017 Enrollment	Available Capacity	Distance to the Project Site (miles)
Portola Springs Elementary School	900	774	126	2.2
Jeffrey Trail Middle School	1,200[a]	1,068	132	4.8
Portola High School	600[b]	396	204	5.9

[a] Jeffrey Trail Middle School capacity updated per IUSD Board of Education meeting presentation "Heritage Fields 2nd School" on July 12, 2016.

[b] Total Portola High School capacity is expected to include 2,400 permanent seats. Portola High School opened with 9th grade only in 2016 – 2017 and will add 600 students per year as the 9th grade of 2016-2017 matriculates.

Source: JCJ 2016.

Libraries

The OCPL provides library services to municipalities and unincorporated parts of Orange County through 33 library branches (30 branch and 3 regional libraries) located throughout the service area. The City of Irvine has three library branches: the Heritage Park Regional Library, the University Park Library, and the Wheeler Branch Library (refer to Table 4.13-5).

Aerial Source: NAIP, ESRI 2014

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IUSD Schools Serving the Project Site

Exhibit 4.13-1

West Alton Parcel Development Plan EIR

N W E S

5,000 2,500 0 5,000 Feet

The existing libraries total approximately 43,661 square feet and 326,982 volumes (Butler 2015).

TABLE 4.13-5
ORANGE COUNTY PUBLIC LIBRARY FACILITIES
(CITY OF IRVINE)

Facility	Facility Square Footage	Number of Volumes
Heritage Park Regional Library	21,000	160,367
University Park Library	11,411	115,693
Wheeler Branch Library	11,250	50,922
Total	**43,661**	**326,982**
Source: Butler 2015 (facility square footage and number of volumes).		

Though the County retains exclusive land use control over the Project site and is entitled to develop the site as though the property remained unincorporated, the City of Irvine standards are discussed for informational purposes. The City of Irvine General Plan Public Facilities Element Objective G-1, Policy (o) calls for the provision of library space that meets or exceeds County master plan service levels (0.2 sf of library facility per capita), while continuing to explore future options related to library services such as establishment of a City library system or cable television and/or internet tie-ins with the various libraries of the University of California system (Irvine 2015b, 2015c). In 2005, the City established an ad hoc Library Task Force and, in October 2006, designated a standing Library Services Advisory Committee. The purpose of the Library Services Advisory Committee is to lead the expansion of library service in the City and to oversee ongoing library operations and maintenance. A Library Needs Assessment Study, which addresses needs and includes recommendations for improvement of library services in the City, was completed in October 2006 (Arroyo Associates 2006). The study determines that new facilities are needed, especially in light of anticipated population growth. The City adopted the 17 recommendations presented in the Library Needs Assessment Study. The recommendations include addressing the feasibility of expanding and improving library services in the City. The City adopted this standard from the Library Needs Assessment Study into its General Plan on March 10, 2009. It remains unchanged in the City's current General Plan Public Facilities Element, with respect to amendments through 2015 (Irvine 2015b, 2015c). Based on the recommended service standards, the City is currently underserved by both library square footage and number of library volumes.

In August 2007, the City prepared a Library Alternatives Study (City of Irvine 2007) to provide information to the City Council on the feasibility of establishing a new library(ies) in Irvine, based on the recommendations contained in the Library Needs Assessment. The Library Alternatives Study presents six potential sites for a new library and identifies various library facility options, including construction of a new community (branch) library(ies) and/or a new main library at the Orange County Great Park (OCGP). The Study further recommends that a new library facility(ies) be included within the Citywide Capital Improvement Program and Public Facilities Master Plan that would allow the City Council to assess development of new library facility(ies). Currently, there are no City capital funds designated for expansion of the OCPL system. The OCGP Master Plan, which was approved on August 2, 2007, shows a potential

39,000 square foot library facility in the OCGP. However, at this time, there are no capital funds designated for expansion of the OCPL system.

In addition, it should be noted that there are three colleges and universities in the City of Irvine, each with an academic library. The academic libraries are resources available to residents, as each allows non-students to purchase a library card with borrowing privileges. Concordia University Irvine, a private institution, requires a Concordia University identification (ID) card or a guest card that may be purchased for an annual fee for most library services. Both Irvine Valley College (IVC), a public community college, and the University of California, Irvine (UCI), a public university, allow the public to use their library materials within the libraries. To check out materials from IVC, a library card is required and can be purchased. To check out materials from UCI, a library card is required (with an annual fee), which allows checkout at all libraries within the University of California system. IVC has a collection of approximately 69,199 volumes, which includes e-books and audiovisual materials (NCES 2015), while UCI's collections, housed at four main branches, include approximately 3.4 million volumes and approximately 74,000 print and online journals and scholarly resources as well as a collection of 2.9 million microforms (UCI 2015). As of July 2015, Concordia University has over 80,000 volumes in addition to reference collections and periodical collections, among others (Mikhail 2015).

4.13.4 THRESHOLDS OF SIGNIFICANCE

The criterion used to determine the significance of impacts on public services is based on the County's CEQA Environmental Checklist. The project would result in a significant impact related if it would:

Threshold 4.13-1 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:

(i) Fire protection
(ii) Police protection
(iii) Schools
(iv) Other Public Facilities

4.13.5 IMPACT ANALYSIS

As discussed in Section 4.0, Impact Analysis Introduction, the Development Plan identifies a number of development requirements which serve to minimize potential impacts (the development requirements are in Appendix C of the Development Plan). The inclusion of these requirements as appropriate, will be verified during the development review and/or ministerial permit process (e.g., building permit). The development requirements also include others measures that will reduce or avoid potentially significant Project impacts. The County intends to implement the development requirements as part of the Project and has included the development requirements in the Development Plan for that purpose. These measures are

listed in Section 4.13.7, Mitigation Program because these measures will be tracked as part of the Mitigation Monitoring and Reporting Program.

Threshold 4.13-1(i)

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:

(i) Fire protection?

Fire protection services to the Project site would be provided primarily by Fire Station Nos. 38, 27, and 20. Station No. 38 is located approximately 1.7 miles to the south of the Project site; Station 27 is located approximately 2.3 miles to the north of the Project site; and Station No. 20, a temporary station, is located approximately 5.8 miles to the northwest of the Project site.

The proposed Project would involve the development of up to 803 residential units, which would result in approximately 1,598 new residents and 15 employees. Development of these units would increase the demand for fire protection and emergency services and the associated demand on fire protection and emergency service apparatus, equipment, and personnel beyond existing levels. The Project is anticipated to create the typical range of service calls for residential developments, including structural fires and emergency medical and rescue services.

Because of the Project site's location adjacent to an area designated as a Very High Fire Hazard Safety Zone (VHFHSZ), the Project includes a Conceptual Fuel Modification Plan and Fire Protection Plan, depicted on Exhibit 3-14 and 3-15, to minimize the spread of fires and to protect the Project site from the potential of wildland fires from the adjacent property. The Conceptual Fuel Modification Plan and Fire Protection Plan were approved on July 13, 2016 (OCFA 2016a and 2016b). The conceptual fuel modification zones would occur in areas adjacent to the Wildlife Movement Corridor and in areas that are adjacent to the natural open space (identified as part of the NCCP/HCP Reserve) to the north. Within the fuel modification zones, the Project includes radiant heat walls, which would be either block or tempered glass over block with a maximum height of 6 feet. The radiant heat walls are planned along the northeastern/eastern boundary of Planning Area 1 interfacing with the Reserve and along the southern boundary of Planning Area 1 interfacing with the Wildlife Movement Corridor. Additionally, radiant heat walls are proposed along the northern boundary of Planning Area 2 interfacing with the Wildlife Movement Corridor. Additional details regarding fuel modification dimensions and planting criteria are included in the Fire Behavior Analysis Report and Fuel Modification Design Criteria for the Project site in Appendix D of the Development Plan, which is in Appendix A of this EIR. In addition, Section 4.8 of this EIR analyzes potential fire hazards.

The OCFA has indicated that Station 38 is located within two miles of the Project site and Station 27 is located 2.3 miles from the Project site. Having a station within a two-mile proximity generally allows OCFA to meet response time objectives when responding to an emergency call. OCFA strives to have an engine on the scene within five to seven minutes after a 9-1-1 call has been placed (County of Orange 2015). OCFA has indicated that response times

vary on capability and the average response is between 4 minutes and 49 seconds and 7 minutes and 20 seconds depending on response needs. Current response times to the Project area for EMS calls meets or exceeds OCFA's 80 percent standards of coverage (Rivers 2016). DR FIRE-5 requires a Secured Fire Protection Agreement (SFPA) for the Project, which would ensure the County's pro-rata fair share funding of capital improvements necessary to maintain adequate fire protection services in the area. Compliance with the SFPA, as identified in DR FIRE-5, would ensure that adequate fire protection and emergency services would be provided. Thus, no new or physically altered fire facilities that would result in substantial adverse physical impacts would be required as a result of the Project.

Development of the Project site would require compliance with several development requirements (DRs) pertaining to construction activities and project design. These measures include installation of a fire alarm system pursuant to OCFA standards (DR FIRE-1) and submittal of a Fire Master Plan that complies with OCFA codes and includes identification of site access to and in the Project area (DR FIRE-2). In addition, in conjunction with construction activities, OCFA must approve the introduction of lumber (combustible materials) into the Project area. In compliance with DR FIRE-3, the proposed Project is required to install an approved automatic fire sprinkler system. DR FIRE-4 requires the installation of traffic signal preemption equipment if determined necessary by the Fire Code Official in consultation with the Manager of Building & Safety or designee. DR FIRE-5 requires a SFPA with OCFA. Additionally, DR HAZ-4 from Section 4.8, Hazards and Hazardous Materials, would be applicable to the proposed Project to avoid and minimize fire hazards. These DRs (DR FIRE-1 through DR FIRE-5 and DR HAZ-4) ensure adequate provision of fire protection and emergency services/access to the future residents of the Project site and surrounding areas. Furthermore, as indicated above, given that the Project site is located adjacent to a Very High Fire Hazard Safety Zone (VHFHSZ), a Fuel Modification Plan and a Fire Protection Plan, as part of the Fire Behavior Analysis and Fuel Modification Design Criteria, were prepared to establish a defensible space and protect the Project site from the potential of wildland fires. Therefore, based on information from OCFA and the Project's compliance with the DRs, impacts to fire protection services would be less than significant and no mitigation is required.

Impact Conclusion: *The Project would create the typical range of service calls for residential developments, including structural fires and emergency medical and rescue services, and hazardous materials inspections and response. With the incorporation of DR FIRE-1 through DR FIRE-5 and DR HAZ-4, Project impacts on fire protection services would be less than significant pursuant to Threshold 4.13-1(i). No new or physically altered fire facilities that would result in substantial adverse physical impacts would be required as a result of the Project.*

Threshold 4.13-1(ii)

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:

(ii) Police protection?

Implementation of the Project would generate an increase in population of approximately 1,598 residents and approximately 15 employees (refer to Section 4.12, Population and Housing). The increase in population would result in an increased demand for police protection services, thus requiring more police personnel and potentially associated equipment and vehicles.

During construction and operation of the Project, the need for police and emergency services would grow due to the increase in population and associated potential for additional crime and accidents. Crime and safety issues during Project construction may include theft of building materials and construction equipment, malicious mischief, graffiti, and vandalism. As the Project site is currently used as a box container nursery and green waste operation, crime and safety issues should be similar during construction. After construction, the proposed land uses are anticipated to generate a typical range of police service calls as similar developments (e.g., vehicle burglaries and residential thefts).

Based on correspondence with the IPD, the IPD is anticipating approximately 615 additional calls for service per year to meet all law enforcement service needs of the proposed development, which has an anticipated population of up to 1,598 persons and approximately 15 employees (Purvis 2016). The IPD has indicated that the Project would require approximately 1.4 sworn officers, 0.5 non-sworn full-time professional staff, and 0.4 non-sworn part-time staff member to adequately serve the Project (Purvis 2016). The demand for additional personnel and associated equipment would be provided for through the continued implementation of the City's Strategic Business Plan and Budgeting process. Through this process, police department needs are assessed and budget allocations are revised accordingly to ensure that adequate levels of service are maintained throughout the City. However, the IPD indicates that any increase in number of officers needed to serve the Project would not require new or physically altered governmental facilities that would cause significant environmental impact (Mahoney 2016a).[3] Compliance with DR FIRE-4, which requires the installation of traffic signal preemption equipment if determined necessary, as specified above under Fire Protection, would further ensure that adequate police protection response times are provided.

Based on correspondence with the IPD, impacts to police protection services would be less than significant and no mitigation is required.

Impact Conclusion: *The Project would increase the demand for police protection services, increasing demand by approximately 1.4 sworn officers, 0.5 non-sworn full-time professional staff, and 0.4 non-sworn part-time staff member. However, the increase of sworn and non-sworn staff members would not require new or physically altered governmental facilities. Compliance with DR FIRE-4, would further ensure that adequate police protection response times are provided. This impact is considered less than significant pursuant to Threshold 4.13-1(ii).*

[3] The funding for the hiring and training of additional staffing is derived from property taxes that would be generated by the Project. CEQA does not consider fiscal matters; and, therefore, they are not addressed as part of this Project EIR.

Threshold 4.13-1(iii)

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:

(iii) Schools?

To evaluate the potential school impacts, the student generation rates (see Table 4.13-1) were applied to the future development. As shown in Table 4.13-6, the construction of the 803 new units proposed by the Project would generate approximately 208 additional students.

TABLE 4.13-6
STUDENTS GENERATED BY THE PROPOSED PROJECT

Dwelling Unit Type	Units	K–6	7–8	9–12	Total
Multi-Family Student Generation Rate		0.15	0.04	0.07	**0.26**
Medium- to High-Density Residential	803	120	32	56	**208**

K: kindergarten.
Source: JCJ 2016.

The number of K-6 students generated by the proposed Project would not exceed available capacity of the schools that would serve the Project. Based on current enrollment figures and available capacity, Portola Springs Elementary School has the available capacity of 126 students and would accommodate the proposed Project students. It should be noted that several development projects, including Portola Springs, are covered by comprehensive school impacts mitigation agreements providing funding in excess of payment of fees for construction of new school facilities. Because of these agreements, students from these developments have priority enrollment at the planned schools. While there is capacity currently available at Portola Springs Elementary School, it is possible that additional portable classrooms maybe required to accommodate students from the Project. IUSD Board Policy 7112 regarding new school capacity identifies that new schools are planned for a maximum of 1,000 students to be housed in both permanent and portable facilities (IUSD 2013). However, on September 17, 2013, the IUSD Board of Education temporarily suspended this enrollment cap to allow for a maximum of 1,200 students per campus. The use of portable facilities provides IUSD with flexibility in student enrollment that fluctuates due to different trends and demographics.[4]

[4] According to the IUSD Board Policy 7112, elementary schools and middle schools allow up to 1,200 students while high schools allow up to 2,600 students at the comprehensive high schools. CEQA Guidelines Section 15314 "Minor Additions to Schools" allows for CEQA exemption if the increase in capacity is no more than 25 percent or ten classrooms of original student capacity, whichever is less. In this case, the 200 students is 20 percent of the original student capacity and falls into the exemption category. Should Portola Springs Elementary School be expanded beyond 1,000 seats, IUSD would be eligible to file a CEQA exemption.

Additional portable classrooms at Portola Springs Elementary School would be added within the existing developed portion of the school site.

Jeffrey Trail Middle School has a total capacity of 1,200 students with 132 seats available in the 2016-2017 school year. IUSD projects Jeffrey Trail Middle School will run out of capacity by 2018 (JCJ 2016). Additional capacity at the middle school level could also be provided by Beacon Park K–8 School, opened in August 2016. However, Beacon Park K–8 School falls under the existing comprehensive school impacts mitigation agreements with Heritage Fields that provides funding in excess of payment of fees for construction of new school facilities. Therefore, students from the Great Park developments have priority enrollment at Beacon Park. To accommodate the Project's 32 middle school students, the IUSD may offer attendance at other middle school schools where capacity is available or additional classrooms (i.e., portable classrooms) may be required. The appropriate course of action to accommodate the additional students will be determined by IUSD at the time additional capacity is required. IUSD would need to assess the best approach based on enrollment at the time the units are constructed. Based on the limited number of additional students it is not anticipated that new schools would be required; however, should it be determined that new facilities are required and the improvements cannot be accommodated under the CEQA exemption (Section 15314 "Minor Additions to Schools"), additional CEQA documentation may be required

Portola High School has a planned capacity of 2,400 students and would accommodate the proposed Project's 56 high school students.[5] Pursuant to IUSD Board Policy 7112, the school would have an additional capacity of 200 in portable classrooms to address peak enrollments. However, similarly to Portola Springs Elementary School, Portola High School also falls under the existing comprehensive school impacts mitigation agreements that provide funding in excess of payment of fees for construction of new school facilities.[6] Therefore, students from new development surrounding the Project that is subject to the existing mitigation agreements have priority of enrollment at Portola High School. Additional classrooms (i.e., portable classrooms) may be required at Portola High School to accommodate the Project's 56 high school students. Those additional portable classrooms at Portola High School would be added within the existing developed portion of the school site. Alternatively, depending on the overall student generation in the area and the timing of occupancies of the Project as well as from projects with comprehensive school impacts mitigation agreements, IUSD may assign Project students to other high schools within the district, where there may be available capacity.

The IUSD has a Level 1 fee program in place, and the Project Applicant would be required to pay mandated school fees as required by Section 65995 of the *California Government Code.* Payment of the developer fees required by State law would provide full and complete mitigation of potential impacts to schools resulting from the proposed Project. The Project would result in less than significant impacts to schools.

Impact Conclusion: *The Proposed Project would generate approximately 208 students in the IUSD. The Project would be required to comply with the California Government Code (payment of State-mandated school fees). Therefore,*

[5] Portola High School opened with capacity for 600 9th grade only in 2016 – 2017 and will add 600 students per year as the 9th grade of 2016-2017 matriculates

[6] It should be noted that the elementary school and high school are subject to the mitigation agreements. However, Jeffrey Trail Middle School is not part of the mitigation agreements that address the new elementary; therefore, if there is a need for additional capacity, IUSD may use a different approach for addressing the shortfall.

with payment of State-mandated school fees, impacts to schools would be less than significant pursuant to Threshold 4.13-1(iii). While the provision of portable classroom facilities may be required to accommodate Project generated students, the provision of these facilities would not exceed student capacity guidelines for new schools pursuant to IUSD Board Policy 7112 and would not result in substantial adverse physical impacts.

Threshold 4.13-1(iv)

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:

(iv) Other Public Facilities?

Increased demands for library services are primarily driven by increases in permanent population, which are associated with development of residential land uses only. Therefore, the following analysis addresses the potential impacts associated with library facilities based on the proposed residential uses (up to 803 new residential units).

Residents of Irvine can use any branches within the OCPL library system, including those within neighboring cities such as Tustin and Costa Mesa; however, future residents of the proposed Project are anticipated to be primarily served by the libraries in the City of Irvine.

With an estimated population increase of 1,598 residents, additional demand for library services would result from implementing the proposed Project. However, library services have changed in the last five years and, according to the OCPL, the focus is on incorporating electronic materials (e-materials) and not on volumes in the traditional sense (Fried 2015). Use of e-materials facilitates the trend for accessing information online and reduces the size of "brick and mortar" facilities needed to serve the population.

Though the Pre-Annexation Agreement provides that the Project site could be developed as though the property were County unincorporated land, the City of Irvine library service guidance has been addressed for informational purposes. The population estimate for the City of Irvine as of 2012, according to the Center for Demographic Research, is 227,094 (CDR 2014). Based on the City of Irvine's 2012 population estimate, using the City of Irvine's adopted library service ratios, and using the City of Irvine standard of service, there is an existing shortfall of 69,886 sf of library facilities and 240,753 volumes to service the existing population. In addition, several recommended locations and funding mechanisms are currently being assessed for new and expanded library facilities, including the potential for a new main library to be located at the OCGP. Per the City of Irvine adopted library service ratio, the Project would result in the need for approximately 755 sf of library facility and 3,775 additional volumes beyond the current shortfall. With the addition of the anticipated Project population, the existing shortfall in volumes and library facility square footage using City of Irvine library ratios would continue.

Based on coordination with the OCPL system, the County has not established a service standard and no such standard has been set forth by the American Library Association. Furthermore, the threshold of significance focuses on whether the Project would result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts. The trends in library usage, which includes heavier reliance on electronic materials and less on physical volumes and print materials, minimizes the need for expanding the physical library facilities because the existing structures can be used more effectively. The OCPL has indicated there are no plans to construct new libraries to serve the Project site. The proposed Project would not, in and of itself, trigger the need for construction of new or expanded library facilities. Therefore, the Project would not result in impacts associated with the need for new or physically altered governmental facilities.

Impact Conclusion: *With an increase of approximately 1,535 residents, the Project would result in additional demand on the OCPL. However, the County has not established a service standard and no such standard has been set forth by the American Library Association. Library services have changed in the last five years and according to the OCPL, the focus is on incorporating electronic materials (e-materials) and not on volumes in the traditional sense. The OCPL has indicated there are no plans to construct new libraries to serve the Project area. Therefore, the Project would not, in and of itself, trigger the construction of new or expanded library facilities, and the impact is less than significant pursuant to Threshold 4.13-1(iv).*

4.13.6 CUMULATIVE IMPACTS

Fire Protection

Though OCFA provides fire protection services to 23 cities in the County and unincorporated Orange County, the geographic area for the cumulative analysis of fire protection services is the northern portion of the City of Irvine. This was selected because these are the OCFA facilities that would experience the Project's contribution to cumulative impact. The Project would not contribute to cumulative impacts on OCFA facilities in other service territories and no new facilities are needed to serve the Project. The Project and other developments in the County would increase the population and introduce structures that would create a demand for fire protection and emergency services. This portion of the City of Irvine is projected to have substantial growth, including the OCGP. This cumulative demand for fire protection services would require additional personnel and resources at OCFA to provide the same level of service and to maintain existing response times. To address this future cumulative demand, OCFA has existing plans to provide a new Fire Station 20, which would serve the demand for the subarea. The new Fire Station 20 would be constructed in the vicinity of the existing temporary station. The site is heavily disturbed due to the construction of the temporary facilities. No significant environmental impacts associated with the construction of the new fire station are anticipated because of the current site conditions and lack of resources on site. Additionally, individual developments are required to comply with pertinent provisions of the applicable fire codes and other conditions and regulations similar to those imposed on the Project by the Development Plan to prevent the creation of fire hazards, to promote fire safety, and to facilitate emergency

response. This compliance by the Project and other developments would avoid potentially significant cumulative adverse impacts on fire protection services.

Police Protection

The geographic area for the cumulative analysis of police protection services is the service territory for the IPD, which is the City of Irvine. As with fire protection services, future projects in the City, including the Project, are expected to increase demand for police protection services and would contribute to the need to expand facilities and operate such services. Approved on July 22, 2008, Addendum No. 5 to the 2003 OCGP EIR evaluated the Amended and Restated Development Agreement (ARDA) between Heritage Fields and the City of Irvine. Pursuant to the ARDA, Heritage Fields provided a 5.5-acre site to the City for a police facility. The 2011 OCGP EIR discussed the impacts associated with construction and operation of the new police substation (City of Irvine 2011). However, at this time, there are no plans to develop the site for a police facility (Mahoney 2016a). In addition, the IPD indicates that any increase in number of officers needed to serve the Project would not require new or physically altered governmental facilities that would cause significant environmental impact (Mahoney 2016a).[7] Compliance with DR FIRE-4, which requires the installation of traffic signal preemption equipment if determined necessary, as specified above under Fire Protection, would further ensure that adequate police protection response times are provided.

Since the Project would not necessitate the need for additional police facilities beyond what is currently planned, there would be no cumulative physical impacts not previously evaluated in the OCGP EIR.

Schools

The geographic area for the cumulative analysis of school services is the area served by IUSD. Cumulative development in the IUSD service area would generate an increase in student population in IUSD schools. As school districts' enrollments expand, administrators must seek short-term and long-term remedies to accommodate those added students. In recognition of these conditions, the State Legislature provided authority for school districts to assess impact fees for both residential and nonresidential development projects. Those fees, as authorized under Section 65995 of the *California Government Code,* are collected by IUSD at the time building permits are issued. The Legislature has declared that the payment of these fees constitutes full mitigation for the impacts generated by new development, per Section 65995 of the *California Government Code.* Since all development implemented pursuant to the proposed Project and other development proposed in the City and surrounding areas must pay its appropriate impact fees, each project would mitigate the impacts associated with its activities. Therefore, no cumulative impact on IUSD and local school districts would result from implementation of the proposed Project and other area-wide development activities.

[7] The funding for the hiring and training of additional staffing is derived from property taxes that would be generated by the Project. CEQA does not consider fiscal matters; and, therefore, they are not addressed as part of this Project EIR.

Libraries

The geographic area for cumulative analysis of library services is defined as the OCPL service territory in the City of Irvine. It is anticipated that population growth in the future will increase the demand for library services beyond the capacity of the existing and currently planned OCPL system in the City of Irvine. The 39,000 square foot library proposed for the OCGP would provide additional capacity to serve the City of Irvine. Project residents would use the future OCGP library, in addition to the existing Irvine libraries. However, it should be noted that the trends in library usage include incorporating more e-materials and less physical volumes and print materials. Because of this, the size of "brick and mortar" facilities needed to serve the population is lessened. The potential physical impacts associated with the provision of a new library have been addressed at a programmatic level by the OCGP documents. Thus any cumulative impacts related to the provision of new or physically altered facilities for library services would be less than significant.

As indicated above, the City of Irvine library service evaluation is provided for informational purposes. Per the City of Irvine standard of service there would be the need for approximately an additional 119,974 sf of library facilities and 494,491 additional volumes by 2040. The Project would contribute to an existing shortfall in library square footage and number of volumes. To meet the City of Irvine standards, additional facilities beyond the proposed new library in the OCGP would be required. However, at this time no new facilities are proposed and it would be speculative to evaluate potential physical impacts associated with new library facilities when no locations or sizes of such facilities are known. Additionally, with the increased use of technology and the focus on incorporating e-materials and not on volumes in the traditional sense, these demands may be met through other venues, such as shared community resources.

4.13.7 MITIGATION PROGRAM

Development Requirements

The development requirements identified below, would be applicable to the proposed Project and would help to avoid or minimize Fire and Police impacts. DR HAZ-4 from Section 4.8, Hazards and Hazardous Materials, would be applicable to the proposed Project to avoid and minimize fire hazards.

Fire Protection

DR FIRE-1 **Fire Alarm and Monitoring Systems.** Prior to the issuance of a building permit which requires the installation of any fire alarm system, the County or its designee shall provide the Manager of Building & Safety, or designee, with a clearance from the Orange County Fire Authority (OCFA) indicating compliance with Guideline D-03 (New and Existing Fire Alarm & Signaling Systems). The fire alarm system shall be operational prior to the final inspection approval.

DR FIRE-2 A. **Fire Master Plan.** Prior to the issuance of a grading permit, the County or its designee must provide the Manager of Building & Safety, or designee, with proof from the OCFA indicating that a Fire Master Plan has been

prepared that complies with Chapter 5 of the Fire Code and Guideline B-09 (Fire Master Plans for Commercial & Residential Development).

B. **Site Access**. Prior to the issuance of any grading permit (with the exception of initial mass grading of a large-scale project), the County or its designee shall provide the Manager of Building & Safety, or designee, with proof from the OCFA indicating that a Fire Master Plan has been prepared that complies with Guideline B-09 (Fire Master Plans for Commercial & Residential Development), including identification of access to and in the project area. *Note: refer to the OCFA website to obtain a copy of Guideline B-09 for information regarding the submittal requirements.

C. **Lumber Drop.** Prior to the issuance of a building permit, the County or its designee must provide the Manager of Building & Safety, or designee, with proof from OCFA allowing the introduction of combustible materials into the project area.

DR FIRE-3 **Automatic Fire Sprinkler Systems.**

A. Prior to the issuance of a building permit, the County or its designee shall provide the Manager of Building & Safety, or designee, with a copy of the OCFA-approved Fire Master Plan or site plan indicating that an approved automatic fire sprinkler system will be provided.

B. Prior to the final inspection approval, the automatic fire sprinkler system shall be operational in a manner meeting the approval of the Fire Chief.

DR FIRE-4 **Traffic Signal Preemption Devices.** Prior to the acceptance of public street improvements requiring installation of a traffic signal, if determined necessary by the Fire Code Official, the County or its designee shall install traffic signal preemption equipment for the surrounding signalized intersections. The clearance of this condition shall be by the Manager of Building & Safety, or designee, based on evidence that an agreement is in place or that the traffic signal preemption equipment has been installed.

DR FIRE-5 **Secured Fire Protection Agreement.** Prior to approval of any building permits for the Project, the County or its designee shall enter into a Secured Fire Protection Agreement with the OCFA.

Police Protection

DR, FIRE-4, above, is applicable to police protection.

Schools

No applicable DRs have been identified for schools.

Libraries

No applicable DRs have been identified for libraries.

Mitigation Measures

No applicable mitigation measures have been identified for fire protection, police protection, schools, or libraries.

4.13.8 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Fire Protection

With the implementation of DR FIRE-1 through DR FIRE-5, and DR HAZ-4, Project impacts on fire protection services would be less than significant.

Police Protection

Project impacts on police protection services would be less than significant.

Schools

Impacts to schools would be less than significant prior to implementation of the mitigation program. The payment of fees pursuant to SB 50 would further reduce any potential impact of the Project on school resources.

Libraries

Project impacts on libraries would be less than significant.

4.13.9 REFERENCES

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4.14 RECREATION

This section discusses the existing recreational uses in the Project's surrounding area and assesses Project-related impacts to recreational amenities and facilities. This section also analyzes the open space and recreational uses proposed by the West Alton Parcel Development Plan (Development Plan). The analysis in this section is based on existing regulatory documents and a literature search.

4.14.1 REGULATORY SETTING

The 1975 State Quimby Act (*California Government Code,* Section 66477) authorizes that local governments set aside land and open space for recreational purposes. The Act has authorized the local governments to adopt ordinances, which would require the developers to dedicate land, donate conservation easements, or pay in lieu fees for park improvements. The Quimby Act was enacted with the goals of ensuring adequate open space within the jurisdictions that adopted Quimby Act ordinances for mitigating the potential impacts of new developments or property improvements within those jurisdictions. The Act allows jurisdictions to require up to 5 acres of land for every 1,000 new residents, but the law does not obligate jurisdictions to impose park land dedications at those levels. The adopting jurisdictions have the discretion to establish a lesser acreage requirement (CDPR 2002). Section 7-9-502(g) of the County of Orange Local Park Code requires 0.005 acre per unit, which equates to approximately 2.5 acres of land per 1,000 residents.

As discussed in Section 3.4 of this EIR, the Property Tax Transfer and Pre-Annexation Agreement (Pre-Annexation Agreement) provides that the County shall retain land use authority over its parcels within the former MCAS EL Toro, and "shall be entitled to place any development upon said parcels that County shall determine to be desirable for County's needs, as though said property remained unincorporated, without the obligations for payment to Irvine of any permit fees or other mitigation/impact fees." However, the California Government Code must be considered when determining which regulatory requirements would apply to the Project. As previously discussed, Sections 53090–53091 of the California Government Code, counties and cities are exempt from zoning regulations when one entity owns territory within the jurisdiction of another entity. Additionally, according to Section 7-9-20(i) of the Orange County Zoning Code, land owned or leased by the County is not subject to land use regulations of the County, including the Zoning Code, specific plans, and planned communities. Therefore, neither the City nor the County local parkland requirements would be applicable to this Project. However, for purposes of informed decision making, the County's Local Park Code is being used to evaluate Project consistency as it reflects the County's policies regarding recreation standards.

Pursuant to County regulations, the developer can also meet the requirement by payment of in-lieu fees and can receive credit for private parks and for public park improvements beyond land dedication and basic improvements.

4.14.2 METHODOLOGY

Information presented in this section is obtained via internet research relating to the various private and public recreational facilities in the City of Irvine and County of Orange. Although neither the County nor City regulations apply, impact analysis discusses the recreational facilities proposed by the Project in comparison to the County of Orange parkland dedication requirement of 0.005 acre per unit. For CEQA purposes an impact is identified if the Project does not meet the parkland requirement or pay the applicable fees provided by the County Local Park Code.

4.14.3 EXISTING CONDITIONS

Parks and Recreational Facilities

The City of Irvine currently has a total of 18 community parks, 37 public neighborhood parks, 200 private neighborhood parks, and other public and private recreational amenities and facilities. However, with the exception of the Orange County Great Park (OCGP) sports fields and recreation facilities, none of the said parks is within two miles of the Project site. Baker Ranch Community Park in the City of Lake Forest, described in Table 4.14-1 below, is within two miles from the proposed Project site. Exhibit 4.14-1 depicts the location of these parks in relation to the Project site.

TABLE 4.14-1
PUBLIC PARKS

Name	Location	Distance from Project Site Boundary (miles)	Size (acres)	Amenities
Orange County Great Park	City of Irvine	Recreational areas within the OCGP are approximately one mile from the edge of the Project.	approximately 1,300	Existing amenities include: the Great Park Balloon, the Carousel, the Great Park Visitors Center, Kids Rock play area, Walkable Historical Timeline, Historic Hangar 244, Palm Court, Farm + Food Lab, and existing sports fields. Future planned facilities include a 175-acre sports park with 18 new additional soccer and multi-use fields, 25 tennis courts, 4 sports courts, 12 baseball/softball fields, and 5 sand volleyball courts. A golf course, agricultural area, and wildlife open space corridor are also planned.

TABLE 4.14-1
PUBLIC PARKS

Name	Location	Distance from Project Site Boundary (miles)	Size (acres)	Amenities
Baker Ranch Community Park	26380 Rancho Parkway, Lake Forest	1.70	8.0	Barbeque, Sports fields, including baseball/softball field, soccer field, basketball court, and multi-use field. Park shelter for reservation, picnic areas, playground, restrooms, and soccer field
Source: City of Irvine 2015c; City of Lake Forest 2016.				

In addition, there are approximately 60,000 acres of parkland and open space that are owned and operated by the County of Orange as regional recreational facilities. These facilities include regional and wilderness parks; nature preserves and recreational trails; historic sites; and harbors and beaches. The following regional facilities are closest to the Project site:

- **Limestone Canyon and Whiting Ranch Regional Park.** Located to the north of the OCGP and across State Route (SR) 241, Whiting Ranch Regional Park encompasses natural habitat and approximately 2,500 acres of riparian and oak woodland canyons. The park provides open space habitat for wildlife, scenic rock formations, and three intermittent streams within the park: Borrego, Serrano, and Aliso Creeks. The park contains approximately 17 miles of graded roads and single-track trails, providing excellent opportunities for hikers, mountain bikers, and equestrians. The park also provides connectivity to other trails belonging to the OC Parks Regional Trails system. The park is located approximately 3.95 miles northeast of the Project site (OC Parks 2015).
- **Laguna Coast Wilderness Park.**[1] This 7,000-acre regional park is located approximately 5.25 miles to the southwest of the Project site and includes amenities such as hiking, biking, and equestrian trails as well as an interpretive center and a botanical preserve. The Laguna Coast Wilderness Park is part of the South Coast Wilderness area (totaling almost 20,000 acres), which also includes Aliso and Wood Canyons Wilderness Park, Crystal Cove State Park, and the City of Irvine Open Space (OC Parks 2015).
- **O'Neil Park.** Located off of State Route (SR) 241 in the City of Trabuco Canyon, O'Neill Regional Park encompasses approximately 4,500 acres of riparian and oak woodland canyons. The park is located approximately 5.6 miles northwest of the Project site and provides open space habitat for wildlife and two intermittent streams within the park: Trabuco and Hickey Creeks. The park contains

[1] The Laguna Coast Wilderness Park is part of the OC Regional Park System. The coastal section of the park was established with the 3,500 acres dedicated to the County as part of the approval of the Newport Coast development. The 2,150 inland acres were acquired by the City of Laguna Beach, the County of Orange, the State of California, and the Laguna Canyon Foundation (an organization created to help preserve this area). Additional parcels have added to the park.

approximately 23 miles of scenic trails, providing excellent opportunities for hikers, mountain bikers, and equestrians. The park also offers 79 campsites on the Arroyo campground for RV or tent camping. (OC Parks 2016).

- **William R. Mason Regional Park.** This 339-acre regional park is located at 18712 University Drive in Irvine. The park provides picnic areas, a softball back stop, large turf areas, hiking and bicycling trails, two sand volleyball courts, a physical fitness vita course, three tot lot playgrounds, an amphitheater, and a nine acre lake. A shelter for large groups may also be reserved. The park is located 7.3 miles to the west of the Project site (OC Parks 2015).
- **Irvine Regional Park. Irvine Regional Park.** Located off of State Route (SR) 261 near the SR-241/261 interchange, Irvine Regional Park encompasses 475 acres of varied landscape, including foothills and shaded turf areas. The park is located approximately 8.5 miles northwest of the Project site and provides open space habitat for wildlife, recreational space for visitors, and access to the Orange County Zoo. The park is bisected by Santiago Creek and there is a lake within the park for fishing and recreational activities. The park contains a paved bicycle and walking trail, which has access to playgrounds, ball fields, horseshoe pits, and the lake. In addition, the park has a three-mile equestrian trail with scenic views of the park. (OC Parks 2016).

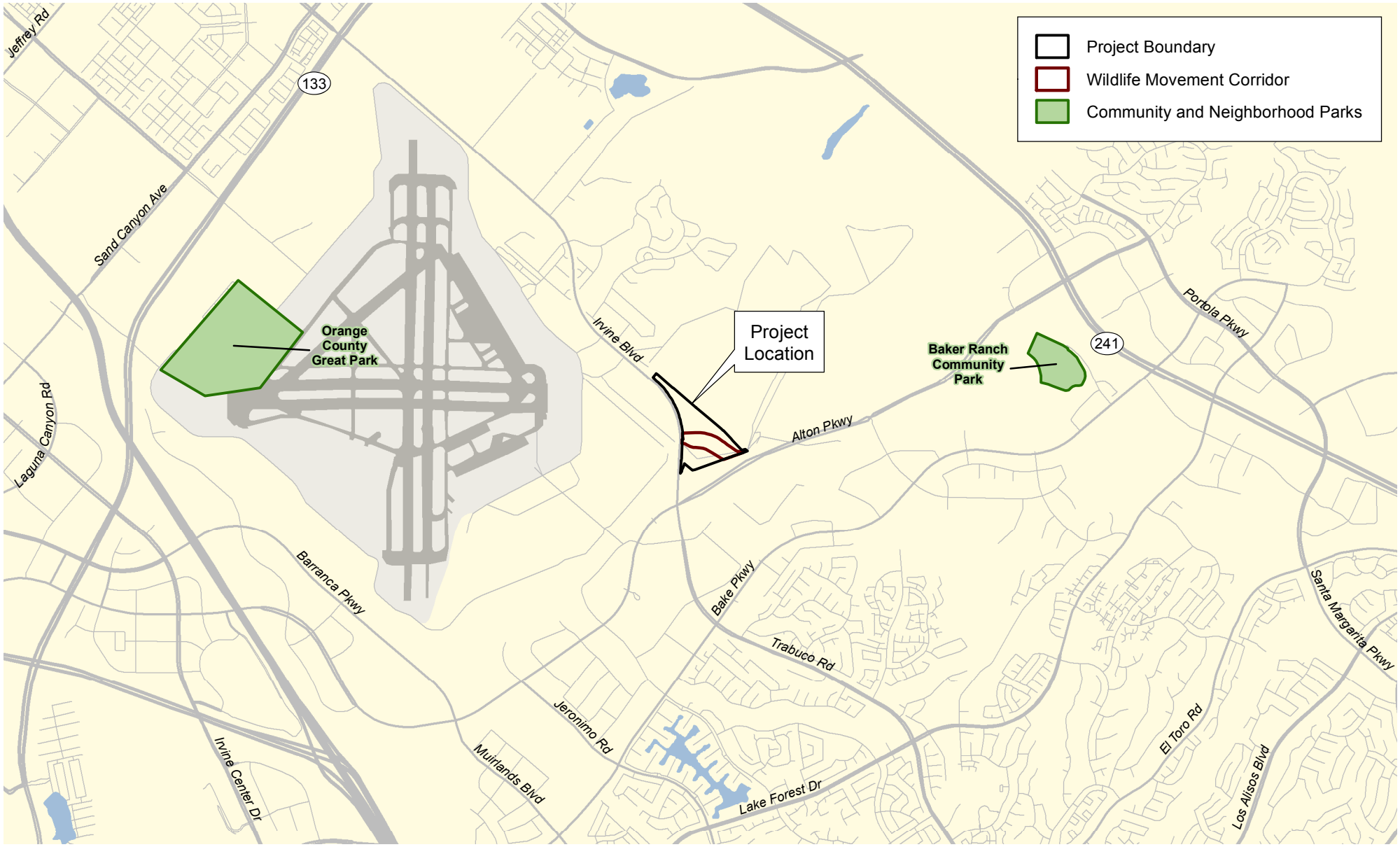
Orange County beaches also offer recreational amenities to the residents of Orange County. Laguna Beach is the closest beach facility (less than 10 miles from the Project site). Additional public beaches are available along the coast. This includes a number of beaches operated by the County of Orange, the State Department of Recreation, and other local beach cities.

Local and Regional Trails and Bikeways

The City of Irvine trail system (shown in Figure B-4 of the City's General Plan, updated July 2015) includes Class I (off-street) and Class II (on-street) paved trails in addition to unpaved riding and hiking trails. There are currently no existing trails on the Project site. The Plan shows a Class II trail on Irvine Boulevard abutting the western boundary of the Project in addition to three Class I trails in the OCGP: one extends from Irvine Boulevard and terminates at Marine Way, one extends from Irvine Boulevard, crosses Marine Way, and terminates at the Southern California Regional Rail Authority (SCRRA) rail line, and one extends from Irvine Boulevard and connects the other two trails, terminating within the OCGP. There is also a planned Class I trail along the south side of the SCRRA rail line. There are no riding trails on the Project site, although the City's Trails Network identifies a riding trail extending from the Foothill Transportation Corridor, crossing Irvine Boulevard approximately ½ mile northwest of the Project site, and terminating on OCGP property. Refer to Exhibit 4.14-2, Trails Network.

Additionally, there is a multi-use trail system based on the City of Irvine's 2011 Bicycle and Transportation Plan, and as depicted on Exhibit 4.14-3, Multi-Use Trails. The multi-use trails accommodate walking and biking, and they include existing and future trail segments. The following trails are located less than two miles from the Project site:

- Modjeska Trail (future)
- Portola Trail
- Venta Spur Trail



Existing Community and Neighborhood Parks

Exhibit 4.14-1

West Alton Parcel Development Plan EIR

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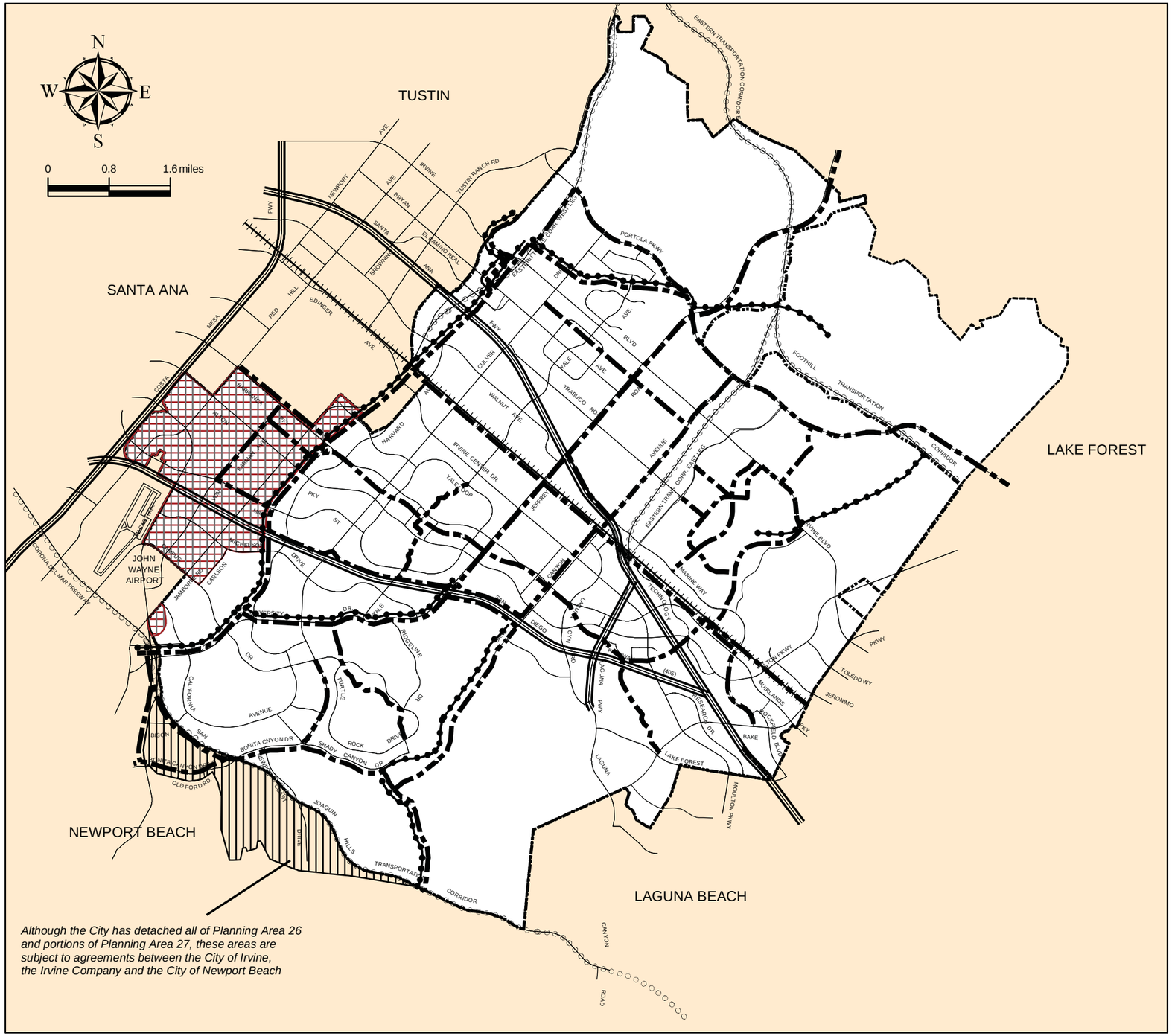

TRAILS NETWORK

LEGEND

City Sphere of Influence

Class I (Off-Street) Trails

Class II (On-Street) Trails are on all street shown on this exhibit except for Barranca between Jamboree and Redhill, along Mac Arthur between Jamboree Road, northwest to city limits, and along the west side of Jamboree Road between Michelson Drive and the San Diego (I-405) Freeway.

See Figure N-4 for Planned Trail Network in Irvine Business Complex

Riding and Hiking Trails

NOTE: The Trail Network Diagram is illustrative only and not indicative of precise alignments

Source: City of Irvine General Plan, Circulation Element

Trails Network

Exhibit 4.14-2

West Alton Parcel Development Plan EIR

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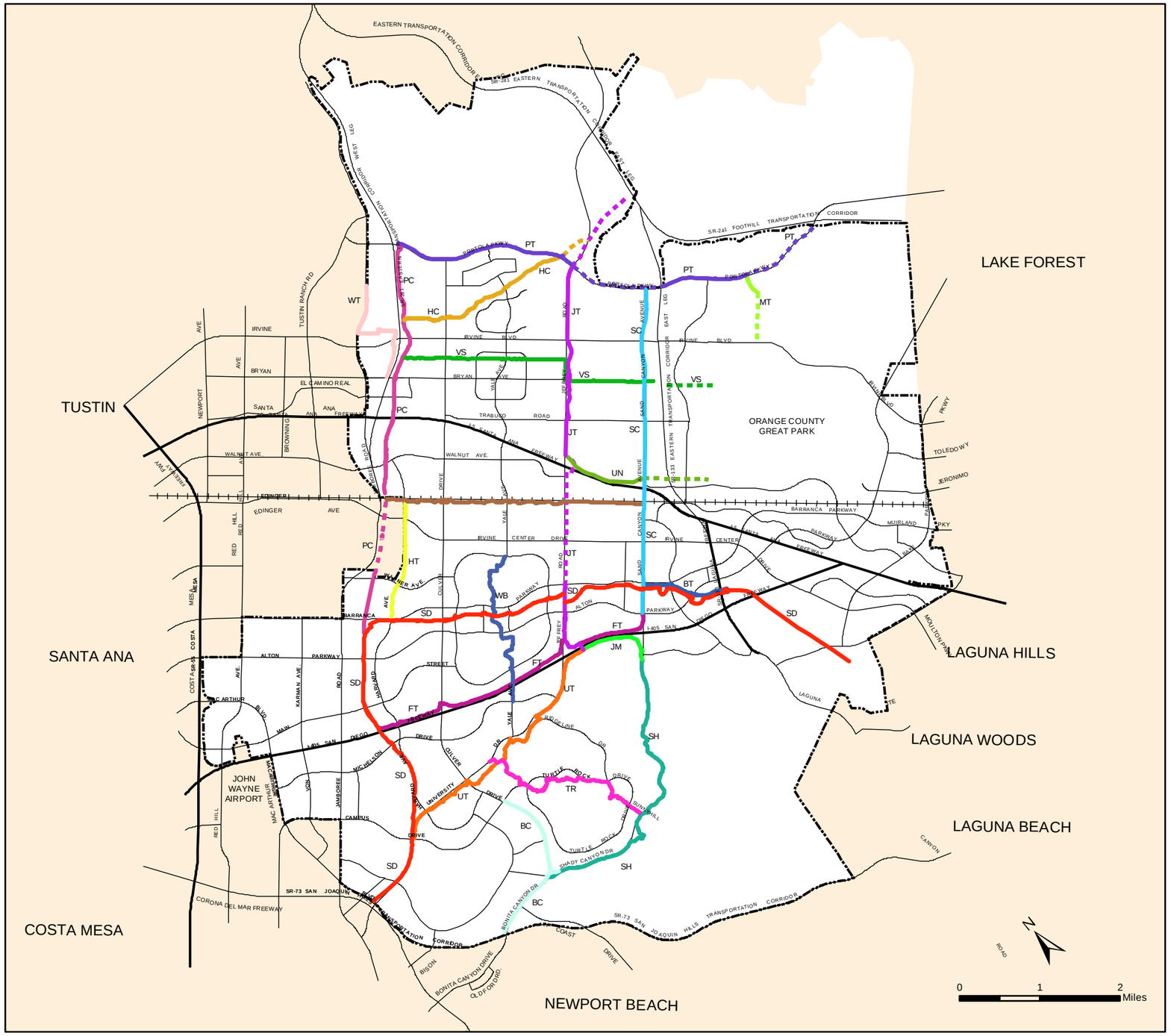

Legend

- Bonita Canyon Trail
- Barranca Trail
- Freeway Trail
- Hicks Canyon Trail
- Harvard Trail
- Jeffrey Open Space Trail
- Modjeska Trail
- Juanita Moe Trail
- Portola Trail
- Peters Canyon Trail
- Sand Canyon Trail
- San Diego Creek Trail
- Shady Canyon Trail
- Turtle Rock Trail
- Un-named Trail
- University Trail
- Venta Spur Trail
- Woodbridge Trail
- West Irvine Trail
- Walnut Trail
- Irvine City Boundary
- Irvine Sphere of Influence

Note: Dashed lines indicate future trail segments or trail segments maintained by other jusrisdictions

Source: City of Irvine Bicycle Transportation Plan 2011, Updated November 2015

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Multi-Use Trails

Exhibit 4.14-3

West Alton Parcel Development Plan EIR

There are currently no multi-use trails, existing or planned, on the Project site. Of the trails listed above, the planned Modjeska Trail connecting Portola Parkway to Irvine Boulevard, is closest and just over a mile to the northwest of the Project site.

There is also an extensive and well connected system of bikeways in the area that includes off- and on-street bikeways. There are currently no bikeways on the Project site. Bikeways closest to the Project site include an on-street bikeway along the entire length of Irvine Boulevard, which abuts the Project site on the west side; an existing on-street bikeway along Alton Parkway starting at the intersection of Irvine Boulevard and Alton Parkway and continuing west until Red Hill Avenue; and three on-street bikeways south of the SCRRA rail line along Alton Parkway, Barranca Parkway, and Technology Drive. Additionally, Exhibit 4.14-4, Bikeways, which is based on the City of Irvine 2011 Bicycle and Transportation Plan, depicts future on-street bikeways along Marine Way and Ridge Valley and future off-street bikeways along the SCRRA rail line and extending to Irvine Boulevard, in addition to future off-street bikeways within the OCGP.

4.14.4 THRESHOLDS OF SIGNIFICANCE

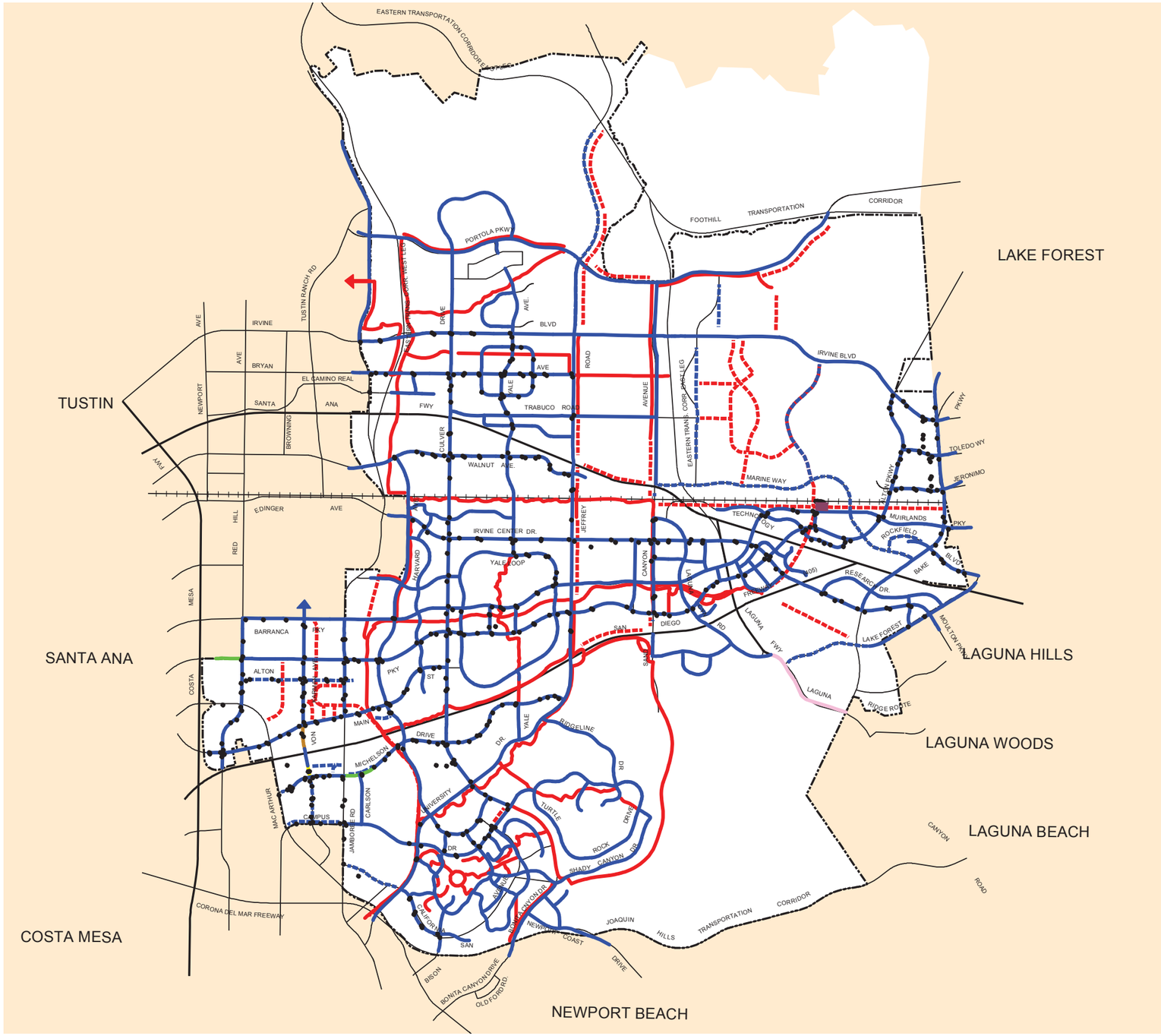
In accordance with the County's Environmental Analysis Checklist and Appendix G of the State CEQA Guidelines, the Project would result in a significant impact to recreation if it would:

Threshold 4.14-1 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.

Threshold 4.14-2 Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

4.14.5 IMPACT ANALYSIS

As discussed in Section 4.0, Impact Analysis Introduction, the Development Plan identifies a number of development requirements which serve to minimize potential impacts (the development requirements are incorporated in Appendix C of the Development Plan). The inclusion of these requirements, as appropriate, will be verified during the development review and/or ministerial permit process (e.g., building permit). The development requirements also include others measures that will reduce or avoid potentially significant Project impacts. The County intends to implement the development requirements as part of the Project and has included the development requirements in the Development Plan for that purpose. These measures are listed in Section 4.14.7, Mitigation Program because these measures will be tracked as part of the Mitigation Monitoring and Reporting Program.



Legend

- Existing Bus Stop
- Irvine Station
- Off-Street Bikeway
- Future Off-Street
- On-Street Bikeway
- Future On-Street
- On-Street Signed Bike Route
- On-Street Bikeway on South Side of Road
- On-Street Bikeway on East Side of Road
- On-Street Bikeway on West Side of Road
- Railroad
- Irvine City Boundary
- Irvine Sphere of Influence

Source: City of Irvine, 2011 Bicycle Transportation Plan

Bikeways

Exhibit 4.14-4

West Alton Parcel Development Plan EIR

N E S W

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Threshold 4.14-1

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?

The proposed Project would result in increased demand for recreational facilities in proportion to the new population that would be generated. The parkland dedication requirements are based on projected population rates included in the County of Orange Local Park Code. The Local Park Code establishes population generation factors based on the number of dwelling units per acre, and the density of the project.[2] The County's population generation factor of 1.99 persons per dwelling unit was used for the Project, which has a total of 803 units and an overall density of 24.9 dwelling units per acre, when excluding the acreage associated with the Wildlife Movement Corridor. These population generation factors are based on County Local Park Code (Orange County Codified Ordinances [OCCO] Section 7-9-522) for residential developments. Based on the above, the total population associated with the proposed Project would be approximately 1,598 persons.[3] Based on this estimate, the proposed Project would require approximately 4.02 acres of parkland dedication. Actual population generated and parkland required would be based on the precise number of units built. Although this Project is within the City of Irvine, the County of Orange is the approving entity; therefore, the County's parkland dedication requirement has been used to calculate both the projected population and amount of parkland for the Project.

As indicated above, the Development Plan establishes a minimum square footage of parkland per unit that complies with the County Local Park Code requirements. The Conceptual Site Plan provides approximately 4.11 acres of an open space system that would include neighborhood parks, focal gardens, pocket parks, private recreational spaces, and off-street walkways of various types and widths that connect to parks and trails throughout the development. As described in the Development Plan, in order to qualify as a park, the park would need to have a minimum area of 5,000 square feet and a maximum average grade of five percent. Under the concept plans, which are representative examples of how the Development Plan could be implemented, Planning Area 1 and Planning Area 2 would include 2.58 acres and 1.53 acres of parks, respectively. Each planning area would have a combination of these parks and amenities, which are conceptually depicted on Exhibit 3-7, Open Space and Recreation Plan in Section 3.0,

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[2] The County Local Park Code has population generation factors for various density housing. These factors are used to determine the population a project would generate for purposes of determining the amount of parkland required to serve the project. For consistency between the sections of this EIR, these population generation factors are used throughout the document for all applicable discussion of population growth. The County of Orange population generation factors are being used because the County is the lead agency for the Project. For informational purposes, the City of Irvine has a breakdown of population generation factor by the residential density category, and for purposes of the proposed Project, the population generation factor of 2.25 people per unit for the 12.6-31.0 du/ac would apply, based on Section 5-5-1004(D), Park Dedication (Manner of Compliance), of the City of Irvine Municipal Code, using this City generation factor, the Project would have a population of 1,807.

[3] Although not applicable to the Project, the City of Irvine's generation factors and requirements are provided for informational purposes. The City of Irvine requires a minimum dedication of 5 acres of parkland for every 1,000 residents (3 acres of neighborhood parkland and 2 acres of community parkland). The requirement may be met through dedication of parkland; construction of park improvements; payment of in lieu fees; or a combination of these methods. Based on the total population of 1,807, a total of 9.03 acres of parkland would be required per City Code.

Project Description. The open space and park system, which consists of the components listed below, would serve the additional population in the Project.

Project Parks and Recreational Facilities

Neighborhood Parks

The concept plans include a total of three neighborhood parks within the Project site. Neighborhood Parks A and C are proposed in Planning Area 1 and Neighborhood Park B is proposed in Planning Area 2. Neighborhood Park A is proposed in the southeast portion of Planning Area 1 between Magazine Road and the eastern boundary of Planning Area 1. This park would have a landscape planting area adjacent to the area designated by the NCCP/HCP as the Reserve Area. A radiant heat wall per the *Fire Behavior Analysis Report and Fuel Modification Design Criteria* (Fire Behavior Report) would be included within a portion of this landscape planting area. Neighborhood Park A would consist of active and passive program elements, such as children's play area; open turf areas; pedestrian walk; picnic area; lookout pavilion; interpretive signage; wildlife habitat feature; and bench seating. Neighborhood Park A Concept Plan is depicted on Exhibit 4.14-5, and Cross Sections are depicted on Exhibits 4.14-5a through 4.14-5c.

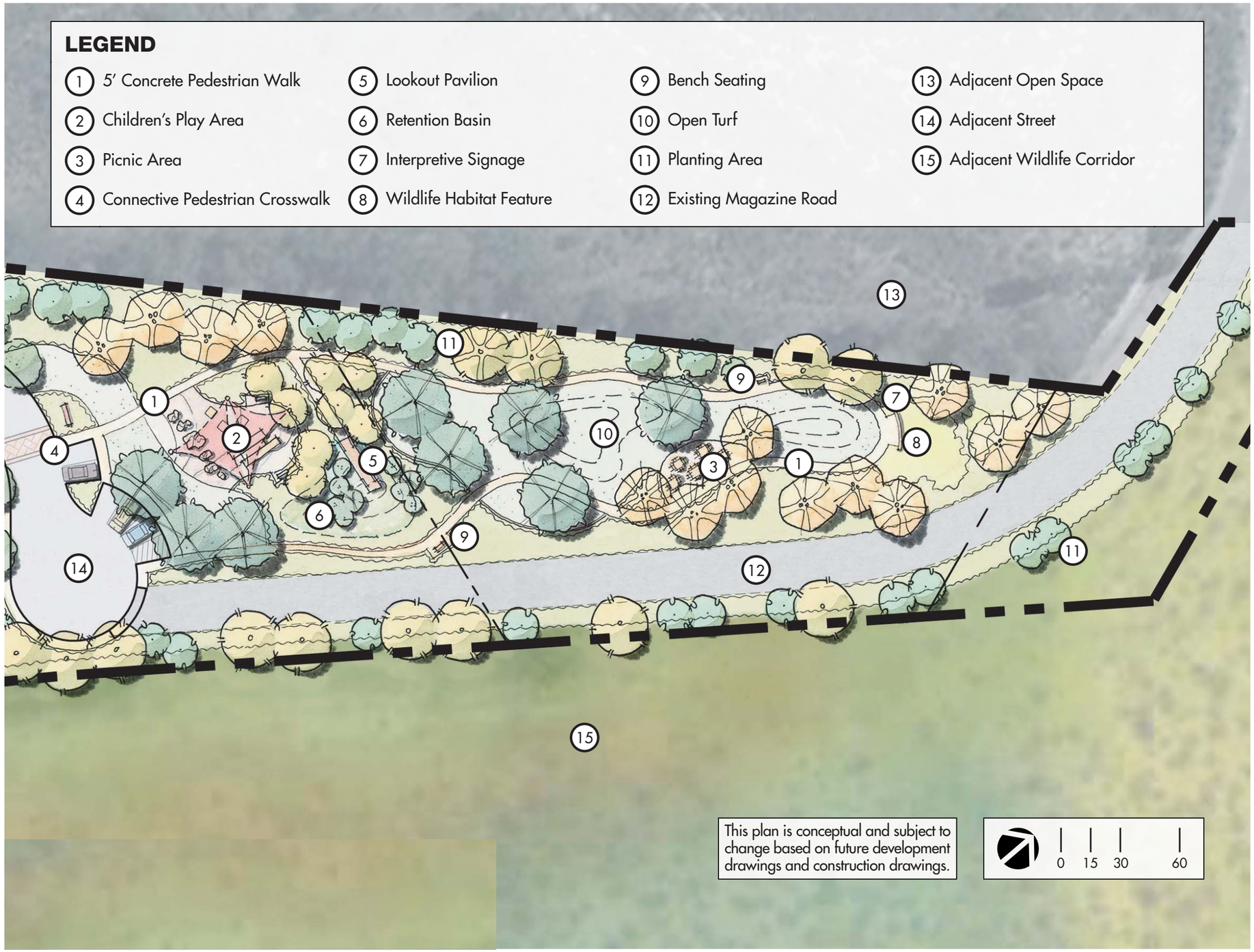
Neighborhood Park B is proposed in the northeast portion of Planning Area 2 adjacent to the Wildlife Movement Corridor. This park would have a landscape planting area adjacent to the Wildlife Movement Corridor fence line. A radiant heat wall per the Fire Behavior Report would be included within this landscape planting area. Neighborhood Park B would consist of active and passive program elements, such as children's play area; open turf areas; pedestrian walk; picnic area; lookout point; dry creek; potential pedestrian bridges; interpretive signage; and wildlife habitat feature. Neighborhood Park B Concept Plan is depicted on Exhibit 4.14-6, and Cross Sections are depicted on Exhibits 4.14-6a through 4.14-6b.

Neighborhood Park C is proposed in the northwest portion of Planning Area 1 between the eastern boundary of the Project site (adjacent to the area designated as the NCCP/HCP Reserve) and Irvine Boulevard. This park would have a landscape planting area adjacent to the Reserve. A radiant Heat Wall per the Fire Behavior Report would be included within a portion of this landscape area adjacent to the area designated as the NCCP/HCP Reserve. Neighborhood Park C would include active and passive program elements, such as children's play area; open turf areas; pedestrian walk; picnic area; lookout point; bench seating; and interpretive signage. Neighborhood Park C Concept Plan is depicted on Exhibit 4.14-7, and the Cross Section is depicted on Exhibit 4.14-7a.

Lookout points may be featured in these parks in key locations where views to surrounding open space can be maximized. Amenities in these lookout points could include viewing decks, focal shade structures, and public binoculars for bird watching.

Focal Gardens

The concept plans include two focal gardens in Planning Area 1 in the vicinity of Neighborhoods A and B for a total of approximately 0.33 acres, at the terminal ends of Planning Area 1 gateway streets. This would provide aesthetic points of interest for both motorists and pedestrians. The landscaping within focal gardens would utilize fire-resistant planting and



Source: West Alton Parcel Development Plan 2016

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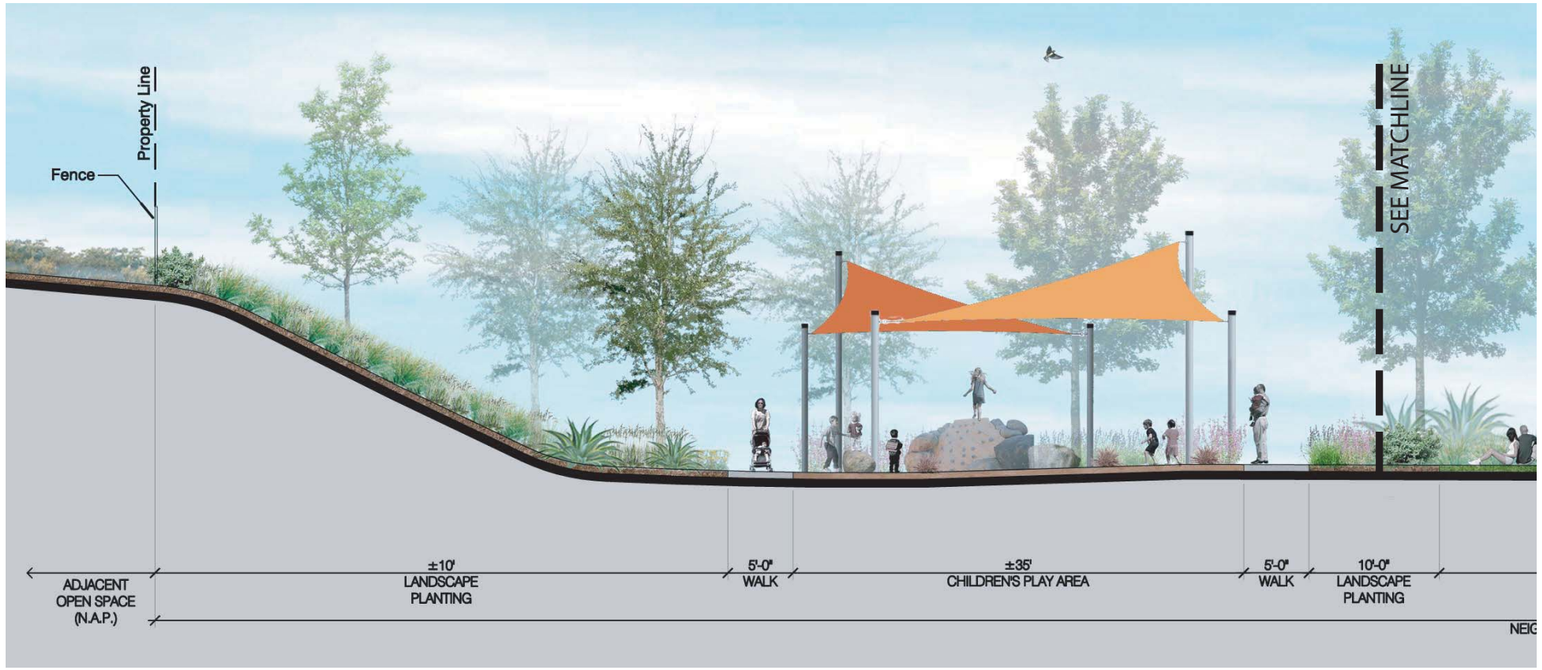
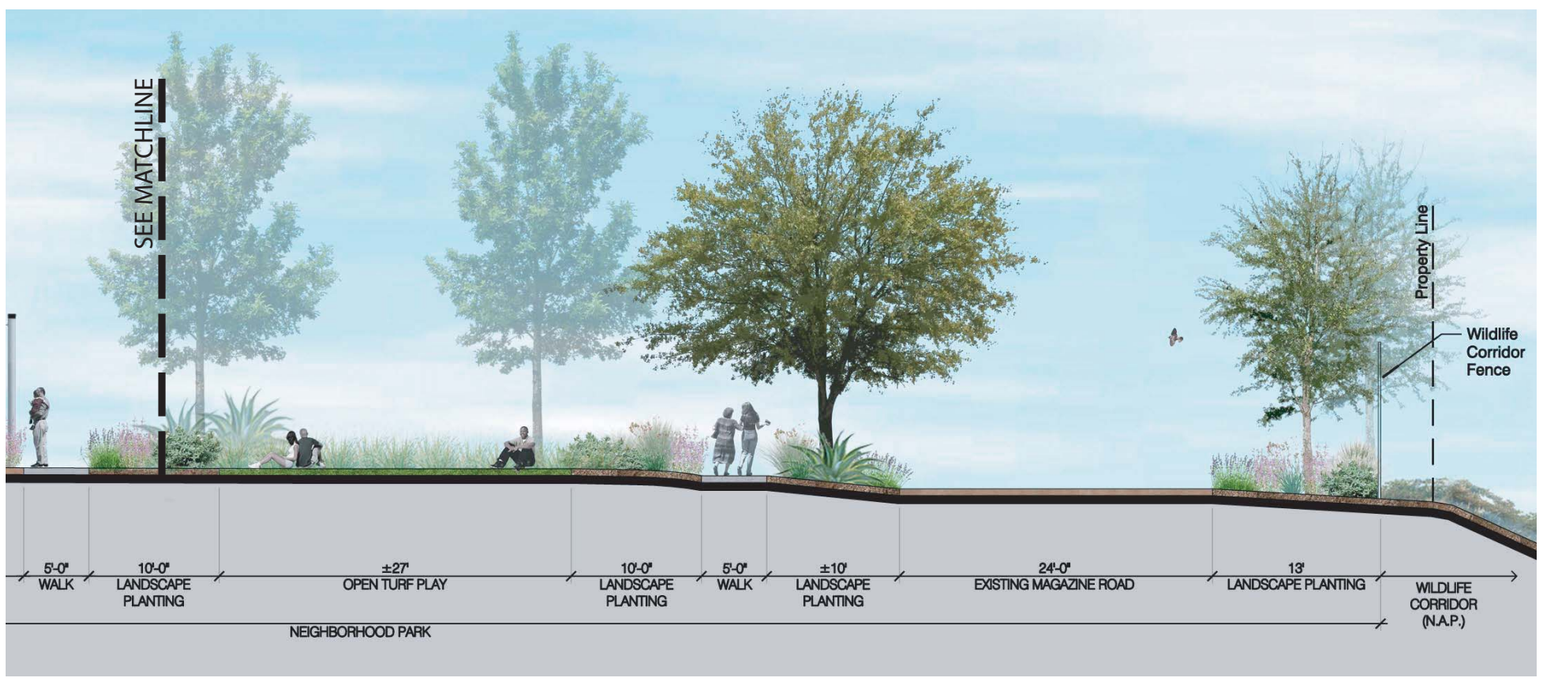
Typical Neighborhood Park A Concept

Exhibit 4.14-5

West Alton Parcel Development Plan EIR





Source: West Alton Parcel Development Plan 2016

Section – Neighborhood Park A (Children's Play Area)

Exhibit 4.14-5a

West Alton Parcel Development Plan EIR

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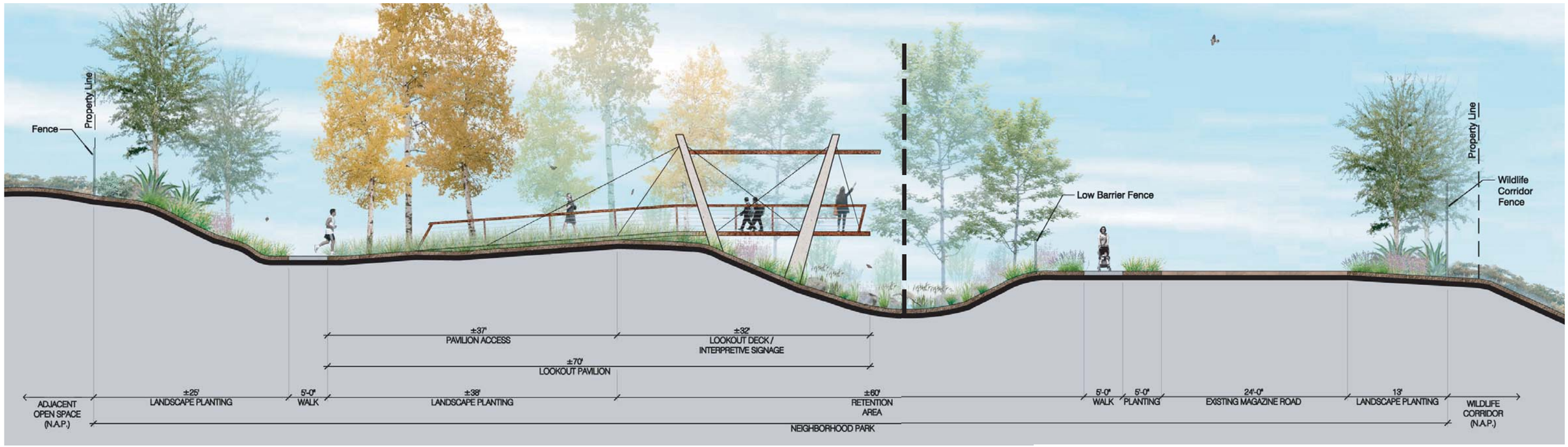

Source: West Alton Parcel Development Plan 2016

Section – Neighborhood Park A (Lookout Point)

Exhibit 4.14-5b

West Alton Parcel Development Plan EIR

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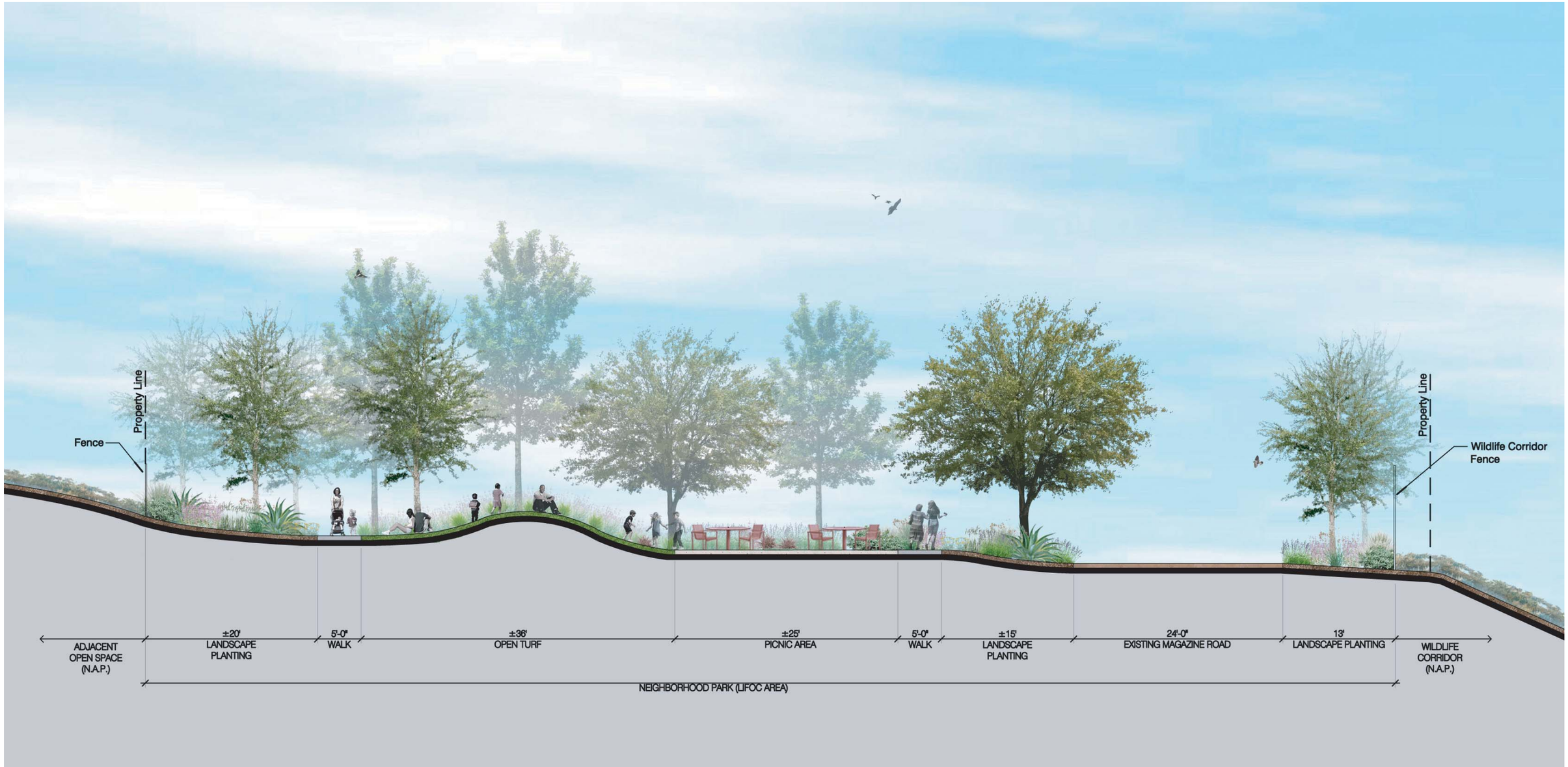

Source: West Alton Parcel Development Plan 2016

Section – Neighborhood Park A (Open Space Area)

Exhibit 4.14-5c

West Alton Parcel Development Plan EIR

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Source: West Alton Parcel Development Plan 2016

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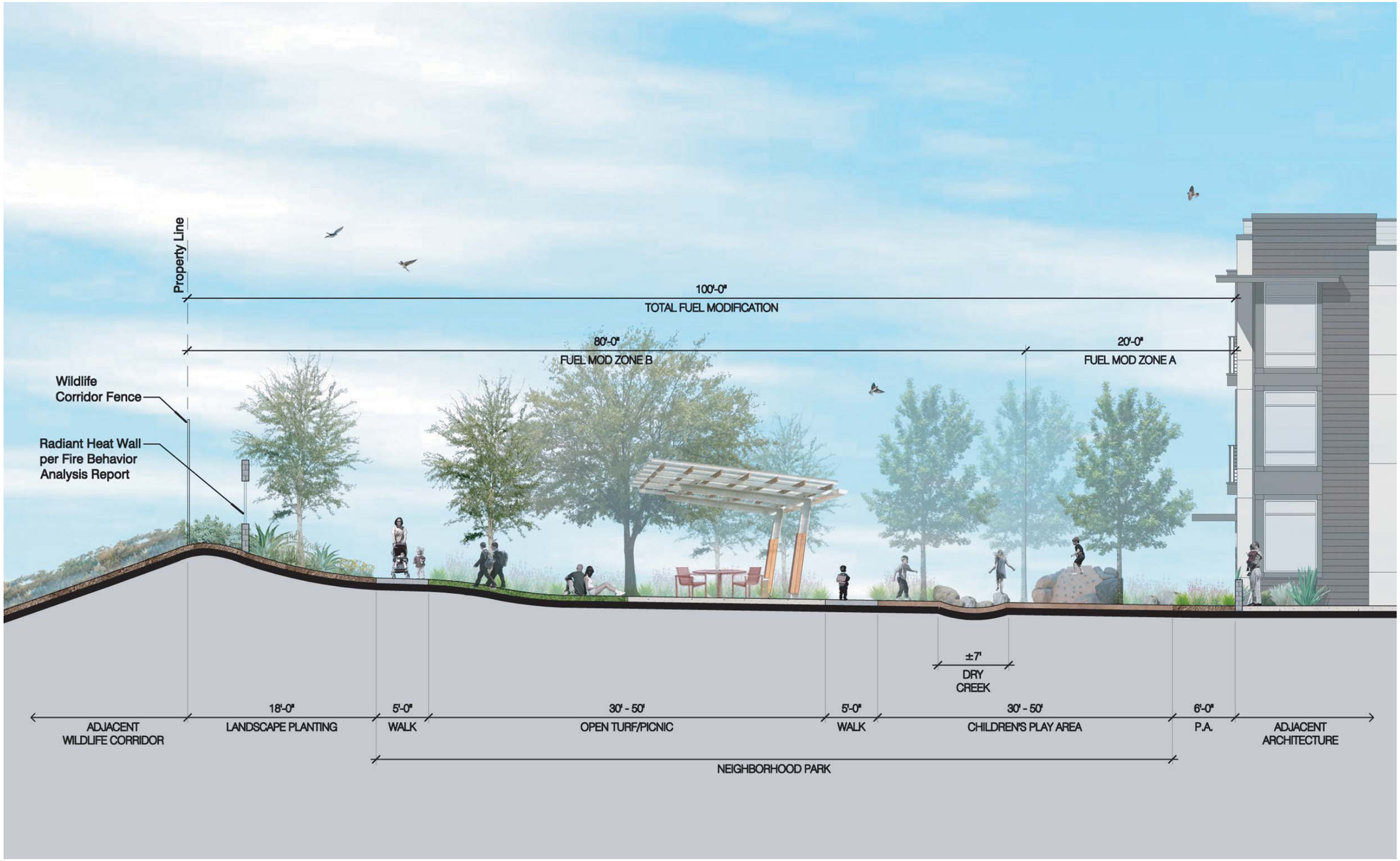
Typical Neighborhood Park B Concept

Exhibit 4.14-6

West Alton Parcel Development Plan EIR



Source: West Alton Parcel Development Plan 2016

Section – Neighborhood Park B

Exhibit 4.14-6a

West Alton Parcel Development Plan EIR

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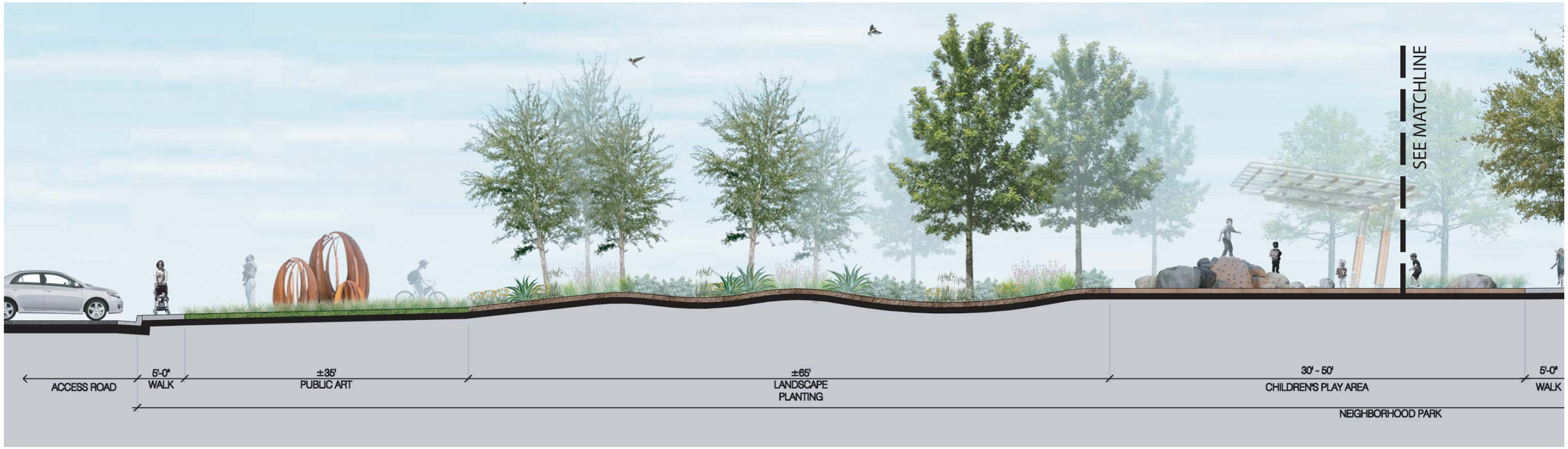

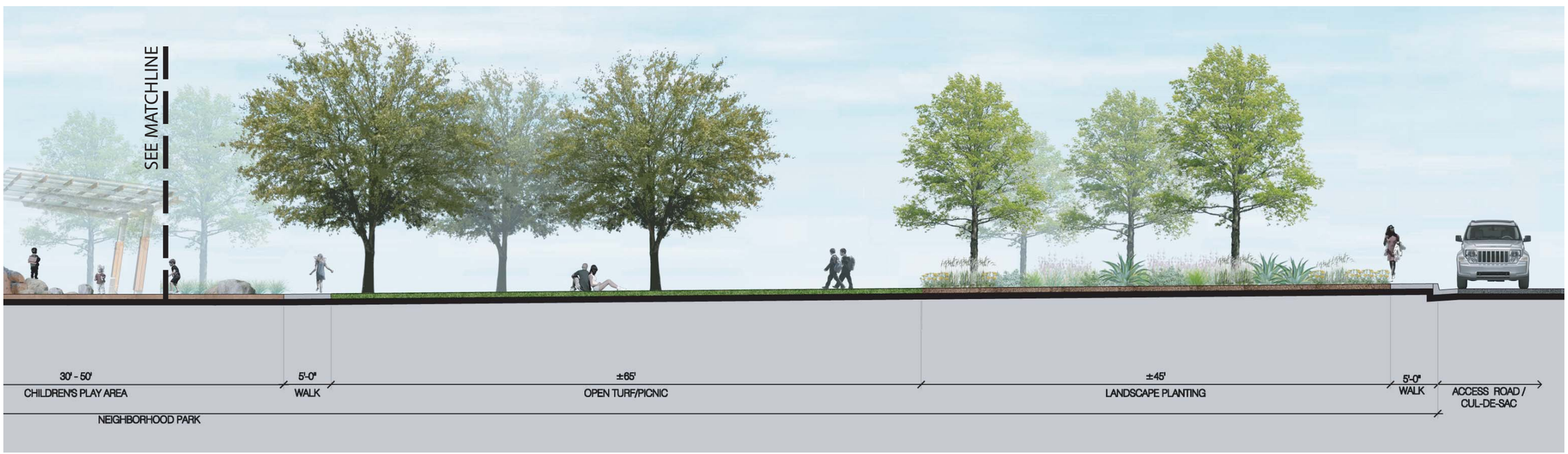

Source: West Alton Parcel Development Plan 2016

Section – Neighborhood Park B

Exhibit 4.14-6b

West Alton Parcel Development Plan EIR

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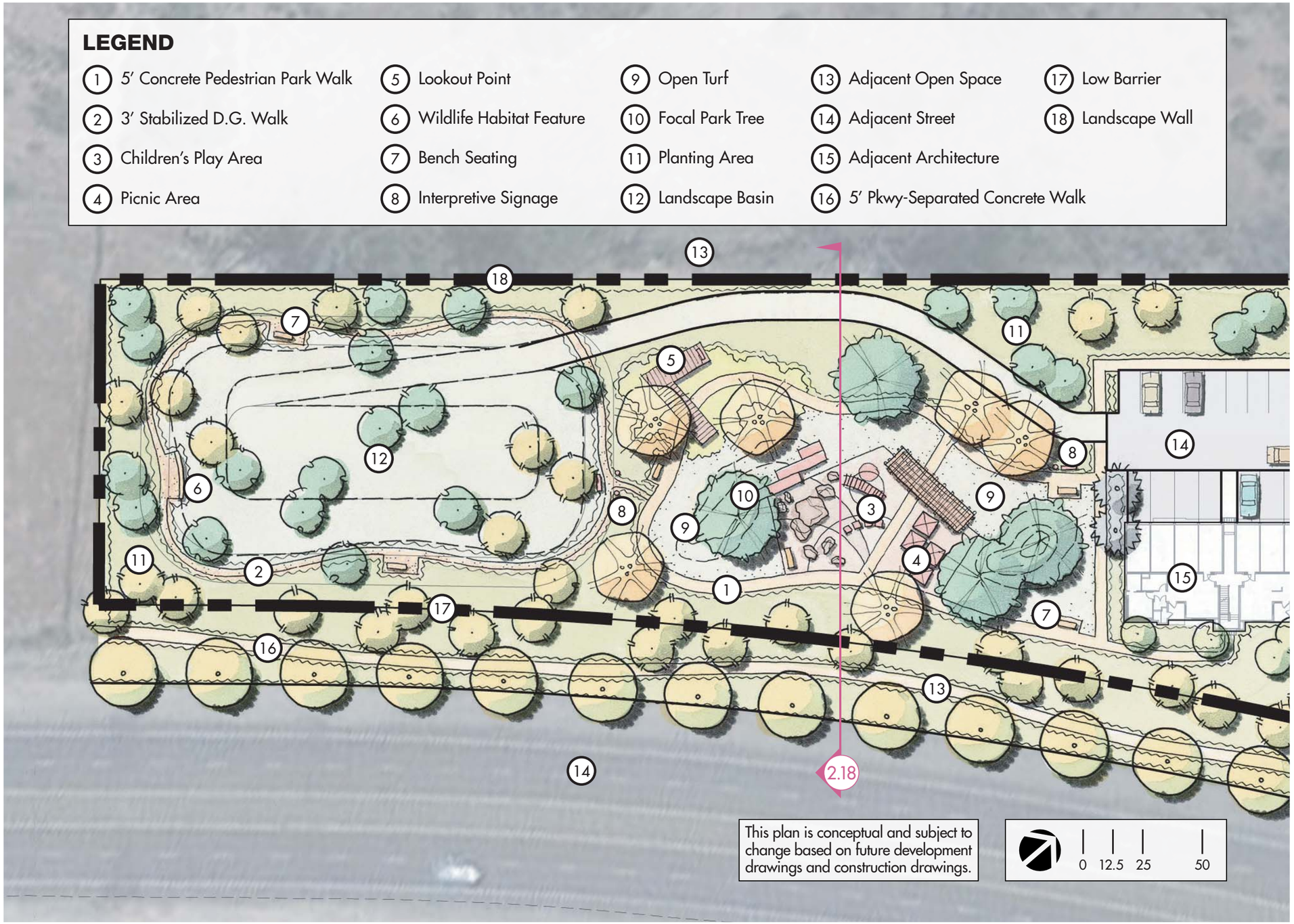

Source: West Alton Parcel Development Plan 2016

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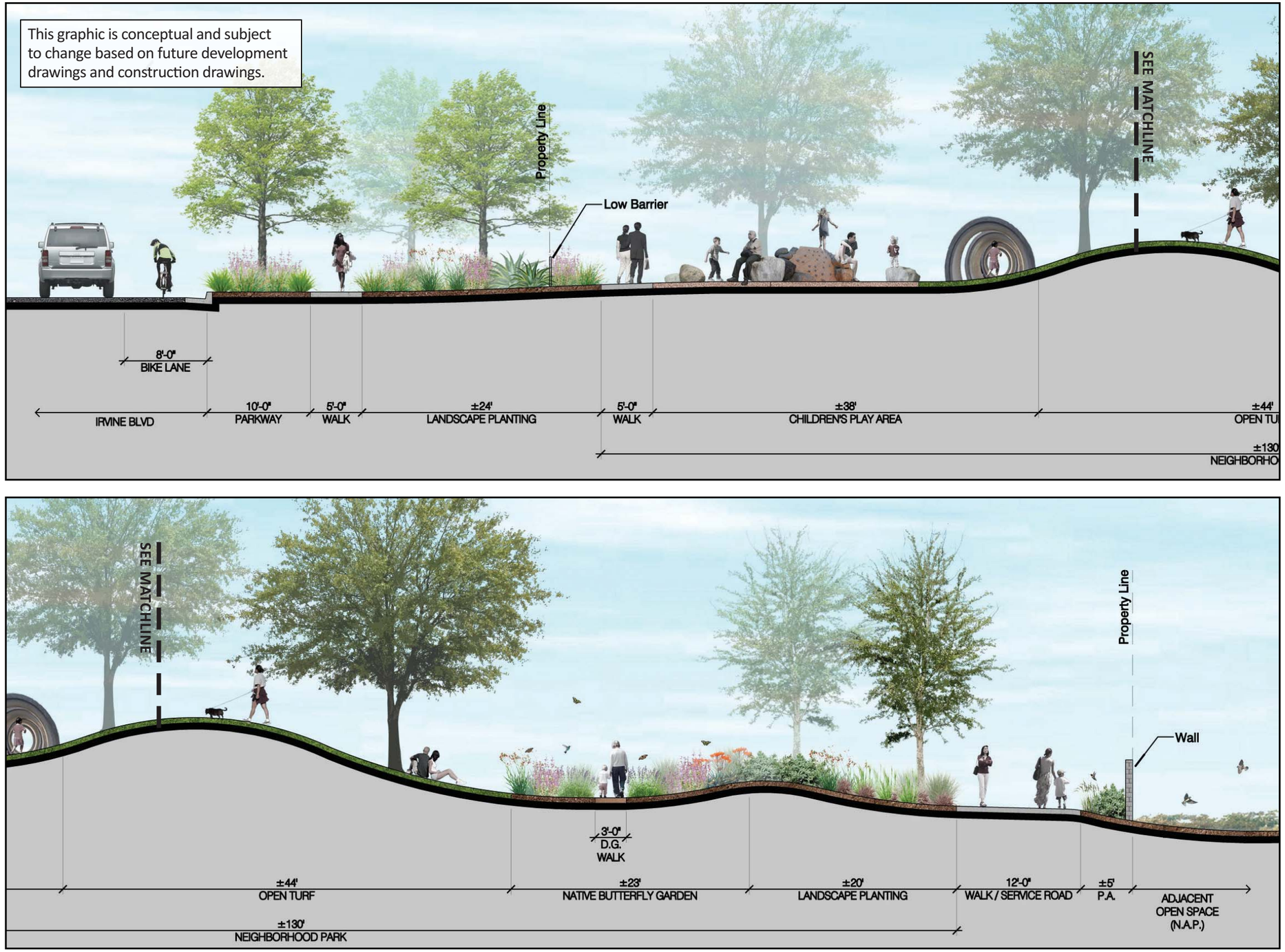
Typical Neighborhood Park C Concept

Exhibit 4.14-7

West Alton Parcel Development Plan EIR



Source: West Alton Parcel Development Plan 2016

Section – Neighborhood Park C

Exhibit 4.14-7a

West Alton Parcel Development Plan EIR

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drought-tolerant accent trees. The focal gardens are intended as passive recreation and are proposed to include a variety of features, such as concrete walks; interpretive signage; focal landscape elements; and butterfly gardens. The focal gardens are depicted on Exhibit 4.14-8, Typical Focal Garden Concept Plan.

Pocket Parks

A number of pocket parks would be provided in Planning Areas 1 and 2 as minor outdoor recreational spaces for a total of approximately 1.36 acres. These parks would include small-scale amenities and supplement the Project's overall paseo system. Pocket parks are intended as passive recreation and would include features such as paved pedestrian paseo walks; rest areas with bench seating; small picnic areas; and open turf areas. Concepts for the pocket parks are depicted on Exhibit 4.14-9, Typical Pocket Park Concept Plan.

Private Recreational Space

Two private recreation areas, intended to serve the Project's residential developments, are proposed, one in each planning area. Under the concept plans, private Recreation Area A, located in Neighborhood B, would include planting that would create a buffer between the surrounding building and the recreational amenity. This facility would include a clubhouse as well as both active and passive program elements, such as pool and spa amenities; bocce court, fitness center; game tables/courts/game rooms; multi-purpose rooms; lounge seating; cabana; decorative water feature; covered outdoor dining area; outdoor kitchens; barbecues; decorative fire feature; pedestrian paseo; and seating area. Private Recreation Space A Concept Plan is depicted on Exhibit 4.14-10, and the Cross Section is depicted on Exhibit 4.14-10a.

Under the concept plan, private Recreation Area B, located in the northwestern portion of Planning Area 2 (Neighborhood D), would also include a clubhouse. A 5-foot concrete walk proposed in Planning Area 2, would traverse the periphery of this recreation area. Under the concept plan, this facility would include active and passive program elements, such as pool and spa amenities; fitness center; game rooms; and multi-purpose rooms; lounge seating; cabana; game tables; fireside lounge seating; and decorative fire feature. Private Recreation Space B Concept Plan is depicted on Exhibit 4.14-11, and the Cross Section is depicted on Exhibit 4.14-11a.

Trail Network

All of the above parks/open space amenities would be connected through a network of outdoor trail systems, which would create a comprehensive landscape framework. Exhibit 3-7, Open Space and Recreation Plan, depicts the concepts for various types of trails within both planning areas.

City and Regional Parks and Recreational Facilities

In addition to parks and recreational amenities on the Project site, Project residents would reasonably avail themselves of other recreational facilities in the City, as well as regional facilities. Because of its immediate proximity to the Project site, residents would likely use the amenities at the OCGP (currently under development). The recreational uses are located approximately 1.0 miles to the west of the proposed Project. Once the OCGP is built out, the

Source: West Alton Parcel Development Plan 2016

Typical Focal Garden Concept Plan

Exhibit 4.14-8

West Alton Parcel Development Plan EIR

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Source: West Alton Parcel Development Plan, 2016

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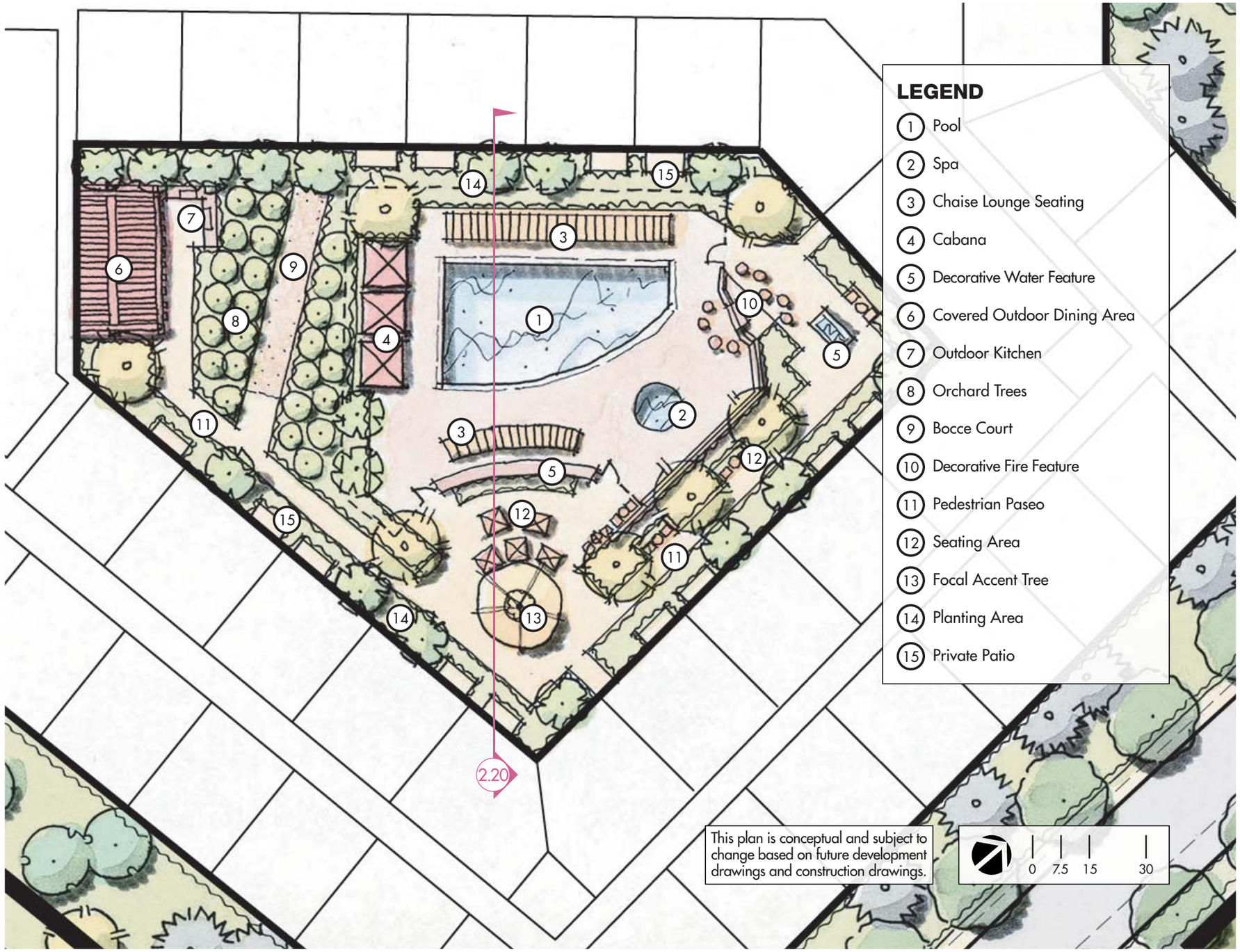
Typical Pocket Park Concept Plan

Exhibit 4.14-9

West Alton Parcel Development Plan EIR



Source: West Alton Parcel Development Plan 2016

Private Recreation Space A Concept Plan

Exhibit 4.14-10

West Alton Parcel Development Plan EIR

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Source: West Alton Parcel Development Plan 2016

Section – Private Recreation Space A

Exhibit 4.14-10a

West Alton Parcel Development Plan EIR

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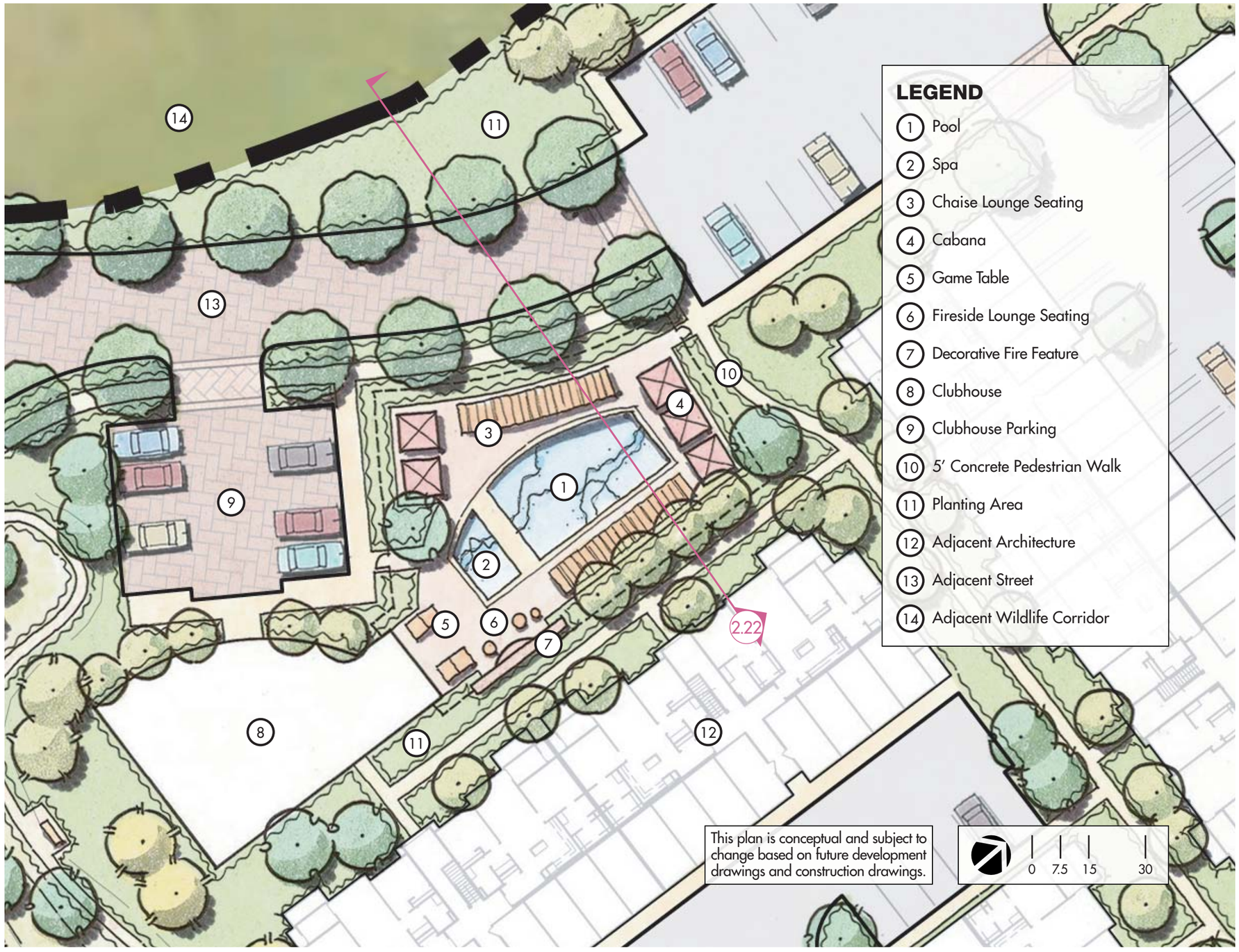

Source: West Alton Parcel Development Plan 2016

Private Recreation Space B Concept Plan

Exhibit 4.14-11

West Alton Parcel Development Plan EIR

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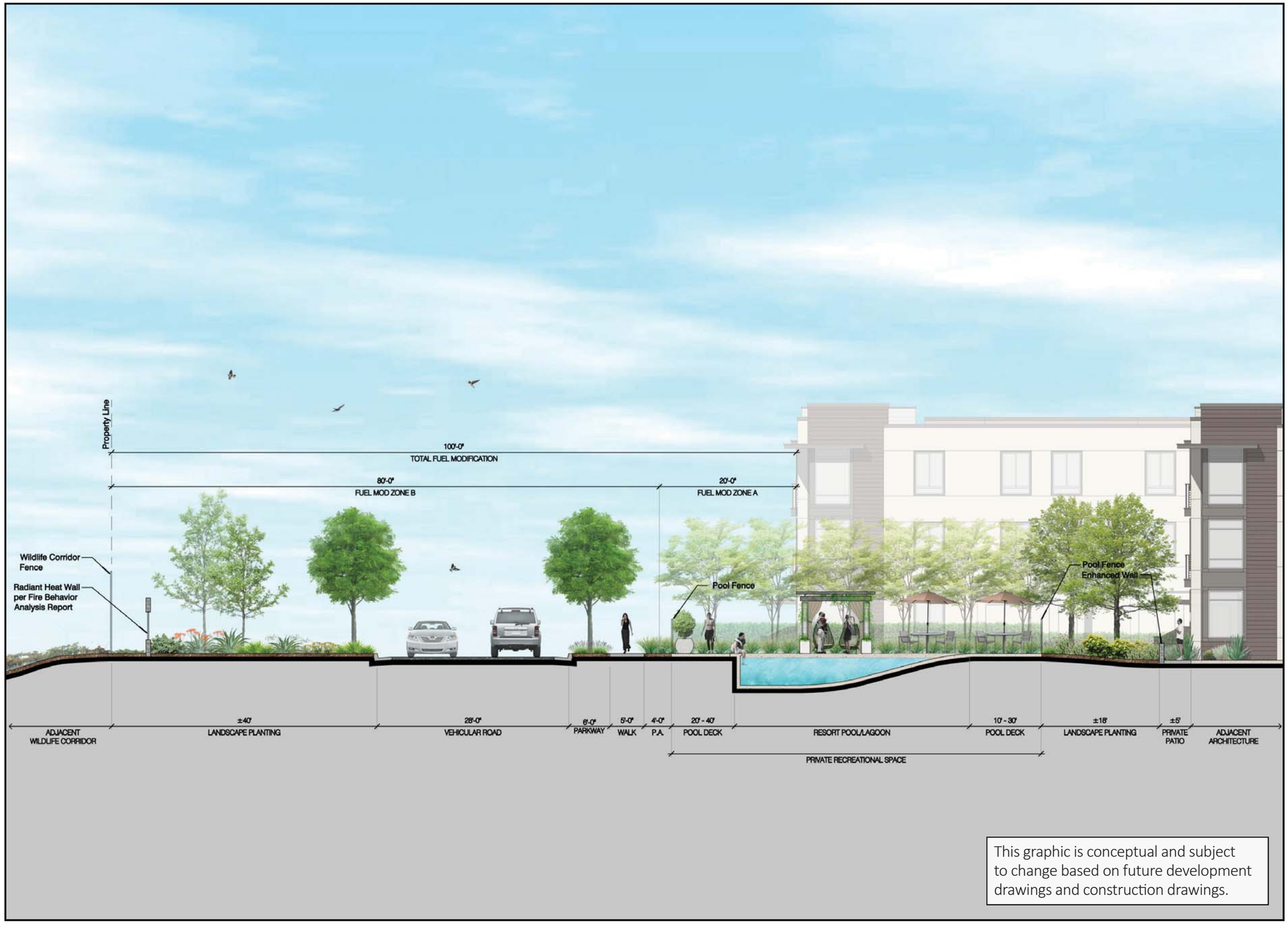

Source: West Alton Parcel Development Plan 2016

Section – Private Recreation Space B

Exhibit 4.14-11a

West Alton Parcel Development Plan EIR

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OCGP will include an entrance approximately ½ mile northwest of the proposed Project. The OCGP is intended to provide a world-class park that will serve the residents of Southern California. The park has been designed to be "easily accessible to millions of Southern California residents via freeway and railway" (City of Irvine 2015a). Given the regional concept of the OCGP, the addition of the residents and users of the Project would not result in substantial physical deterioration of the facility because it is intended to serve the larger Southern California population. Similarly, the regional parks are recreational amenities intended to serve the residents of the County. As indicated in the Recreational Element of the County's General Plan, regional parks offer recreational or scenic attractions that are of countywide significance and not generally available in local and municipal parks. The regional parks would augment the local park land provided by the Project. As previously stated, the County owns and operates approximately the 37,000 acres of regional parks throughout Orange County. These facilities offer a wide-range of recreational resources including hiking, picnicking, camping, and other nature preserves. By definition in the County General Plan, these facilities provide a countywide regional recreation network of sufficient size, with facilities in dispersed locations and recreation amenities to meet the major recreation needs of present and future residents of Orange County. As such, the incremental increase in population associated with the Project would not result in a substantial increase in use of regional parks such that there would be a physical deterioration of these facilities.

The beaches in Orange County are intended to serve not just the Orange County population but provide coastal access to the entire public. The popularity of beaches, especially in summer months, can result in a large influx of people at the coast. This taxes facilities such as parking, the road networks, and the recreational facilities at the coast. To help minimize the impacts associated with vehicle access to the beaches, the Orange County Transportation Authority provides increased transit service to the beaches in the summer, and Laguna Beach Transit provides a trolley service during the Laguna Beach Summer Festival season. The Project would reasonably add an incremental number of people that would access the beach because it would increase the population in the area. However, the overall contribution would be small given the Project's nominal contribution to the overall population being served by these facilities. As discussed in Section 4.12, Population and Housing, the Project would add approximately 1,598 residents to Orange County. This is approximately 0.05 percent of the estimated 2015 population in Orange County and would be the 0.04 percent of the projected 2040 Orange County population. Recognizing only a small percentage of the residents would frequent the beaches at any one time, this increase in population would not result in substantial physical deterioration of the local beaches.

Development Requirement (DR) REC-1, requires provision of parkland in accordance with the Development Plan, which provides for parkland for the Project, at a rate consistent with the County's Local Park Code requirement of 0.005 acre per unit (which equates to approximately 2.5 acres of land per 1,000 residents). The concept plans identify 4.11 acres of parks, thereby surpassing the amount of parkland necessary to meet the development requirement for the Project intensity contemplated in the Conceptual Site Plan. Therefore, there would be sufficient parkland provided within the Project to address demands generated by the Project residents. However, a potential temporary shortage of parkland may occur if occupancy in Planning Area 1 occurs prior to issuance of Finding of Suitability to Transfer (FOST) and construction of the proposed park within the LIFOC area is delayed. This temporary shortage of parkland would be considered a significant and unavoidable impact, since the Project would not meet the parkland requirement identified in DR REC-1 and a jurisdiction other than the County controls the

issuance of FOST and, therefore, the timing for development of the park. Moreover, in the event of an interim shortfall of parkland, there would be no assurances that the Project would not result in a deterioration of the parkland in the area. Thus, there would be the potential for a temporary significant and unavoidable impact as it relates to parkland in the area.

Impact Conclusion: *The proposed Project would increase demand for recreational facilities and amenities by introducing increased population in the area. However, the Project has committed to providing parkland in accordance with the provisions of the Development Plan (DR REC-1). This would be accomplished through the provision of active and passive parks and recreational facilities proposed as part of the Project. Though the residents of the Project would reasonably avail themselves of recreational facilities within the City and/or the County, including the OCGP, regional parks, and beaches, the anticipated increase in usage would not be substantial in light of the regional design of these recreational amenities nor would it accelerate substantial physical deterioration of these facilities. Therefore, the potential long-term impact to recreation would be less than significant, pursuant to Threshold 4.14-1. However, there is the potential for a temporary shortage of parkland should the occupancy of Planning Area 1 occur prior to construction of the proposed park within the LIFOC area. Since the County does not control the issuance of FOST, this would be considered a potential short-term significant and unavoidable impact pursuant to Threshold 4.14.1.*

Threshold 4.14-2

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?

As identified above and depicted on the exhibits, private recreational facilities would be constructed as part of the proposed Project to provide amenities for future residents of the Project. Provisions are also made in the Development Plan for the long-term maintenance of the parks, as well as landscaping within the Project.

Within the Project's planning areas, recreational uses would include neighborhood and pocket parks, focal gardens, and private recreational facilities. All of these amenities would have passive and open recreation as well as children's play areas. In addition to specific recreational facilities in the planning area, a variety of trails and outdoor trail systems (including curb-separated walks, concrete walks, paseo walks, and decomposed granite trails) would link the amenities and provide additional open space.

The impacts of construction of these facilities are addressed within the context of the development of the Project. Given the future availability of parks and recreational amenities on the Project site, the Project would not result in construction and expansion of recreational facilities beyond the proposed facilities. Therefore, no additional impacts related to construction or expansion of recreational facilities would occur, and no mitigation is required.

Impact Conclusion: *The proposed Project would include recreational facilities and amenities through a system of parks, recreational facilities and open space in the development. These facilities would meet the needs of the future residents and users of the development and any adverse physical effects associated with implementation of these improvements are addressed elsewhere in this EIR. Given the availability of recreational facilities within the Project, the proposed Project would not require the construction or expansion of other recreational facilities that might have any adverse physical effects on the environment. No additional recreational facilities, beyond those associated with the Project, are proposed that would adversely impact the environment. Therefore, the potential impact to recreation would be less than significant, pursuant to Threshold 4.14-2*

4.14.6 CUMULATIVE IMPACTS

The Project, along with other projects in the area, would result in increased demand for recreational uses due to the increase in population. In addition, the proposed Project combined with other projects would likely result in increased use of local and regional recreational amenities. However, all projects, including the proposed Project would either include recreational facilities and amenities for use by future residents of the proposed communities or would meet their fair share requirement by paying in lieu fees, which would serve to minimize the potential for substantial physical deterioration of recreational facilities by providing local and regional recreation facilities that would serve the increased population. Similar to the Project, as cumulative projects provide for the construction or expansion of recreational facilities, the potential impacts associated with development of the facilities would be addressed and mitigation measures proposed, which would serve to minimize impacts on the environment. Therefore, the Project's contribution to the cumulative physical impact on local and regional recreational facilities would be less than significant.

4.14.7 MITIGATION PROGRAM

Development Requirements

DR REC-1 The County or designee shall provide parkland through an open space system within the Project site in accordance with the *West Alton Parcel Development Plan.*

Mitigation Measures

With implementation of DR REC-1 impacts related to recreation facilities would be less than significant with the full-build-out of the proposed Project; thus, no mitigation measures beyond DR REC-1 is required. A potential temporary shortage of parkland was identified if development in Planning Area 1 occurs prior to issuance of FOST and construction of the proposed park within the LIFOC area. Since a jurisdiction other than the County controls the issuance of FOST this impact is identified as significant and unavoidable impact.

4.14.8 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Project-specific and cumulative impacts to recreation associated with the Project would be less than significant when the Project is fully implemented. However, should the full allocation of residential development in Planning Area 1 occur prior to issuance of FOST, there would be a delay in the development of the proposed park within the LIFOC area. Since the County has no control on the issuance of FOST, this would be considered a potential short-term significant and unavoidable impact.

4.14.9 REFERENCES

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4.15 TRAFFIC/TRANSPORTATION

This section discusses Project-related impacts associated with transportation and circulation, specifically with respect to vehicular traffic impacts on the roadway circulation system surrounding the Project site.[1] The potential impacts of the Project were evaluated in detail in the *West Alton Parcel Draft Transportation Impact Analysis* ("Transportation Impact Analysis" or "TIA") prepared by Fehr & Peers in December 2015. The findings of this technical report are summarized in this section. The technical report is provided as Appendix L of this EIR.

4.15.1 REGULATORY SETTING

Regional Regulations

Orange County Congestion Management Program

The Orange County Congestion Management Program (CMP) was originally adopted in 1991 and updated most recently in November 2015. The goals of the Orange County CMP are to support regional mobility and air quality objectives by reducing traffic congestion; to provide a mechanism for coordinating land use and development decisions that support the regional economy; and to determine gas tax fund eligibility. To meet these goals, the CMP contains a number of policies designed to monitor and address system performance issues. The Orange County Transportation Authority (OCTA) was designated as the Congestion Management Agency (CMA) for the County. As a result, the OCTA is responsible for developing, monitoring, and updating (biennially) the Orange County's CMP.

A key element of the CMP's current Land Use Analysis Program is the preparation by local jurisdictions of a traffic impact analysis. The traffic impact analysis reports are designed to provide an improved basis for assessing the impacts of land use decisions on the regional transportation system, both within and outside the permitting jurisdiction, by providing a consistent format to identify impacts and mitigation, and by evaluating mitigation costs. A CMP traffic impact analysis has additional requirements and evaluations compared to a typical traffic study. A traffic impact analysis report helps to determine appropriate mitigation measures and financial responsibilities for resolution of CMP system impacts and for developing appropriate mitigation for future development projects.

General Plan Policies

The General Plans for the local jurisdictions contain policies for providing a balanced land use and transportation network. Many of these General Plans outline level of service (LOS) standards. The Project is not subject to the City of Irvine's land use jurisdiction, including the City's General Plan, policies and regulations. Although the Project is not required to be consistent with the City's General Plan, in the interest of informed decision making, where applicable, the following discloses how the Project compares to the City of Irvine's General Plan LOS standards (Irvine 2015a, 2015b).

[1] A Project-related impact is when the increased traffic volumes associated with the Project result in the exceedance of one of the thresholds of significance, which are discussed in Section 4.15.5.

4.15.2 METHODOLOGY

The Transportation Impact Analysis analyzes potential project impacts on existing traffic conditions and 2017, 2035, and Post-2035 future traffic conditions. Existing traffic conditions are based on 2014 and 2015 traffic counts. Future traffic conditions were prepared using the Irvine Transportation Analysis Model (ITAM) Version 12.4.[2] For study locations in the City of Lake Forest, Project-generated trips generated by ITAM are added to background traffic forecasts from the City of Lake Forest Traffic Analysis Model (LFTAM).

The ITAM 12.4 traffic model is a subarea traffic model derived from the Orange County Transportation Analysis Model (OCTAM), maintained by the OCTA. The modeling process in ITAM can be divided into three steps: (1) Trip Generation, (2) Trip Distribution, and (3) Trip Assignment.

The analyses under future scenario Year 2017, Year 2035, and Post-2035 include future land use changes and development growth as well as any circulation system improvements that are expected to be in place by that time frame.

Traffic Analysis Scenarios

The TIA analyzed the following traffic conditions. Even though the Project site is not subject to City of Irvine jurisdiction, plans, regulations or policies, as the Project site is physically located within the City of Irvine, the TIA utilizes the City of Irvine traffic model scenarios as provided by the City.

A. Existing Conditions
   - 2014 and 2015 peak hour intersection counts and 24-hour segment counts
B. Existing Plus Project Conditions
   - Existing Conditions with the Proposed Project added
C. Interim Year 2017 Analysis
   - Interim Year 2017 without Project
   - Interim Year 2017 with Project
D. Long-Term Year 2035 Analysis
   - Long-Term Year 2035 without Project
   - Long-Term Year 2035 with Proposed Project
E. General Plan Buildout (Post-2035) Analysis
   - General Plan Buildout (Post-2035) without Project
   - General Plan Buildout (Post-2035) with Proposed Project

[2] Prior to preparation of the Project's Transportation Impact Analysis, an extensive scoping process took place between the County of Orange as the lead agency, City of Irvine, and the traffic consultant, Fehr & Peers. The City of Irvine traffic model was used to prepare the Analysis.

It should be noted that the additional scenarios of the Year 2035 With and Without Project With Pending Projects and Post-2035 With and Without Project With Pending Projects are used for the analysis of cumulative impacts, later discussed in this section.

Exhibit 4.15-1 illustrates the Project traffic study area and off-site intersection analysis locations, consistent with the North Irvine Transportation Mitigation (NITM)[3] Program study area. The study area and associated facilities, included herein, were selected based on the County's expertise, discussions with the City of Irvine and past practices. Accordingly the TIA analyzed the intersections and roadway segments included in the NITM study area under each of the proposed scenarios. Additionally, the analysis of the roadway segments was performed consistent with Heritage Fields study area, which includes arterial roadway segments around the NITM study intersections. Exhibit 4.15-2 provides mapping of the street network in the vicinity of the Project site.

Performance Criteria

As the Project site is located within the physical boundaries of the City of Irvine, although not required, the performance standards and significance criteria described below are taken from the City of Irvine's Traffic Impact Study Guidelines (Irvine 2004), the California Department of Transportation (Caltrans) Traffic Study Guidelines (Caltrans 2002), and the NITM Program analysis. The criteria included in the NITM Program analysis is reflective of the performance measures and criteria used by the various jurisdictions in the NITM study area. In response to the Notice of Preparation, Caltrans specifically requested the use of Highway Capacity Manual (HCM) methodologies for signalized ramp intersections where Caltrans shares jurisdiction with the various local agencies. Therefore, the HCM model was used to analyze these intersections.

Freeway Mainline Segments

The project study area includes a variety of freeway mainline segments including Interstate (I) 5 and other regional facilities adjacent to the Project site. LOS for freeway segments is based on volume to capacity (V/C) ratios and density (passenger cars/mile/lane) based on the HCM 2010 methodologies. The LOS criteria for freeway mainline analysis are provided in Tables 4.15-1 through 4.15-3. For all the mainline facilities (freeways and toll roads), Caltrans has a goal of maintaining a LOS E.

[3] The City of Irvine established the NITM Program for "providing funding for the coordinated and phased installation of required traffic and transportation improvements required under CEQA documents previously certified or adopted by the City in connection with land use entitlements for City Planning Areas 1, 2, 5, 6, 8, 9, 30, 40 and 51" (Irvine 2016). The Project is located in City Planning Area (PA) 51.

Intersection Analysis Location

Source: Fehr & Peers 2015

Traffic Analysis Study Area

Exhibit 4.15-1

West Alton Parcel Development Plan EIR

N W E S

Map Not To Scale

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Source: Fehr & Peers 2015

Project Roadway Network

Exhibit 4.15-2

West Alton Parcel Development Plan EIR

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TABLE 4.15-1
LOS CRITERIA FOR
BASIC MAINLINE FREEWAY SEGMENTS

LOS	Density (pc/mi/ln)
A	≤11
B	<11–18
C	<18–26
D	<26–35
E	<35–45
F	Demand exceeds capacity >45

LOS: level of service pc: passenger cars; mi: mile; ln: lane
Source: Fehr & Peers 2015

TABLE 4.15-2
LOS CRITERIA FOR FREEWAY WEAVING SEGMENTS

LOS	Freeway Weaving Segments	Weaving Segments on Multi-Lane Highways or Collector-Distributor Roadways
A	0–10	0–12
B	>10–20	>12–24
C	>20–28	>24–32
D	>28–35	>32–36
E	>35	>36
F	Demand exceeds capacity	Demand exceeds capacity

LOS: level of service
Source: Fehr & Peers 2015

TABLE 4.15-3
LOS CRITERIA FOR MERGE AND DIVERGE SEGMENTS

LOS	Density (pc/mi/ln)	Comments
A	≤10	Unrestricted operations
B	>10–20	Merging and diverging maneuvers noticeable to drivers
C	>20–28	Influence area speeds begin to decline
D	>28–35	Influence area turbulence becomes intrusive
E	>35	Turbulence felt by virtually all drivers
F	Demand exceeds capacity	Ramp and freeway queues form

pc: passenger cars; mi: mile; ln: lane
Source: Fehr & Peers 2015

Freeway Ramp Segments

Freeway ramp volume-to-capacity ratios are calculated using the following data:

- Metered On-Ramps
  - A maximum capacity of 900 vehicles per hour (vph) for a 1-lane metered on-ramp with only 1 mixed-flow lane at the meter.
  - A maximum capacity of 1,080 for vph for a 1-lane metered on-ramp with 1 mixed-flow lane at the meter plus 1 high occupancy vehicle preferential lane at the meter.
  - A maximum capacity of 1,500 vph for a 1-lane metered on-ramp with 2 mixed-flow lanes at the meter.
  - A maximum capacity of 1,800 vph for a 2-lane metered on-ramp with 2 mixed-flow lanes at the meter.
- Toll Ramps (On-Ramps and Off-Ramps)
  - A maximum capacity of 1,500 vph for a 1-lane toll ramp with 1 cash lane (stopped) and 1 Fastrak (unstopped) lane.
- Non-Metered and Non-Tolled On-Ramps and Off-Ramps
  - A maximum capacity of 1,500 vph for a 1-lane ramp.
  - A maximum capacity of 2,250 vph for a 2-lane on-ramp that tapers to 1 merge lane.
  - A maximum capacity of 3,000 vph for a 2-lane on-ramp that does not taper to 1 merge lane and for a 2-lane off-ramp with 2 auxiliary lanes.

V/C ratios for freeway ramp segments are provided in Table 4.15-4. For all the freeways and toll roads ramps Caltrans has a goal of maintaining a LOS E.

TABLE 4.15-4
VOLUME-TO-CAPACITY RATIO LOS RANGES
FOR FREEWAY RAMP SEGMENTS

LOS	V/C Ratio
A	0.00–0.30
B	0.31–0.50
C	0.51–0.71
D	0.72–0.89
E	0.90–1.00
F	>1.00

LOS: level of service; V/C: volume-to-capacity
Source: Fehr & Peers 2015

Freeway Ramp Intersections

Freeway/highway ramp intersections were analyzed using the HCM methodology (HCM 2010), based on comments received from Caltrans on the Notice of Preparation. The HCM methodology assigns an LOS grade to an intersection based on estimated delay at that intersection. Table 4.15-5 summarizes the LOS grades for the HCM methodology. For all the Caltrans intersections, the goal is to maintain a LOS C.

TABLE 4.15-5
LOS DEFINITIONS FOR INTERSECTIONS
(HCM METHODOLOGY)

LOS	Average Control Delay per Vehicle (seconds)		Definition
	Signalized	Unsignalized	
A	≤10.0	≤10.0	No vehicle waits longer than 1 red light and no approach phase is fully used.
B	>10.0 and ≤20.0	>10.0 and ≤15.0	An occasional approach phase is fully utilized; many drivers begin to feel somewhat restricted in groups of vehicles.
C	>20.0 and ≤35.0	>15.0 and ≤25.0	Occasionally, drivers may have to wait through more than 1 red light; backups may develop behind turning vehicles.
D	>35.0 and ≤55.0	>25.0 and ≤35.0	Delays may be substantial during portions of the rush hour, but enough lower volume periods occur to permit clearing of developing lines, preventing excessive backups.
E	>55.0 and ≤80.0	>35.0 and ≤50.0	Represents the most vehicles intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.
F	>80.0	>50.0	Backups from nearby locations or on cross streets may restrict or prevent movement of vehicles out of the intersection approaches. Tremendous delays with continuously increasing queue lengths.

LOS: level of service
Source: Fehr & Peers 2015

Roadway Segments

For the analysis of roadway segments, there are two levels of screening to determine a potential impact based on the North Irvine Transportation Mitigation (NITM) Program Study. The first screening evaluates if the ADT on a roadway segment exceeds the daily impact threshold. This occurs if the volume on a roadway segment increases by more than two percent and level of service degrades from acceptable to unacceptable, or if the volume on a roadway segment operating unacceptably increases by more than two percent (for roadways under County jurisdiction, the threshold is one percent). If the threshold is exceeded, then the second level screening is conducted. This second level involves an evaluation of the mid-block peak hour roadway volume and capacity to determine if the peak hour threshold is exceeded. Mid-block roadway segment capacities, based on NITM Program Study, provided by the City of Irvine, are described below. Mid-block peak hour roadway segment capacity is 1,600 cars/hour/lane.

City of Irvine	Number of Lanes	Capacity
Major Arterial	8 lane	72,000
	6 lane	54,000
Primary Arterial	4 lane	32,000
Secondary Arterial	4 lane	28,000
Commuter	2 lane	13,000

County of Orange and Cities of Aliso Viejo, Laguna Hills, Laguna Woods, Lake Forest, Mission Viejo, Orange, and Tustin

Major Arterial	8 lane	75,000
	6 lane	56,300
Primary Arterial	4 lane	37,500
Secondary Arterial	4 lane	24,000
Commuter	2 lane	12,000

Arterial Intersections

Many jurisdictions in the study area apply the Intersection Capacity Utilization (ICU) approach to analyze intersection operations. ICU reports V/C ratio at the intersections by evaluating critical movements at signalized intersections and by comparing these results against the capacity of the intersection. Table 4.15-6 summarizes the V/C ratio ranges and their corresponding LOS grades for arterial roadways and intersections analyzed under the ICU methodology. The general LOS goal for intersections is LOS D; however, the City of Irvine has adopted LOS E as the standard at the locations listed below[4]:

- Intersection 329 – Barranca Parkway and Irvine Center Drive
- Intersection 330 – Barranca parkway and Pacifica
- Intersection 333 – SR-133 northbound ramps and Gateway and Pacifica
- Intersection 338 – Alton Parkway and Irvine Boulevard
- Intersection 346 – Alton Parkway and Enterprise Drive
- Intersection 348 – Alton Parkway and Irvine Center Drive
- Intersection 350 – Alton Parkway and Pacifica
- Intersection 351 – Fortune Drive/I-5 southbound ramps and Enterprise
- Intersection 357 – Enterprise Drive and Fortune Drive/I-405 northbound ramps
- Intersection 358 – Irvine Center Drive and Enterprise Drive
- Intersection 362 – Bake Parkway and Irvine Boulevard
- Intersection 367 – Bake Parkway and I-5 northbound ramps
- Intersection 368 – Bake Parkway and I-5 northbound ramps

[4] The adoption of LOS E as an acceptable standard has been established by the City of Irvine *Traffic Impact Analysis Guidelines* (2004) and the *NITM Program Study* (2014).

TABLE 4.15-6
VOLUME/CAPACITY RATIO LOS RANGES
FOR ARTERIAL ROADWAYS

LOS	Arterial Roadways
A	0.00–0.60
B	0.61–0.70
C	0.71–0.80
D	0.81–0.90
E	0.91–1.00
F	>1.00

LOS: level of service
Source: Fehr & Peers 2015

Congestion Management Plan

The City's traffic study guidelines require conducting a short-range analysis for CMP, and a CEQA threshold of significance requires analysis to determine potential conflicts with an applicable congestion management program established by the applicable county congestion management agency for designated roads or highways. The CMP analysis examines an initial level of project development as part of an evaluation of potential short-range impacts (within five years). This is used to address requirements of the CMP. The goal for CMP intersections is to operate at an LOS E (OCTA 2015).

Proposed Project Generation

Trip generation rates for various land use intensities are derived in ITAM from socioeconomic factors assigned to each land use. The land use and trip generation rates are summarized in Table 4.15-7.

TABLE 4.15-7
PROJECT TRIP GENERATION ESTIMATES

ITE Reference		Daily	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Trip Generation Rates								
Apartments		6.18	18%	82%	0.45	65%	35%	0.45
Trip Generation								
803	DU Apartments	4,963	65	296	361	235	126	361

DU: dwelling unit
Source: Fehr & Peers 2015

Project Trip Distribution

Daily trip distribution patterns for the proposed Project were developed with the ITAM model, which requires trips distribution maps only for future-year scenarios and are presented in the TIA in Appendix L (see Figures 3-1 through 3-3) for each future analysis scenario (Year 2017, Year 2035, and Post-2035).

4.15.3 EXISTING CONDITIONS

Regional and Local Access Routes

Regional access to the Project site is provided by I-5, I-405, SR-133, SR-241, and SR-261. Access to SR-133 and SR-241 is approximately 2.5 miles northwest and northeast of the Project site, respectively. Local access is currently provided by the existing six-lane Irvine Boulevard. Irvine Boulevard is identified as a Major Highway, Six Lanes in the City of Irvine General Plan.

Transit Routes

The Orange County Transportation Authority (OCTA) provides bus transit services throughout the City of Irvine. The nearest OCTA bus stop is located approximately 1,000 feet to the southeast of the Project site at the intersection of Alton Parkway and Irvine Boulevard. From this intersection, riders could travel to the nearby cities of Lake Forest, Laguna Woods, Laguna Hills, Mission Viejo, and others. Irvine's iShuttle service also provides service to the area. The iShuttle (a local commuter shuttle service) Routes C and D serve to connect the Irvine Station and the Irvine Spectrum Area.

The Inland Empire-Orange County Line Metrolink line provides north-south service between the cities of San Bernardino and Oceanside. This line runs at 30–45 minute headways during the weekday morning and evening peak hours and limited service during the midday off-peak period and weekends. The Orange County Line Metrolink line provides north-south service between the cities of Los Angeles (Union Station) and Oceanside. This line runs at 30–50 minute headways during the weekday morning and evening peak hours. Limited service is provided during the midday off-peak period and on weekends. For both Metrolink routes, the closest station to the Project site is the Irvine Station, which is located less than 2 miles southwest of the Project site.

Congestion Management Program

There are 19 CMP intersections in the Project traffic study area, which are listed below:

- Jamboree Road and Irvine Boulevard
- Jamboree Road and I-5 northbound ramps
- Jamboree Road and I-5 southbound ramps
- Jamboree Road and Edinger Avenue
- SR-261 southbound ramps and Irvine Boulevard
- SR-261 northbound ramps and Irvine Boulevard
- SR-133 southbound ramps and Irvine Boulevard
- SR-133 northbound ramps and Irvine Boulevard
- Laguna Canyon Road and SR-73 northbound ramps
- Laguna Canyon Road and SR-73 southbound ramps
- Enterprise Drive and Fortune/I-405 northbound ramps
- Irvine Center Drive and Enterprise Drive
- Irvine Center Drive and I-405 southbound ramps
- El Toro Road and I-5 northbound ramps
- El Toro Road and Avenida Carlota
- El Toro Road and Moulton Parkway
- El Toro Road and SR-73 northbound ramps
- El Toro Road and SR-73 southbound ramps
- El Toro Road and Trabuco Road

Currently, all but one intersection (Laguna Canyon Road and SR-73 northbound ramps) are operating at an adequate LOS, which is LOS E or better.

Existing Intersection and Roadway Operations

Midblock arterial average daily traffic (ADT) counts and AM and PM peak hour turning movement counts at intersections in the study area were conducted in 2014 and 2015. Traffic counts were collected at all intersections during the morning (7:00 AM to 9:00 AM) peak periods and the afternoon (4:00 PM to 6:00 PM) peak periods. Freeway/highway data was extracted from the Caltrans Performance Management System (PeMS).

Average Daily Traffic Volumes and Levels of Service

The existing ADT volumes were collected and corresponding V/C ratios were calculated for the arterial roadway system in the study area.[5] Based on the LOS criteria, the following arterials do not operate at an acceptable LOS:

- Culver Drive (Main Street to I-405)
- Sand Canyon Avenue (Alton Parkway to I-405)
- University Drive (south of I-405)
- SR-133 (Lake Forest Drive to SR-73)
- Bake Parkway (Irvine Boulevard/Trabuco Road to Toledo Way)
- Bake Parkway (Jeronimo Road to Muirlands Boulevard)
- Bake Parkway (Rockfield Boulevard to I-5)
- Lake Forest Drive (Rockfield Boulevard to I-5)
- Aliso Creek Road (east of El Toro Road)
- Alicia Parkway (Jeronimo Road to Muirlands Boulevard)
- Alicia Parkway (Muirlands Boulevard to I-5)
- Alicia Parkway (I-5 to Paseo de Valencia)
- Avenida de la Carlota (Paseo de Valencia to El Toro Road)

Peak Hour Intersection Levels of Service

Existing intersection counts were collected to establish a baseline for the analysis. Table 4.15-8 depicts existing AM and PM intersection LOS values. Based on the intersection LOS criteria, the following intersections do not perform at an acceptable LOS at the time periods specified:

- Jamboree Road and Barranca Parkway (PM)
- Jeffrey Road and Alton Parkway (AM)
- El Toro Road and Aliso Creek Road (AM and PM)

As shown in Table 4.15-8, under existing conditions except for three intersections, all study intersections are operating at an acceptable LOS using ICU methodology.

[5] These are graphically depicted on Figures 4-1 and 4 2, respectively, of the TIA (Appendix L).

TABLE 4.15-8
EXISTING INTERSECTION LOS SUMMARY
(ICU METHODOLOGY)

ID	Intersection	AM Peak Hour		PM Peak Hour	
		V/C	LOS	V/C	LOS
16	Newport Ave and Irvine Blvd	0.54	A	0.73	C
34	Red Hill Ave and Irvine Blvd	0.47	A	0.71	C
54	Browning Ave and Irvine Blvd	0.40	A	0.55	A
91	Tustin Ranch Rd and Irvine Blvd	0.49	A	0.77	C
123	Jamboree Rd and Tustin Ranch Blvd	0.59	A	0.70	C
124	Jamboree Rd and Portola Pkwy	0.43	A	0.80	D
125	Jamboree Rd and Irvine Blvd	0.67	B	0.74	C
126	Jamboree Rd and Bryan Ave	0.65	B	0.66	B
127	Jamboree Rd and El Camino Real	0.64	B	0.70	B
128	Jamboree Rd and I-5 NB Ramps	0.72	C	0.71	C
129	Jamboree Rd and I-5 SB Ramps	0.80	C	0.78	C
131	Jamboree Rd SB and Walnut Ave	0.41	A	0.49	A
132	Jamboree Rd NB and Walnut Ave	0.38	A	0.63	B
133	Jamboree Rd and Edinger Ave	0.52	A	0.55	A
135	Jamboree Rd NB and Warner Ave	0.28	A	0.59	A
136	Jamboree Rd and Barranca Pkwy	0.72	C	**0.91**	**E**
157	SR-261 SB Ramps and Portola Pkwy	0.31	A	0.38	A
158	SR-261 NB Ramps and Portola Pkwy	0.26	A	0.39	A
159	SR-261 SB Ramps and Irvine Blvd	0.37	A	0.43	A
160	SR-261 NB Ramps and Irvine Blvd	0.33	A	0.52	A
218	Culver Dr and Portola Pkwy	0.30	A	0.42	A
220	Culver Dr and Irvine Blvd	0.67	B	0.60	A
221	Culver Dr and Bryan Ave	0.73	C	0.61	B
222	Culver Dr and Trabuco Rd	0.58	A	0.67	B
223	Culver Dr and I-5 SB Ramps	0.64	B	0.59	A
224	Culver Dr and Walnut Ave	0.78	C	0.87	D
226	Culver Dr and Irvine Center Drive	0.57	A	0.68	B
227	Culver Dr and Warner Ave	0.62	B	0.65	B
228	Culver Dr and Barranca Pkwy	0.62	B	0.83	D
229	Culver Dr and Alton Pkwy	0.65	B	0.72	C
232	Culver Dr and I-405 NB Ramps	0.66	B	0.84	D
233	Culver Dr and I-405 SB Ramps	0.66	B	0.87	D
235	Culver Dr and University Dr	0.77	C	0.81	D
249	Yale Ave and Irvine Blvd	0.68	B	0.74	C
252	Yale Ave and Bryan Ave	0.34	A	0.42	A
255	Yale Ave and Trabuco Rd	0.47	A	0.44	A
259	Yale Ave and Walnut Ave	0.51	A	0.67	B
261	Yale Ave and Irvine Center Drive	0.55	A	0.55	A
264	W Yale Loop and Barranca Pkwy	0.59	A	0.57	A
267	E Yale Loop and Barranca Pkwy	0.69	B	0.83	D
268	W Yale Loop and Alton Pkwy	0.54	A	0.62	B

TABLE 4.15-8
EXISTING INTERSECTION LOS SUMMARY
(ICU METHODOLOGY)

ID	Intersection	AM Peak Hour		PM Peak Hour	
		V/C	LOS	V/C	LOS
271	E Yale Loop and Alton Pkwy	0.71	C	0.65	B
282	Jeffrey Rd and Portola Pkwy	0.27	A	0.32	A
283	Jeffrey Rd and Irvine Blvd	0.43	A	0.55	A
284	Jeffrey Rd and Bryan Ave	0.48	A	0.46	A
285	Jeffrey Rd and Trabuco Rd	0.51	A	0.49	A
286	Jeffrey Rd and Roosevelt	0.68	B	0.53	A
287	Jeffrey Rd and I-5 NB Ramps	0.64	B	0.74	C
288	Jeffrey Rd and Walnut Ave/I-5 SB Ramps	0.68	B	0.81	D
289	Jeffrey Rd and Irvine Center Drive	0.58	A	0.69	B
290	Jeffrey Rd and Barranca Pkwy	0.75	C	0.67	B
291	Jeffrey Rd and Alton Pkwy	**0.95**	**E**	0.83	D
293	Jeffrey Rd and I-405 NB Ramps	0.68	B	0.71	C
294	University Dr and I-405 SB Ramps	0.68	B	0.61	B
300	Sand Canyon Ave and Portola Pkwy	0.34	A	0.27	A
301	Sand Canyon Ave and Irvine Blvd	0.57	A	0.48	A
302	Sand Canyon Ave and Trabuco Pkwy	0.33	A	0.35	A
303	Sand Canyon Ave and I-5 NB Ramps/Marine Way	0.53	A	0.62	B
304	Sand Canyon Ave and Old Marine Way	0.55	A	0.53	A
305	Sand Canyon Ave and I-5 SB Ramps	0.54	A	0.60	B
306	Sand Canyon Ave and Oak Cyn/Laguna Canyon Rd	0.47	A	0.52	A
307	Sand Canyon Ave and Irvine Center Drive	0.41	A	0.42	A
309	Sand Canyon Ave and Barranca Pkwy	0.42	A	0.48	A
310	Sand Canyon Ave and Alton Pkwy	0.51	A	0.61	B
311	Sand Canyon Ave and I-405 NB Ramps	0.69	B	0.54	A
312	Sand Canyon Ave and I-405 SB Ramps	0.84	D	0.67	B
313	Laguna Canyon Rd and Irvine Center Drive	0.29	A	0.37	A
314	Laguna Canyon Rd and Barranca Pkwy	0.36	A	0.30	A
315	Laguna Canyon Rd and Alton Pkwy	0.52	A	0.40	A
316	SR-133 SB Ramps and Irvine Blvd	0.43	A	0.56	A
317	SR-133 NB Ramps and Irvine Blvd	0.43	A	0.65	B
318	Banting and Barranca Pkwy	0.60	A	0.64	B
319	Banting and Alton Pkwy	0.51	A	0.44	A
321	Laguna Canyon Rd and Old Laguna Canyon Rd	0.75	C	0.70	B
322	Laguna Canyon Rd and SR-73 NB Ramps*	0.52	A	0.69	B
323	Laguna Canyon Rd and SR-73 SB Ramps*	0.36	A	0.38	A
324	Portola Pkwy and SR-241 NB Ramps	0.14	A	0.10	A
325	Portola Pkwy and SR-241 SB Ramps	0.12	A	0.14	A
327	Barranca Pkwy and Technology Dr	0.51	A	0.76	C
328	Barranca Pkwy and I-5 HOV Ramp	0.54	A	0.46	A
329	Barranca Pkwy and Irvine Center Drive*	0.55	A	0.50	A

TABLE 4.15-8
EXISTING INTERSECTION LOS SUMMARY
(ICU METHODOLOGY)

ID	Intersection	AM Peak Hour		PM Peak Hour	
		V/C	LOS	V/C	LOS
330	Barranca Pkwy and Pacifica*	0.61	B	0.69	B
334	SR-133 NB Ramps/Gateway Blvd and Pacifica*	0.52	A	0.62	B
335	Alton Pkwy and Portola Pkwy	0.41	A	0.29	A
336	Alton Pkwy and SR-241 Ramps	0.51	A	0.44	A
338	Alton Pkwy and Irvine Blvd*	0.56	A	0.43	A
339	Alton Pkwy and Toledo Way	0.51	A	0.50	A
340	Alton Pkwy and Jeronimo Rd	0.48	A	0.44	A
341	Alton Pkwy and Barranca Pkwy/Muirlands Blvd	0.47	A	0.63	B
343	Alton Pkwy and Ada	0.30	A	0.40	A
344	Alton Pkwy and Technology Dr W	0.55	A	0.61	B
345	Alton Pkwy and I-5 NB Ramps	0.73	C	0.46	A
346	Alton Pkwy and Enterprise Dr*	0.63	B	0.59	A
348	Alton Pkwy and Irvine Center Drive*	0.53	A	0.50	A
350	Alton Pkwy and Pacifica*	0.65	B	0.39	A
351	Fortune Dr/I-5 SB Ramps and Enterprise Dr*	0.29	A	0.62	B
357	Enterprise Dr and Fortune Dr/I-405 NB Ramps*	0.47	A	0.45	A
358	Irvine Center Drive and Enterprise Dr*	0.54	A	0.62	B
359	Irvine Center Drive and I-405 SB Ramps	0.50	A	0.51	A
361	Bake Pkwy and Portola Pkwy	0.48	A	0.62	B
362	Bake Pkwy and Irvine Blvd*	0.59	A	0.64	B
363	Bake Pkwy and Toledo Wy	0.64	B	0.60	A
364	Bake Pkwy and Jeronimo Rd	0.84	D	0.78	C
365	Bake Pkwy and Muirlands Blvd	0.59	A	0.63	B
366	Bake Pkwy and Rockfield Blvd	0.59	A	0.88	D
367	Bake Pkwy and I-5 NB Ramps*	0.83	D	0.61	B
368	Bake Pkwy and I-5 SB Ramps*	0.68	B	0.74	C
371	Bake Pkwy and Research Dr	0.35	A	0.61	B
372	Bake Pkwy and Irvine Center Drive	0.30	A	0.35	A
373	Lake Forest Dr and SR-241 NB Ramps	0.23	A	0.25	A
374	Lake Forest Dr and Portola Pkwy	0.39	A	0.49	A
375	Lake Forest Dr and SR-241 SB Ramps	0.30	A	0.37	A
376	Lake Forest Dr and Trabuco Rd	0.56	A	0.66	B
377	Lake Forest Dr and Toledo Wy	0.54	A	0.57	A
378	Lake Forest Dr and Jeronimo Rd	0.65	B	0.70	B
379	Lake Forest Dr and Muirlands Blvd	0.54	A	0.69	B
380	Lake Forest Dr and Rockfield Blvd	0.53	A	0.66	B
381	Lake Forest Dr and I-5 NB Ramps	0.69	B	0.64	B
383	Lake Forest Dr and Avenida de la Carlota/I-5 SB Ramps*	0.62	B	0.74	C
385	Lake Forest Dr and Irvine Center Drive*	0.44	A	0.59	A
386	Ridge Route Dr and Muirlands Blvd	0.47	A	0.58	A

TABLE 4.15-8
EXISTING INTERSECTION LOS SUMMARY
(ICU METHODOLOGY)

ID	Intersection	AM Peak Hour		PM Peak Hour	
		V/C	LOS	V/C	LOS
387	Ridge Route Dr and Rockfield Blvd	0.38	A	0.47	A
388	Ridge Route Dr and Avenida de la Carlota	0.30	A	0.61	B
389	Ridge Route Dr and Moulton Pkwy	0.37	A	0.57	A
390	Paseo de Valencia and Avenida de la Carlota	0.50	A	0.61	B
391	Santa Maria Ave and Moulton Pkwy	0.49	A	0.68	B
392	El Toro Rd and Muirlands Blvd	0.61	B	0.74	C
393	El Toro Rd and Rockfield Blvd	0.53	A	0.59	A
394	El Toro Rd and I-5 NB Ramps*	0.67	B	0.73	C
396	El Toro Rd and Avenida de la Carlota*	0.59	A	0.67	B
397	El Toro Rd and Paseo de Valencia	0.49	A	0.60	B
398	El Toro Rd and Moulton Pkwy*	0.57	A	0.57	A
399	El Toro Rd and Aliso Creek Rd	**1.06**	**F**	**1.20**	**F**
400	El Toro Rd and SR-73 NB Ramps*	0.67	B	0.69	B
401	El Toro Rd and SR-73 SB Ramps*	0.46	A	0.66	B
402	I-5 NB Ramps and Trabuco Rd	0.52	A	0.53	A
405	Laguna Canyon Rd and Quail Hill Pkwy	0.43	A	0.39	A
406	Laguna Canyon Rd and Lake Forest Dr	0.62	B	0.56	A
409	Bake Pkwy and Commercentre Dr	0.46	A	0.62	B
410	Bake Pkwy and Lake Forest Dr	0.28	A	0.22	A
412	Ridge Route Dr and Trabuco Rd	0.59	A	0.68	B
413	Ridge Route Dr and Toledo Way	0.33	A	0.30	A
414	Ridge Route Dr and Jeronimo Rd	0.46	A	0.49	A
415	Glenn Ranch Rd and Portola Pkwy	0.43	A	0.53	A
416	Portola Pkwy East and SR-241 Ramps	0.35	A	0.47	A
417	El Toro Rd and Portola Pkwy/S Margarita Pkwy	0.63	B	0.70	B
418	El Toro Rd and Trabuco Rd*	0.68	B	0.69	B
419	El Toro Rd and Toledo Way	0.56	A	0.45	A
420	El Toro Rd and Jeronimo Rd	0.66	B	0.81	D
421	Los Alisos Blvd and Trabuco Rd	0.76	C	0.66	B
422	Los Alisos Blvd and Jeronimo Rd	0.66	B	0.68	B
423	Muirlands Blvd and Los Alisos Blvd	0.77	C	0.77	C
424	Los Alisos Blvd and Rockfield Blvd/Fordview St	0.75	C	0.62	B
425	Los Alisos Blvd and Avenida de la Carlota	0.42	A	0.49	A
426	Los Alisos Blvd and Paseo de Valencia	0.49	A	0.58	A
427	Moulton Pkwy and Glenwood Dr/Indian Creek	0.47	A	0.53	A
428	Laguna Hills Dr and Paseo de Valencia	0.65	B	0.71	C
429	Moulton Pkwy and Laguna Hills Dr	0.55	A	0.58	A
430	Trabuco Rd and Alicia Pkwy	0.68	B	0.64	B
431	Jeronimo Rd and Alicia Pkwy	0.74	C	0.64	B
432	Alicia Pkwy and Muirlands Blvd	0.75	C	0.85	D

TABLE 4.15-8
EXISTING INTERSECTION LOS SUMMARY
(ICU METHODOLOGY)

ID	Intersection	AM Peak Hour		PM Peak Hour	
		V/C	LOS	V/C	LOS
433	I-5 NB Ramps and Alicia Pkwy	0.58	A	0.71	C
434	I-5 SB Ramps and Alicia Pkwy	0.71	C	0.83	D
435	Alicia Pkwy and Paseo de Valencia	0.66	B	0.75	C
436	Moulton Pkwy and Alicia Pkwy	0.60	A	0.64	B
437	Scientific Way and Irvine Center Drive	0.29	A	0.33	A
441	Loop Rd and Jamboree Rd SB Ramps	0.29	A	0.22	A
444	Sand Canyon Ave and Burt Rd	0.44	A	0.35	A
452	Jamboree Rd and Santiago Canyon Rd	0.63	B	0.61	B
463	Jamboree Rd and Chapman Ave	0.71	C	0.63	B
464	SR-241/SR-261 SB Ramps and Chapman Ave	0.41	A	0.60	B
465	SR-241/SR-261 NB Ramps and Chapman Ave	0.39	A	0.68	B
466	SR-241 NB Ramp and Santiago Canyon Rd	0.32	A	0.48	A
468	Jamboree Rd and Canyon View Ave	0.79	C	0.41	A
477	El Camino Real N and Bryan Ave	0.33	A	0.37	A
482	Road "A" and Trabuco Rd	0.30	A	0.18	A
483	Road "C" and Trabuco Rd	0.15	A	0.15	A
484	Sand Canyon Ave and Roosevelt	0.39	A	0.34	A
485	Sand Canyon Ave and Nightmist	0.41	A	0.35	A
514	Alton Pkwy and Rancho Pkwy	0.31	A	0.33	A
515	Bake Pkwy N and Rancho Pkwy	0.60	A	0.74	C
516	Lake Forest Dr and Rancho Pkwy	0.60	B	0.63	B
517	Portola Pkwy and Rancho Pkwy	0.46	A	0.51	A
518	Alton Pkwy and Commercentre Dr	0.32	A	0.40	A
555	Bake Pkwy and Rancho Pkwy S	0.49	A	0.52	A
556	Ridge Valley and Portola Pkwy	0.22	A	0.20	A
558	Ridge Valley (formerly "O" St) and Irvine Blvd	0.37	A	0.55	A
571	Portola Springs and Portola Pkwy	0.27	A	0.20	A
572	Modjeska/"A" St and Irvine Blvd	0.51	A	0.42	A
577	Pusan Way/"Z" St and Irvine Blvd	0.38	A	0.47	A
637	Sterling and Muirlands Blvd	0.26	A	0.38	A
640	Thomas and Muirlands Blvd	0.25	A	0.41	A

V/C: volume-to-capacity ratio; LOS: level of service; I: Interstate; NB: Northbound; SB: Southbound; SR: State Route; HOV: high occupancy vehicle.

Intersections operating below acceptable standards are noted in **bold**.

In general, the cities of Tustin, Irvine, Laguna Beach, Lake Forest, Laguna Hills, Laguna Woods, Aliso Viejo, Mission Viejo, and Orange, and the County of Orange have a goal of maintaining a LOS D for intersections, unless otherwise noted for specific intersections.

*A LOS E is maintained for these intersections in the cities of Laguna Beach, Irvine, Laguna Hills, Lake Forest, and Laguna Woods.

Source: Fehr & Peers 2015

Existing Freeway Ramp Intersection Levels of Service

The existing levels of service for ramp intersection analysis, using the HCM methodology are provided in Table 4.15-9. The following four ramp intersections perform at deficient levels of service at the time periods specified:

- Jeffrey Road and I-5 Northbound Ramps (PM)
- Jeffrey Road and Walnut Avenue/I-5 Southbound Ramps (AM and PM)
- Sand Canyon Avenue and I-5 Northbound Ramps (PM)
- Sand Canyon Avenue and I-405 Southbound Ramps (AM)

TABLE 4.15-9
EXISTING CALTRANS RAMP INTERSECTION LOS SUMMARY
(HCM METHODOLOGY)

ID	Intersection	Control	Peak Hour	Delay (seconds)	LOS
287	Jeffrey Rd and I-5 NB Ramps	Signal	AM	10.5	B
			PM	**59.6**	**E**
288	Jeffrey Rd and Walnut Ave/I-5 SB Ramps	Signal	**AM**	**48.3**	**D**
			PM	**82.6**	**F**
293	Jeffrey Rd and I-405 NB Ramps	Signal	AM	19.6	B
			PM	19.5	B
294	University Dr and I-405 SB Ramps	Signal	AM	9.4	A
			PM	10.8	B
303	Sand Canyon Ave and I-5 NB Ramps	Signal	AM	22.1	C
			PM	**96.6**	**F**
305	Sand Canyon Ave and I-5 SB Ramps	Signal	AM	30.7	C
			PM	25.8	C
311	Sand Canyon Ave and I-405 NB Ramps	Signal	AM	7.5	A
			PM	10.2	B
312	Sand Canyon Ave and I-405 SB Ramps	Signal	**AM**	**91.6**	**F**
			PM	21.4	C
316	SR-133 SB Ramps and Irvine Blvd	Signal	AM	14.9	B
			PM	7.5	A
317	SR-133 NB Ramps and Irvine Blvd	Signal	AM	8.7	A
			PM	10.7	B
324	Portola Pkwy and SR-241 NB Ramps	SSSC	AM	8.4	A
			PM	8.4	A
325	Portola Pkwy and SR-241 SB Ramps	SSSC	AM	9.5	A
			PM	8.8	A
345	Alton Pkwy and I-5 NB Ramps	Signal	AM	19.1	B
			PM	7.5	A
351	Fortune Dr/I-5 SB Ramps and Enterprise Dr	Signal	AM	15.5	B
			PM	33.4	C

TABLE 4.15-9
EXISTING CALTRANS RAMP INTERSECTION LOS SUMMARY
(HCM METHODOLOGY)

ID	Intersection	Control	Peak Hour	Delay (seconds)	LOS
367	Bake Pkwy and I-5 NB Ramps	Signal	AM	29.6	C
			PM	6.1	A
368	Bake Pkwy and I-5 SB Ramps	Signal	AM	22.9	C
			PM	22.9	C

LOS: level of service; I: Interstate; NB: Northbound; SB: Southbound; SR: State Route; SSSC: Side Street Stop Controlled

Ramp intersections operating below acceptable standards are noted in **bold**.

Caltrans has a goal of maintaining a LOS C for ramp intersections.

Source: Fehr & Peers 2015

Existing Freeway/Toll Road Ramp Levels of Service

Table 4.15-10 summarizes existing levels of service for freeway/toll road ramps. The following two ramps perform at deficient levels of service at the time periods specified:

- I-5 Northbound Loop On-Ramp at Bake Parkway (AM and PM)
- I-5 Southbound Off-Ramp at Bake Parkway (AM)

TABLE 4.15-10
EXISTING FREEWAY/TOLL ROAD RAMP LOS SUMMARY

Interchange	Ramp	Lanes	Peak Hour Capacity	AM Peak Hour			PM Peak Hour		
				Volume	V/C	LOS	Volume	V/C	LOS
I-5 at Jeffrey Rd	SB On	1	1,080	557	0.52	A	677	0.63	B
	NB Direct On	1	1,080	472	0.44	A	173	0.16	A
	NB Loop On	1	1,500	236	0.16	A	218	0.15	A
	SB Off	1	1,500	555	0.37	A	866	0.58	A
	NB Off	2	2,250	605	0.27	A	1,187	0.53	A
I-5 at Sand Canyon Ave	SB On	1	1,500	567	0.38	A	479	0.32	A
	NB On	2	2,400	435	0.18	A	463	0.19	A
	SB Off	1	1,500	1,020	0.68	B	684	0.46	A
	NB Off	2	2,250	531	0.24	A	1,001	0.44	A
I-5 at Barranca Pkwy	NB On	1	1,500	42	0.03	A	119	0.08	A
	SB Off	1	1,500	159	0.11	A	100	0.07	A
I-5 at Alton Pkwy	SB On	1	1,500	80	0.05	A	576	0.38	A
	NB Direct On	2	1,800	126	0.07	A	442	0.25	A
	NB Loop On	1	1,500	126	0.08	A	442	0.29	A
	SB Off	2	2,250	1,500	0.67	B	827	0.37	A
	NB Off	2	2,250	562	0.25	A	192	0.09	A

TABLE 4.15-10
EXISTING FREEWAY/TOLL ROAD RAMP LOS SUMMARY

Interchange	Ramp	Lanes	Peak Hour Capacity	AM Peak Hour			PM Peak Hour		
				Volume	V/C	LOS	Volume	V/C	LOS
I-5 at Bake Pkwy	SB Direct On	1	1,500	21	0.01	A	113	0.08	A
	SB Loop On	1	1,080	194	0.18	A	457	0.42	A
	NB Direct On	2	2,300	199	0.09	A	715	0.31	A
	NB Loop On	1	1,500	**1,896**	**1.26**	**F**	**2,094**	**1.40**	**F**
	SB Off	2	3,000	**3,174**	**1.06**	**F**	2,351	0.78	C
	NB Off	2	3,000	686	0.23	A	270	0.09	A
I-405 at Jeffrey Rd	SB Direct On	1	1,500	773	0.52	A	1,158	0.77	C
	SB Loop On	1	900	210	0.23	A	214	0.24	A
	NB Direct On	1	1,500	1,108	0.74	C	470	0.31	A
	NB Loop On	1	900	261	0.29	A	86	0.10	A
	SB Off	1	1,500	445	0.30	A	425	0.28	A
	NB Off	2	2,250	1,293	0.57	A	1,516	0.67	B
I-405 at Sand Canyon Ave	SB Loop On	1	1,500	289	0.19	A	544	0.36	A
	NB Direct On	1	1,500	681	0.45	A	917	0.61	B
	NB Loop On	1	1,500	648	0.43	A	253	0.17	A
	SB Off	1	1,500	279	0.19	A	378	0.25	A
	NB Off	1	1,500	260	0.17	A	456	0.30	A
I-405 at Irvine Center Dr	SB Direct On	1	900	55	0.06	A	65	0.07	A
	SB Loop On	1	900	51	0.06	A	347	0.39	A
	NB Direct On	1	1,500	218	0.15	A	583	0.39	A
	NB Loop On	1	1,500	368	0.25	A	757	0.50	A
	SB Off	2	2,250	1,332	0.59	A	1,127	0.50	A
	NB Off	2	3,000	430	0.14	A	447	0.15	A
SR-133 at Irvine Blvd	SB On	1	1,500	265	0.18	A	125	0.08	A
	NB Direct On	1	1,500	154	0.10	A	235	0.16	A
	NB Loop On	1	1,500	154	0.10	A	235	0.16	A
	SB Off	2	2,250	477	0.21	A	156	0.07	A
	NB Off	1	1,500	113	0.08	A	246	0.16	A
SR-133 at Barranca Pkwy	SB On	1	1,080	79	0.07	A	981	0.91	E
	NB On	1	1,080	133	0.12	A	797	0.74	C
	SB Off	2	3,000	1,260	0.42	A	313	0.10	A
	NB Off	2	2,250	327	0.15	A	149	0.07	A
SR-241 at Portola Pkwy (West)	SB On	1	1,500	92	0.06	A	133	0.09	A
	NB On	1	1,500	15	0.01	A	9	0.01	A
	SB Off	1	1,500	26	0.02	A	16	0.01	A
	NB Off	1	1,500	17	0.01	A	17	0.01	A

V/C: volume-to-capacity ratio; LOS: level of service; I: Interstate; NB: Northbound; SB: Southbound; SR: State Route

Freeway/toll road ramps operating below acceptable standards are noted in **bold**.

Caltrans has a goal of maintaining a LOS E for freeway/toll road ramps.

Source: Fehr & Peers 2015

Existing Freeway/Toll Road Mainline Levels of Service

There are a number of locations on the freeway/toll road mainline that are operating at a deficient LOS. Table 4.15-11 summarizes existing V/C and corresponding LOS for freeway/toll road mainline segments.

TABLE 4.15-11
EXISTING FREEWAY MAINLINE LOS SUMMARY

Freeway/Toll Road	Segment	Type	Peak Hour	V/C	Density	LOS
I-5 NB	I-5 South of Bake Pkwy	Basic	AM	0.80	30.44	D
			PM	0.59	21.35	C
	I-405 HOV Off-Ramp	Basic	AM	0.67	24.24	C
			PM	0.49	17.80	B
	I-405 Off-Ramp	Diverge	AM		**–**	**F**
			PM		**19.86**	**F**
	I-405 Off-Ramp to Bake Pkwy On-Ramp	Basic	AM	**0.73**	**–**	**F**
			PM	**0.59**	**–**	**F**
	Collector-Distributor Road On-Ramp	Basic	AM	**0.79**	**–**	**F**
			PM	**0.71**	**–**	**F**
	Alton Pkwy Off-Ramp	Diverge	AM	**0.81**	**–**	**F**
			PM	**0.75**	**–**	**F**
	Alton Pkwy Off-Ramp to Loop On-Ramp	Basic	AM	0.88	35.13	E
			PM	0.75	28.06	D
	Alton Pkwy Loop On-Ramp	Merge	AM	0.73	29.43	D
			PM	0.73	29.34	D
	Alton Pkwy Slip On-Ramp to SR-133 NB Off-Ramp	Weave	AM	0.89	35.63	E
			PM	0.87	34.57	D
	SR-133 NB Off to On-Ramp	Basic	AM	0.85	33.56	D
			PM	0.78	29.20	D
	SR-133 NB On-Ramp to Sand Canyon Ave Off-Ramp	Weave	AM	**1.36**	**–**	**F**
			PM	**1.41**	**–**	**F**
	Sand Canyon Ave Off-Ramp to On-Ramp	Basic	AM	0.75	27.88	D
			PM	0.71	26.03	D
	Sand Canyon Ave On-Ramp	Merge	AM	0.65	27.05	C
			PM	0.62	26.21	C
	SR-133 SB On-Ramp to Jeffrey Rd Off-Ramp	Weave	AM	0.76	34.44	D
			PM	0.67	27.24	C
	Jeffrey Rd Off-Ramp to Loop On-Ramp	Basic	AM	0.78	29.56	D
			PM	0.61	22.04	C
	Jeffrey Rd Loop On-Ramp	Merge	AM	0.65	26.63	C
			PM	0.52	22.03	C
	Jeffrey Rd Slip On-Ramp	Merge	AM	0.71	28.75	D
			PM	0.58	23.90	C

TABLE 4.15-11
EXISTING FREEWAY MAINLINE LOS SUMMARY

Freeway/Toll Road	Segment	Type	Peak Hour	V/C	Density	LOS
I-5 SB	Culver Dr Off-Ramp to Jeffrey Rd On-Ramp	Basic	AM	0.83	32.19	D
			PM	0.86	34.03	D
	Jeffrey Rd Off-Ramp	Diverge	AM	0.85	35.55	E
			PM	0.93	38.40	E
	Jeffrey Rd Off to On-Ramps	Basic	AM	0.78	29.35	D
			PM	0.78	29.27	D
	Jeffrey Rd to SR-133 NB	Weave	AM	**0.64**	**–**	**F**
			PM	0.71	30.95	D
	Sand Canyon Ave Off-Ramp	Diverge	AM	0.87	35.89	E
			PM	0.75	31.23	D
	Sand Canyon Ave Off- to On-Ramps	Basic	AM	0.70	25.43	C
			PM	0.65	23.50	C
	Sand Canyon Ave to SR-133 SB	Weave	AM	0.67	26.97	C
			PM	0.64	25.78	C
	SR-133 SB to Lane Drop	Basic	AM	0.57	20.46	C
			PM	0.55	19.84	C
	Lane Drop to SR-133 SB On-Ramp	Basic	AM	0.71	25.97	C
			PM	0.69	25.05	C
	SR-133 SB to Alton Pkwy	Weave	AM	**1.18**	**–**	**F**
			PM	0.94	41.68	E
	Bake Pkwy Off-Ramp	Basic	AM	0.64	23.17	C
			PM	0.61	22.23	C
	Bake Pkwy Off-Ramp to Spectrum Center Dr On-Ramp	Basic	AM	0.61	22.12	C
			PM	0.68	24.86	C
	Spectrum Center Dr On-Ramp	Merge	AM	0.58	24.22	C
			PM	0.78	30.90	D
	Spectrum Center Dr On-Ramp to I-405 On-Ramp	Basic	AM	0.64	23.15	C
			PM	0.79	29.77	D
	I-405 On-Ramp	Basic	AM	0.49	17.80	B
			PM	0.57	20.55	C
I-405 NB	I-405 west of I-5	Basic	AM	0.56	20.42	C
			PM	0.50	17.91	B
	Entertainment Way Off-Ramp	Diverge	AM	0.62	26.89	C
			PM	0.55	24.55	C
	Entertainment Way to Collector-Distributor/HOV On-Ramp	Basic	AM	0.50	18.05	C
			PM	0.43	15.44	B
	HOV and Collector-Distributor On-Ramp	Basic	AM	0.53	19.16	C
			PM	0.41	14.87	B
	Entertainment Way On-Ramp	Basic	AM	0.47	16.98	B
			PM	0.40	14.48	B
	Irvine Center Dr On-Ramp	Merge	AM	0.41	18.16	B
			PM	0.46	19.64	B

TABLE 4.15-11
EXISTING FREEWAY MAINLINE LOS SUMMARY

Freeway/Toll Road	Segment	Type	Peak Hour	V/C	Density	LOS
	SR-133 SB Off-Ramp	Basic	AM	0.52	18.80	C
			PM	0.44	15.90	B
	SR-133 SB Off-Ramp to Lane Drop	Basic	AM	0.60	21.83	C
			PM	0.50	18.11	C
	Lane Drop to SR-133 NB Flyover On-Ramp	Basic	AM	0.75	28.14	D
			PM	0.63	22.66	C
	SR-133 NB Flyover On-Ramp	Basic	AM	0.82	31.75	D
			PM	0.60	21.67	C
	Sand Canyon Ave Off-Ramp	Diverge	AM	0.74	31.65	D
			PM	0.64	27.71	C
	Sand Canyon Ave Off-Ramp to Lane Drop	Basic	AM	0.75	27.72	D
			PM	0.58	20.83	C
	Lane Drop to Sand Canyon Ave On-Ramp/HOV Lane Add	Basic	AM	0.93	39.05	E
			PM	0.72	26.53	D
	Sand Canyon Ave Loop On-Ramp	Basic	AM	0.81	30.84	D
			PM	0.60	21.69	C
	Sand Canyon Ave Slip On-Ramp	Merge	AM	0.75	27.80	C
			PM	0.65	24.32	C
	Sand Canyon Ave Slip On-Ramp to Jeffrey Rd Off-Ramp	Basic	AM	0.85	33.32	D
			PM	0.67	24.27	C
	Jeffrey Rd Off-Ramp	Basic	AM	0.85	33.25	D
			PM	0.67	24.19	C
	Jeffrey Rd Off- to On-Ramp	Basic	AM	0.91	37.53	E
			PM	0.66	23.84	C
	Jeffrey Rd Loop On-Ramp	Merge	AM	0.81	32.27	D
			PM	0.56	23.39	C
	Jeffrey Rd Slip On-Ramp	Merge	AM	**1.03**	**–**	**F**
			PM	0.66	25.77	C
I-405 SB	University Dr/Jeffrey Rd Off-Ramp	Diverge	AM	0.87	36.36	E
			PM	0.76	32.09	D
	Jeffrey Rd to Loop On-Ramp	Basic	AM	0.82	31.58	D
			PM	0.70	25.82	C
	Jeffrey Rd Loop On-Ramp	Merge	AM	0.72	28.04	D
			PM	0.63	24.67	C
	Jeffrey Rd Slip On-Ramp	Merge	AM	0.87	32.86	D
			PM	0.87	32.51	D
	Jeffrey Rd to Sand Canyon Ave	Basic	AM	0.93	39.09	E
			PM	0.86	34.06	D
	Sand Canyon Ave Off-Ramp	Diverge	AM	**1.06**	**–**	**F**
			PM	0.91	37.51	E
	Sand Canyon Ave Off- to On-Ramp	Basic	AM	0.81	31.04	D
			PM	0.82	31.49	D

TABLE 4.15-11
EXISTING FREEWAY MAINLINE LOS SUMMARY

Freeway/Toll Road	Segment	Type	Peak Hour	V/C	Density	LOS
	Sand Canyon Ave Loop On-Ramp	Merge	AM	**0.66**	**–**	**F**
			PM	**0.75**	**–**	**F**
	Sand Canyon Ave to SR-133	Basic	AM	**0.76**	**–**	**F**
			PM	**0.83**	**–**	**F**
	SR-133 Off-Ramp	Diverge	AM	0.99	33.40	D
			PM	**1.05**	**–**	**F**
	SR-133 Off to HOV Add Lane	Basic	AM	0.69	25.31	C
			PM	0.67	24.45	C
	HOV Add Lane to HOV Drop Lane	Basic	AM	0.69	25.31	C
			PM	0.67	24.45	C
	HOV Drop Lane to SR-133 On-Ramp	Basic	AM	0.69	25.31	C
			PM	0.67	24.45	C
	SR-133 On-Ramp to Irvine Center Dr Off-Ramp	Weave	AM	0.74	28.36	D
			PM	0.69	26.93	C
	Irvine Center Dr Off- to On-Ramp	Basic	AM	0.63	22.75	C
			PM	0.62	22.60	C
	Irvine Center Dr Loop On-Ramp	Basic	AM	0.53	19.33	C
			PM	0.53	19.22	C
	Irvine Center Dr Slip On-Ramp	Merge	AM	0.43	19.20	B
			PM	0.43	19.09	B
	Bake Pkwy Off-Ramp	Basic	AM	0.54	19.61	C
			PM	0.54	19.45	C
	Collector-Distributor Off-Ramp	Basic	AM	0.46	16.64	B
			PM	0.52	18.81	C
	I-405 SB to I-5 SB	Basic	AM	0.44	15.90	B
			PM	0.48	17.20	B
SR-133 NB	S of I-405	Basic	AM	0.48	17.41	B
			PM	0.47	16.95	B
	I-405 SB to Pacifica	Weave	AM	0.53	15.47	B
			PM	0.46	16.19	B
	Pacifica Off- to On-Ramp	Basic	AM	0.32	11.49	B
			PM	0.53	19.11	C
	Pacifica to I-5 NB	Weave	AM	0.30	8.63	A
			PM	0.62	22.59	C
	I-5 NB Off- and On-Ramps	Basic	AM	0.13	4.79	A
			PM	0.49	17.70	B
	I-5 NB On-Ramp	Merge	AM	0.20	10.75	B
			PM	0.72	29.06	D
	I-5 NB to Add Lane	Basic	AM	0.20	7.20	A
			PM	0.71	25.96	C
	Add Lane to I-5 SB On-Ramp	Basic	AM	0.13	4.80	A
			PM	0.47	17.05	B

TABLE 4.15-11
EXISTING FREEWAY MAINLINE LOS SUMMARY

Freeway/Toll Road	Segment	Type	Peak Hour	V/C	Density	LOS
	I-5 SB On-Ramp	Merge	AM	0.17	3.62	A
			PM	0.69	22.10	C
	I-5 SB to Irvine Blvd	Basic	AM	0.16	5.82	A
			PM	0.64	23.08	C
	Irvine Blvd Off-Ramp	Diverge	AM	0.21	11.58	B
			PM	0.68	29.17	D
	Irvine Blvd Off- to Loop On-Ramps	Basic	AM	0.10	3.71	A
			PM	0.58	21.06	C
	Irvine Blvd Loop On-Ramp	Merge	AM	0.13	7.49	A
			PM	0.58	23.67	C
	Irvine Blvd Slip On-Ramp to SR-241	Weave	AM	0.20	3.92	A
			PM	0.95	24.50	C
SR-133 SB	North of SR-241 SB On-Ramp	Basic	AM	0.68	24.98	C
			PM	0.15	5.31	A
	SR-241 to Irvine Center Dr	Weave	AM	**0.61**	**–**	**F**
			PM	0.18	5.46	A
	Irvine Blvd Off- to On-Ramps	Basic	AM	0.67	24.37	C
			PM	0.16	5.88	A
	Irvine Blvd On-Ramp	Merge	AM	0.67	27.74	C
			PM	0.18	10.14	B
	I-5 NB Off- and On-Ramps	Basic	AM	0.72	26.39	D
			PM	0.19	6.69	A
	I-5 NB Off-Ramp	Basic	AM	0.72	26.39	D
			PM	0.19	6.69	A
	I-5 NB Off- to I-5 SB Off-Ramps	Basic	AM	0.53	19.33	C
			PM	0.15	5.58	A
	I-5 SB Off-Ramp	Basic	AM	0.53	19.33	C
			PM	0.15	5.58	A
	Barranca Pkwy Off-Ramp	Diverge	AM	0.63	27.28	C
			PM	0.17	9.85	A
	Barranca Pkwy Off- to I-5 SB On-Ramps	Basic	AM	0.30	10.80	A
			PM	0.08	2.96	A
	I-5 SB On-Ramp	Basic	AM	0.33	11.90	B
			PM	0.26	9.31	A
	Barranca Pkwy Loop On-Ramp	Merge	AM	0.31	14.82	B
			PM	0.47	19.84	B
	I-405 NB Off-Ramp	Basic	AM	0.34	12.33	B
			PM	0.41	14.87	B
	I-405 NB Off to Lane Add	Basic	AM	0.27	9.72	A
			PM	0.44	15.76	B
	Lane Add to I-405 NB Loop On-Ramp	Basic	AM	0.18	6.48	A
			PM	0.29	10.51	A

TABLE 4.15-11
EXISTING FREEWAY MAINLINE LOS SUMMARY

Freeway/Toll Road	Segment	Type	Peak Hour	V/C	Density	LOS
	I-405 NB to I-405 SB	Weave	AM	0.21	6.97	A
			PM	0.28	10.17	B
	I-405 SB Off-Ramp to Lane Drop	Basic	AM	0.17	6.31	A
			PM	0.30	10.68	A
	Lane Drop to I-405 SB On-Ramp	Basic	AM	0.26	9.46	A
			PM	0.44	16.03	B
SR-241 NB	Portola Pkwy Off-Ramp	Diverge	AM	0.62	27.40	C
			PM	0.28	14.33	B
	Portola Pkwy to Toll Road	Basic	AM	0.57	20.58	C
			PM	0.24	8.56	A
	Toll Road Off-Ramp	Diverge	AM	0.61	17.07	B
			PM	0.22	2.20	A
	Toll Road Off- to On-Ramps	Basic	AM	0.34	12.26	B
			PM	0.18	6.56	A
	Toll Road and Portola Pkwy On- to SR-133 SB Off-Ramps	Weave	AM	0.64	17.69	B
			PM	0.22	7.09	A
	SR-133 NB to Lane Drop	Basic	AM	0.13	4.69	A
			PM	0.14	5.17	A
	Lane Drop to SR-133 NB On-Ramp	Basic	AM	0.19	7.04	A
			PM	0.21	7.75	A
	SR-133 SB On-Ramp	Basic	AM	0.22	7.94	A
			PM	0.43	15.53	B
SR-241 SB	SR-133 SB Off-Ramp	Diverge	AM	0.56	13.17	B
			PM	0.21	0.16	A
	SR-133 Off- to On-Ramps	Basic	AM	0.21	7.73	A
			PM	0.15	5.56	A
	SR-133 NB On- to Toll Road Off-Ramps	Weave	AM	0.17	5.89	A
			PM	0.60	12.67	B
	Toll Road Off- to On-Ramps	Basic	AM	0.18	6.59	A
			PM	0.37	13.47	B
	Toll Road On-Ramp	Merge	AM	0.20	10.37	B
			PM	0.42	18.22	B
	Portola Pkwy Off-Ramp	Diverge	AM	0.24	12.74	B
			PM	0.48	21.78	C

V/C: Volume to Capacity ratio; LOS: level of service; I: Interstate; NB: northbound; HOV: high occupancy vehicle; SR: State Route; SB: southbound; "-": either the segment is over capacity or specific portions of the facility such as HOV lanes, on/off ramps, etc. are over capacity; blank cells: the HCM 2010 methodology cannot calculate V/C for this type of facility, specifically a diverse with a high number of lanes.

Freeway mainline segments operating below acceptable standards are noted in **bold**.

Caltrans has a goal of maintaining a LOS E for freeway mainline.

Source: Fehr & Peers 2015

4.15.4 THRESHOLDS OF SIGNIFICANCE

The thresholds of significance have been developed in accordance with the County's Environmental Analysis Checklist. Due to the general nature of the checklist questions and the fact that multiple jurisdictions would be affected by the Project, the thresholds of significance have been developed to specifically address the performance standards applicable to each jurisdiction. As discussed above under Methodology (Section 4.15.2), the performance standards and significance criteria reflect the standards established by the agency with jurisdiction over the roadway intersection or segment.

The Threshold Evaluations, provided later in this section, include an assessment of the traffic data presented below (under Traffic Data) as they pertain to each of the thresholds. Due to the numerous thresholds that apply, in order to avoid undue repetition, the thresholds are provided under the Threshold Evaluation discussion provided later in the Impact Analysis section.

4.15.5 IMPACT ANALYSIS

Introduction

This analysis evaluates potential traffic impacts on roadway segments, roadway intersections, freeway ramps, and freeway mainline segments. In order to better focus the discussion on potential operational deficiencies, the tables in this EIR section only identify those locations with deficient levels of service regardless of whether or not the deficiency is Project related; that is, only locations operating at a deficient condition under the "With Project" or "Without Project" are included in the tables. Locations operating at acceptable levels of service are not included in the tables in this section, but a reference is included to the applicable table in the TIA (Appendix L) where the LOS information for all the intersections, freeway ramps, and mainline freeway segments is provided.

As discussed in Section 4.0, Impact Analysis Introduction, the Development Plan identifies a number of development requirements which serve to minimize potential impacts (the development requirements are in Appendix C of the Development Plan). The inclusion of these requirements as appropriate, will be verified during the development review and/or ministerial permit process (e.g., building permit). The development requirements also include others measures that will reduce or avoid potentially significant Project impacts. The County intends to implement the development requirements as part of the Project and has included the development requirements in the Development Plan for that purpose. These measures are listed in Section 4.15.7, Mitigation Program because these measures will be tracked as part of the Mitigation Monitoring and Reporting Program.

Construction-Related Traffic

Construction-related trip estimates for the proposed Project were derived from the California Emissions Estimator Model (CalEEMod), which provides estimated vehicle trips associated with construction activities based on land use and density, as well as estimates of demolition and grading activities. The estimates for construction worker trips, vendor trips, and haul truck trips for each stage in the construction process are shown in Table 4.15-12. Vendor and hauling

trips have been converted to passenger car equivalents. A passenger car equivalent factor of 2.0 was applied based on the Highway Capacity Manual (2010). It is anticipated that site preparation and grading would occur in single phase per planning area. Building activities would be based on market conditions.

TABLE 4.15-12
CONSTRUCTION STAGES AND ONE-WAY TRIPS/DAY
(PASSENGER CAR EQUIVALENT [PCE])

Construction Stage	Worker Trips	Vendor Trips	Hauling Trips
Demolition	10	0	72[a]
Site Preparation	13	0	16
Grading	23	0	48
Underground	15	0	0
Building	400	480	0
Architectural Coating	194	0	0

[a] The trips associated with demolition are a worst case scenario assuming that the asphalt crushing associated with road demolition is done offsite.

Source: Construction trip generation numbers can be found in Appendix C.

Table 4.15-12 identifies the total number of construction trips if all 803 units are constructed at the same time. When constructed as a single phase, the construction activity would result in a peak of 880 trips per day, which would occur during the building stage of construction. This represents a worst case condition as it pertains to construction trips. Additionally, it should be noted based on the preliminary grading concept the Project will require approximately 10,000 to 20,000 cubic yards of soil to be hauled from Planning Area 2 to Planning Area 1. An option would also be to utilize an off-site location for the import and export the soil. It is estimated that transporting the soil would result in approximately 48 daily trips. The number of trips would be the same regardless of if the material is transported between the planning areas or offsite, just the length and location of the trip would be different. DR TRAN-6 provides for a Traffic Management Plan, which would identify haul routes if the material is taken offsite.

If less than all the units are constructed at one time, there would be an incremental decrease in the number of daily construction trips. However, under those circumstances, there would be operational trips (i.e., trips from occupied units) and construction trips on the roadway network at the same time. As shown in Table 4.15-13, the total number of trips when all construction of the units occurs at once would be less than the long-term operational trips that have been evaluated as part of this analysis for the Project. The 880 peak construction trips that would occur during the building stage of development, represent slightly less than 18 percent of the total Project related trips (i.e., 4,963 ADTs). Therefore, even if three of the neighborhoods were occupied while the fourth neighborhood is under construction, the total number of trips associated with the Project would still be less than the total number of Project trips evaluated with Project build-out (i.e., 4,963 ADTs).

TABLE 4.15-13
CONSTRUCTION STAGES IN COMPARISON TO PROJECT ADT

Construction Stage	Total Construction Trips	Percent of Total Long-Term Project Trips
Demolition	82	1.65
Site Preparation	29	0.58
Grading	91	1.83
Underground	15	0.30
Building	880	17.73
Architectural Coating	194	3.91
Source: Construction trip generation numbers can be found in Appendix C.		

Potential roadways that would likely be used to access the Project construction site include regional facilities such as I-5, I-405, SR-133, and SR-241, as well as freeway/highway ramps on Irvine Boulevard and Alton Parkway, as these are designated truck routes. Irvine Boulevard and Alton Parkway are City of Irvine designated truck routes in the vicinity of the Project and are also potential construction traffic access routes to the Project site. The precise routing cannot be determined at this time, given it will depend on the location of raw materials as well as disposal locations. However, the magnitude of trips (even with a conversion from truck trips to passenger car equivalent) is less than what would be experienced when the Project is completed.

The County would prepare a construction traffic management plan, in coordination with the adjacent cities, prior to commencement of Project construction. This plan would address routing, hours, provisions for over-sized equipment, and site access. The construction management plan, as addressed in DR TRAN-6, would reduce potential construction traffic impacts to a less than significant level.

Planned Circulation System

As previously indicated, the TIA evaluates multiple Project scenarios at various timeframes. The analysis assumes various improvements to the roadway network based on planned improvements. Tables 4.15-14 through 4.15-16 present the committed and planned roadway improvements for each future traffic scenario and the basis for the assumption. Committed improvements for 2017-2035 include, but are not limited to, roadway improvements covered during the applicable time period by local public agency capital improvement programs, state transportation improvement projects, and roadway improvements associated with previously entitled development projects. Post-2035 improvements assume full buildout of the General Plan Circulation Element for Irvine, other cities, and County of Orange Master Plan of Arterial Highways (MPAH) and some planned circulation improvements included in ITAM. Figures 4-4 through 4-6 in the TIA (Appendix L) illustrate the planned circulation systems used in the analysis for Year 2017, Year 2035, and Post-2035, respectively, with the number of midblock lanes displayed. These assumptions are based on the ITAM. Additionally, Figure 4-7 in the TIA identifies the location of the NITM improvements.

TABLE 4.15-14
2013–2017 COMMITTED ROADWAY IMPROVEMENTS

Roadway	Limits	Jurisdiction	Lanes		Source
			2013	2017	
"A" St	Irvine Blvd to "LQ" St	Irvine	0	2U	OCGP
Bake Pkwy	Lake Forest Dr to Irvine Center Dr	Irvine	6D	–	PA 39
Chapman Ave	Jamboree Rd to SR-241/SR-261	Orange	4U	6D	Santiago Hills II
I-5 at Jamboree Rd	Southbound I-5 off-ramp	Caltrans	1R	2R*	OCTA/Caltrans/City of Irvine CIP
Irvine Blvd	Yale Ave to Jeffrey Rd	Irvine	5D	6D	PA 5B VTTM 17523
Irvine Blvd	SR-133 to Ridge Valley	Irvine	4D	6D	OCGP
Irvine Blvd	Ridge Valley/Ridge Valley to Modjeska Rd/"A" St	Irvine	4D	5D	OCGP
Irvine Center Dr	I-405 to Bake Pkwy	Irvine	5D	6D	PA 39
Jamboree Rd	Michelle Dr to I-5 NB Ramps	Irvine	6D	8D	City of Irvine CIP
Jamboree Rd	Canyon View Ave to Tustin City limits	Orange	4D	6D	Santiago Hills II
Jeffrey Rd	Portola Pkwy to Irvine Blvd	Irvine	4D	6D	PA 9B
Lake Forest Dr	Bake Pkwy to Laguna Canyon Rd	Irvine	4D	–	PA 18/39
"LY" St	Irvine Blvd to Trabuco Rd	Irvine	0	2U	OCGP
Marine Way	Ridge Valley to Great Park Blvd W	Irvine	0	4D	OCGP
Marine Way	Barranca Pkwy to Alton Pkwy.	Irvine	0	4D	VTPM 2014-122
Ridge Valley	North of Irvine Blvd to Trabuco Rd	Irvine	0	4D	OCGP
Ridge Valley	Trabuco Rd to Marine Way	Irvine	0	2U	OCGP
Roosevelt	Jeffrey Rd to "A" St	Irvine	0	4D	PA 40 Map PDF
Roosevelt	"A" St to "C" St	Irvine	0	2U	PA 40 Map PDF
Roosevelt	"C" St to Sand Canyon Ave	Irvine	0	4D	PA 40 Map PDF
Sand Canyon Ave	I-5 southbound ramps to I-5 northbound ramps	Irvine	4D	8D	NITM/City of Irvine CIP/Sand Canyon Grade Separation
Sand Canyon Ave	I-5 southbound ramps to Burt Rd	Irvine	4D	7 (3 SB/4 NB)	NITM/City of Irvine CIP/Sand Canyon Grade Separation
Sand Canyon Ave	Burt Rd to Oak Canyon/Laguna Canyon Rd	Irvine	4D	6D	NITM/City of Irvine CIP/Sand Canyon Grade Separation
SR-73	SR-133 to south of El Toro Rd	Caltrans/TCA	6T	7 (3 SB/4 NB)	TCA CIP
SR-133	I-405 to Lake Forest Dr	Irvine	4D	6D	PA 18
SR-241	SR-133 to SR-261	Caltrans/TCA	5T	6T	TCA CIP
SR-241	Lake Forest Dr to Oso Pkwy	Caltrans/TCA	4T	6T	TCA CIP
St "A"	Jamboree Rd to Chapman Ave	Orange	0	2U	Santiago Hills II

TABLE 4.15-14
2013–2017 COMMITTED ROADWAY IMPROVEMENTS

Roadway	Limits	Jurisdiction	Lanes		Source
			2013	2017	
St "B"	Jamboree Rd to St "A"	Orange	0	2U	Santiago Hills II
St "D"	Chapman Ave to west of SR-241	Orange	0	4D	Santiago Hills II
Technology Dr	I-5/SR-133 undercrossing	Irvine	0	2U	PA 31
Technology Dr	I-5/SR-133 to Old Laguna Canyon Rd	Irvine	0	4U	PA 31
Trabuco Rd	SR-133 to Ridge Valley	Irvine	4U	4D	OCGP
Trabuco Rd	Ridge Valley to "LY" St	Irvine	0	2D	OCGP

0: Not constructed in 2013; U: undivided roadway lane; OCGP: Orange County Great Park; D: divided roadway lane; PA: Planning Area; SR: State Route; I: Interstate; Caltrans: California Department of Transportation; R: ramp lane; OCTA: Orange County Transportation Authority; CIP: Capital Improvement Program; VTTM: Vested Tentative Tract Map; NB: northbound; PDF: Project Design Feature; NITM: North Irvine Transportation Mitigation Program; SB: southbound; TCA: Transportation Corridor Agencies; T: toll road lane.

Note: 2013-2017, near-term improvements, reflect City of Irvine model for this timeframe.

* This ramp improvement is associated with Caltrans' planned improvement to add a second southbound auxiliary lane on I-5 between Tustin Ranch Road and Jamboree Road. The Caltrans improvement is to be coordinated with the City of Irvine CIP improvements to Jamboree Road at I-5.

Source: Fehr & Peers 2015

TABLE 4.15-15
2017–2035 COMMITTED ROADWAY IMPROVEMENTS

Roadway	Limits	Jurisdiction	Lanes		Source
			2017	2035	
Irvine Blvd	Ridge Valley to Alton Pkwy	Irvine	Varies	6D	OCGP
Irvine Center Dr	Enterprise to I-405 SB Ramps	Irvine	6D	7D	PA 18/39
Irvine Center Dr	I-405 SB Ramps to Research Dr	Irvine	6D	8D	PA 18/39
Marine Way	Sand Canyon Ave to Ridge Valley	Irvine	2U	4D[a]	OCGP
Marine Way	Great Park Blvd W to Barranca Pkwy	Irvine	0	4D	OCGP
Marine Way	Alton Pkwy to Bake Pkwy	Irvine	0	4D	OCGP
Sand Canyon Ave	I-405 to Alton Pkwy	Irvine	5D	6D	Kaiser/TIC/City of Irvine
Santiago Canyon Rd	SR-261 ramps to SR-241 ramps	Orange (Sphere)	4D	6D	East Orange PC
Santiago Canyon Rd	SR-241 to eastern boundary of East Orange PC Area 1	Orange (Sphere)	2U	4D	East Orange PC
Santiago Canyon Rd	SR-241 Ramps to East Orange PC St E	Orange (Sphere)	2U	4D	East Orange PC
SR-73	North of SR-133	Caltrans/TCA	7T	8T	TCA CIP
SR-73	SR-133 to El Toro Rd	Caltrans/TCA	7T	8T	TCA CIP
SR-73	South of El Toro Rd	Caltrans/TCA	7T	8T	TCA CIP

TABLE 4.15-15
2017–2035 COMMITTED ROADWAY IMPROVEMENTS

Roadway	Limits	Jurisdiction	Lanes		Source
			2017	2035	
SR-133	Interchange at Trabuco Rd.	TCA	0	I/C	NITM Program
SR-241	Portola Pkwy W to Oso Pkwy	Caltrans/TCA	6T	8T	TCA CIP
SR-241 at Chapman Ave	SB SR-241 On-Ramp	Caltrans/TCA	2R	2R[b]	East Orange PC
SR-241 (FTC-S)	Oso Pkwy To Ortega Hwy	Caltrans/TCA	0	6T	TCA CIP
SR-241 (FTC-S)	Ortega Hwy to I-5	Caltrans/TCA	0	4T	TCA CIP
SR-261	Walnut Ave to Irvine Blvd	Caltrans/TCA	4T	6T	TCA CIP
SR-261	Portola Pkwy to SR-241	Caltrans/TCA	5T	7T	TCA CIP
St "D"	West of SR-241 to Santiago Canyon Rd	Orange	0	2U	East Orange PC
St "E"	Santiago Canyon Rd to north of St "F"	Orange (Sphere)	0	2U	East Orange PC
St "F"	St "E" to south of Santiago Canyon Rd	Orange (Sphere)	0	2U	East Orange PC
University Dr	I-405 to Michelson Dr	Irvine	5D	6D	City of Irvine CIP
Ridge Valley St	Marine Way to Trabuco Rd	Irvine	2U	4D	PA 40

D: divided roadway lane; OCGP: Orange County Great Park; SB: southbound; PA: Planning Area; U: undivided roadway lane; 0:Not projected to be constructed in 2017; I: Interstate; TIC: the Irvine Company; SR: State Route; PC: Planned Communities; Caltrans: California Department of Transportation; TCA: Transportation Corridor Agencies; T: toll road lane; CIP: Capital Improvement Program; I/C: interchange; NITM: North Irvine Transportation Mitigation Program; R: ramp lane; FTC-S: Foothill Transportation Corridor – South

[a] Includes the realignment of Marine Way on Sand Canyon Avenue opposite the northbound I-5

[b] Relocate the ramp southeast to the location where the existing northbound SR-241 off-ramp intersects Santiago Canyon Road.

Source: Fehr & Peers 2015

TABLE 4.15-16
POST-2035 ROADWAY IMPROVEMENTS

Roadway	Limits	Jurisdiction	Lanes	
			2035	Post-2035
Browning Ave	Crossing of I-5	Tustin	0	4U
El Toro Rd	Trabuco Rd to Muirlands Blvd	Lake Forest	6D	8D
El Toro Rd	Aliso Creek Rd to SR-73	Laguna Beach/County	4D	6D
El Toro Rd	SR-73 to Laguna Canyon Rd	Laguna Beach/County	2U	4D
Handy Creek	Jamboree Rd to SR-261	County	0	2U
Irvine Blvd	Red Hill Ave to Tustin Ranch Rd	Tustin/County	4D	6D
Jamboree Rd	Portola Pkwy To Tustin Ranch Rd	Tustin	5D	6D
Jamboree Rd	Tustin Ranch Rd to Tustin City limits north of Tustin Ranch Rd	Tustin	4D	6D
Jeffrey Rd	Portola Pkwy to SR-241	Irvine	0	4D

TABLE 4.15-16
POST-2035 ROADWAY IMPROVEMENTS

Roadway	Limits	Jurisdiction	Lanes	
			2035	Post-2035
Jeffrey Rd	SR-241 to Santiago Canyon Rd	County	0	4D
Los Alisos Blvd	Rockfield Blvd to Paseo de Valencia	Lake Forest	4D	6D
Myford Rd	Crossing of I-5	Tustin	0	4U
Old Laguna Canyon Rd	Crossing of I-405	Irvine	2U	4D
Paseo de Valencia	Los Alisos Blvd to Laguna Hills Dr	Laguna Hills/Laguna Woods	5D	6D
Portola Pkwy	Alton Pkwy to SR-241	County	0	4D
Ridge Route Dr	Rockfield Blvd to Avenida de la Carlota	Lake Forest/Laguna Hills	0	4U
Ridge Route Dr	Avenida de la Carlota to Moulton Pkwy	Laguna Hills/Laguna Woods	2U	4D
Santiago Canyon Rd	El Toro Rd to St "E"	County	2D	4D
Shady Canyon Dr	I-405 to Quail Hill Pkwy	Irvine	4D	6D
SR-133 (Laguna Canyon Rd)	SR-73 to El Toro Rd	County	2U	4D
SR-241	Interchange at Jeffrey Rd	Irvine/Caltrans/TCA	0	I/C
SR-241/SR-261	Branch connectors between SR-241 south of SR-261 and SR-261 south of SR-241	Caltrans/TCA	0	B/C
SR-261	Interchange at Handy Creek Rd	Caltrans/TCA	0	I/C*

I: Interstate; 0: [non-yet constructed roadway]; U: undivided roadway lane; D: divided roadway lane; SR: State Route; Caltrans: California Department of Transportation; TCA: Transportation Corridor Agencies; I/C: interchange; B/C: branch connector

* Includes a southbound on-ramp, a northbound off-ramp, and northbound and southbound collector/distributor roads between Chapman Avenue and Handy Creek Road.

Source: Fehr & Peers 2015

Traffic Data

Existing Plus Project Impact Analysis

The Existing Plus Project analysis is a hypothetical scenario that assumes the ultimate Project traffic volumes would be added to existing roadway volumes and infrastructure. The analysis of this scenario is required for CEQA. The analysis is hypothetical because it incorrectly assumes that the Project would be fully implemented immediately and the corresponding traffic volumes would be added to existing roadway volumes and infrastructure.

The Existing Plus Project is a hypothetical point in time analysis that presumes that the entire Project traffic volume gets added to the existing environment (existing traffic volumes, existing roadway infrastructure, and existing land uses). As a result, future increases in traffic volumes attributable to other development projects (i.e., cumulative traffic volumes) are not accounted for in this analysis. This approach can result in understating Project impacts because capacity that otherwise would be utilized by future development that precedes the Project is now

available to the Project. Conversely, because this analysis does not account for future planned roadway network improvements that would increase roadway capacities, the approach also potentially can result in overstating Project impacts. Furthermore, because the analysis does not account for future development and related changing land uses, it does not account for the corresponding change in trip distribution patterns that accompany changing land uses.

The Existing Plus Project analysis evaluated potential impacts on 190 intersections using the ICU methodology; 16 intersections using the Caltrans HCM methodology; 303 arterial roadway segments; 52 freeway ramps; and 118 freeway mainline segments.

Existing Plus Project Circulation System and Average Daily Traffic Volumes

Table 4.15-17 identifies the arterial roadway segments that are deficient with the Project. There would be 13 segment locations that are projected to operate at a deficient level. However, based on the ADT V/C performance criteria and impact thresholds, the Project does not contribute sufficient traffic to exceed the applicable thresholds of significance.[6]

TABLE 4.15-17
EXISTING PLUS PROPOSED PROJECT AVERAGE DAILY TRAFFIC (THOUSANDS) AND V/C RATIOS

Roadway Segment	Jurisdiction	Existing Conditions			Existing Plus Proposed Project		
		ADT	V/C	LOS	ADT	V/C	LOS
Culver (Main to I-405)	Irvine	50.4	0.93	E	50.4	0.93	E
Sand Canyon (Alton to I-405)	Irvine	32.9	1.03	F	32.8	1.03	F
University (south of I-405)	Irvine	51.1	0.95	E	51.2	0.95	E
SR-133 (Lake Forest to SR-73)	Irvine	42.7	1.33	F	42.7	1.33	F
Bake (Irvine/Trabuco to Toledo)	Irvine	50.6	0.94	E	51.0	0.95	E
Bake (Jeronimo to Muirlands)	Irvine	54.6	1.01	F	54.9	1.02	F
Bake (Rockfield to I-5)	Irvine	63.3	1.00	F	63.6	1.01	F
Lake Forest (Rockfield to I-5)	Lake Forest	56.9	0.90	E	56.9	0.90	E
Aliso Creek (east of El Toro)	Aliso Viejo	27.4	1.09	F	27.4	1.10	F
Alicia (Jeronimo to Muirlands)	Mission Viejo	56.7	1.01	F	56.9	1.01	F
Alicia (Muirlands to I-5)	Mission Viejo	62.5	0.95	E	62.6	0.95	E
Alicia (I-5 to Paseo de Valencia)	Laguna Hills	57.4	1.02	F	57.4	1.02	F
Avd Carlota (Paseo de Valencia to El Toro)	Laguna Hills	29.6	1.18	F	29.6	1.19	F

In general, the cities of Tustin, Irvine, Laguna Beach, Lake Forest, Laguna Hills, Laguna Woods, Aliso Viejo, Mission Viejo, and Orange, and the County of Orange have a goal of maintaining a LOS D for roadway segments, unless otherwise noted for specific intersections.

The decrease in V/C ratio, with Project, is due to rerouting of traffic at intersections, which can improve LOS if traffic is moved to lane groups with more capacity.

Source: *Transportation Impact Analysis*, (Full data in Table 5-1), Fehr & Peers, 2015

[6] Table 5-1 of the TIA shows the Existing Plus Proposed Project Average Daily Traffic and V/C Ratios

Existing Plus Project Peak Hour Intersection Levels of Service

Table 4.15-18 identifies those intersections that are projected to have a deficient LOS using the ICU methodology. There would be three intersection locations that are projected to operate at a deficient LOS without the Project. However, based on performance criteria and impact thresholds, the addition of Project traffic would not cause any of the intersections to exceed adopted impact thresholds in the Existing Plus Project scenario.

TABLE 4.15-18
EXISTING PLUS PROPOSED PROJECT INTERSECTION LOS SUMMARY
(ICU METHODOLOGY)

			Existing Conditions				Existing Plus Proposed Project			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
ID	Intersection	Juris.	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
136	Jamboree Rd. and Barranca Pkwy	Irvine	0.72	C	**0.91**	**E**	0.72	C	**0.91**	**E**
291	Jeffrey Rd and Alton Pkwy	Irvine	**0.95**	**E**	0.83	D	**0.95**	**E**	0.83	D
399	El Toro Rd and Aliso Creek Rd	Aliso Viejo	**1.06**	**F**	**1.20**	**F**	**1.05**	**F**	**1.20**	**F**

Intersections operating below acceptable standards are noted in **bold.**

In general, the cities of Tustin, Irvine, Laguna Beach, Lake Forest, Laguna Hills, Laguna Woods, Aliso Viejo, Mission Viejo, and Orange, and the County of Orange have a goal of maintaining a LOS D for intersections, unless otherwise noted for specific intersections.

The decrease in V/C ratio, with Project, is due to rerouting of traffic at intersections, which can improve LOS if traffic is moved to lane groups with more capacity.

Source: *Transportation Impact Analysis*, (Full data in Table 5-2), Fehr & Peers, 2015

The Existing Plus Project levels of service for intersections under the HCM methodology are shown in Table 4.15-19, below. Four intersections operate at a deficient LOS in the Existing condition without the Project. Based on the performance standards and impact threshold criteria, the Project would result in direct impacts to one intersection in the Existing Plus Project condition, as listed below. For the rest of the intersections, while the Project contributes to impacts, the Project would not contribute sufficient traffic volume to the intersection to exceed the threshold.

The following intersection exceeds impact thresholds as a result of the proposed Project.

- Jeffrey Road and Walnut Avenue (AM and PM) (4.15-66)

TABLE 4.15-19
EXISTING PLUS PROPOSED PROJECT CALTRANS RAMP INTERSECTION LOS SUMMARY (HCM METHODOLOGY)

ID	Intersection	Control	Peak Hour	No Project		Plus Project	
				Delay	LOS	Delay	LOS
287	Jeffrey Rd and I-5 NB Ramps	Signal	AM	10.5	B	10.6	B
			PM	**59.6**	**E**	**59.3**	**E**
288	Jeffrey Rd and Walnut Ave/I-5 SB Ramps	Signal	AM	**48.3**	**D**	**49**	**D**
			PM	**82.6**	**F**	**82.8**	**F**
303	Sand Canyon Ave and I-5 NB Ramps-Marine Way	Signal	AM	22.1	C	22.3	C
			PM	**96.6**	**F**	**93.7**	**F**
312	Sand Canyon Ave and I-405 SB Ramps	Signal	AM	**91.6**	**F**	**90.2**	**F**
			PM	21.4	C	21.1	C

NB: Northbound; SB: Southbound

Ramp intersections operating below acceptable standards are noted in **bold.** Locations where there is a Project-related impact are shaded. The specific threshold that is triggered is discussed later in this section under Threshold Evaluation.

Caltrans has a goal of maintaining a LOS C for ramp intersections.

The decrease in delay, with Project, is due to rerouting of traffic at intersections, which can improve LOS if traffic is moved to lane groups with more capacity.

Source: *Transportation Impact Analysis*, (Full data in Table 5-3), Fehr & Peers, 2015

Existing Plus Project Peak Hour Freeway/Toll Road Ramp Levels of Service

The AM and PM peak hour levels of service for highway/toll road ramps in the study area are shown in Table 4.15-20. The addition of Project traffic does not cause any of the analyzed ramps to exceed impact thresholds in the Existing Plus Project scenario. Two ramps operate at deficient levels of service under the Existing scenario without the Project. Project traffic is added to those ramps, as shown in the Table 4.15-20, below; however, the Project does not contribute to the deficiencies.

TABLE 4.15-20
EXISTING PLUS PROPOSED PROJECT FREEWAY/TOLL ROAD RAMP LOS SUMMARY

Interchange	Ramp	Lanes	Peak Hour Capacity	Existing without Proposed Project						Existing Plus Proposed Project					
				AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
				Vol.	V/C	LOS	Vol.	V/C	LOS	Vol.	V/C	LOS	Vol.	V/C	LOS
I-5 at Bake	NB Loop On	1	1,500	**1896**	**1.26**	**F**	**2094**	**1.40**	**F**	**1896**	**1.26**	**F**	**2096**	**1.40**	**F**
	SB Off	2	3,000	**3174**	**1.06**	**F**	2351	0.78	C	**3179**	**1.06**	**F**	2358	0.79	C

NB: Northbound; SB: Southbound

Freeway/toll road ramps operating below acceptable standards are noted in **bold.**

Caltrans has a goal of maintaining a LOS E for freeway/toll road ramps.

The decrease in volume, with Project, is due to rerouting of traffic at intersections, which can improve LOS if traffic is moved to lane groups with more capacity.

Source: Transportation Impact Analysis, (Full data in Table 5-4), Fehr & Peers, 2015

Existing Plus Project Peak Hour Freeway/Toll Road Mainline Levels of Service

The AM and PM peak hour levels of service for freeway/toll road mainline segments in the study area are shown in Table 4.15-21, below. As shown in Table 4.15-21, there are 14 freeway/toll road mainline segments operating at a deficient LOS without the Project. Based on the performance standards and impact threshold criteria, the following six segments exceed impact thresholds as a result of the proposed Project.

- I-5 NB (Alton Slip On-Ramp to SR-133 NB Off-Ramp) (PM) (Threshold 4.15-67)
- I-5 SB (Jeffrey to SR-133 NB) (AM) (Threshold 4.15-68)
- I-5 SB (SR-133 SB to Alton Pkwy) (AM and PM) (Thresholds 4.15-67 and 4.15-68)
- I-405 NB (Jeffrey Slip On-Ramp) (AM) (Threshold 4.15-68)
- I-405 SB (Sand Canyon Off-Ramp) (AM) (Threshold 4.15-68)
- I-405 SB (SR-133 Off-Ramp) (AM) (Threshold 4.15-67)

Only mainline segments operating at deficient levels of service without the Project are presented in the table; however, it should be noted that while the Project may contribute to deficiencies, it would not contribute sufficient traffic volume to the deficient segments to exceed the threshold.

TABLE 4.15-21
EXISTING PLUS PROPOSED PROJECT FREEWAY MAINLINE LOS SUMMARY

Freeway	Segment	Type	Peak Hour	No Project			Plus Proposed Project		
				V/C	Density	LOS	V/C	Density	LOS
I-5 NB	I-405 Off-Ramp	Diverge	AM		-	**F**		-	**F**
			PM		**19.86**	**F**		**20.04**	**F**
	I-405 Off-Ramp to Bake On-Ramp	Basic	AM	**0.73**	-	**F**	**0.76**	-	**F**
			PM	**0.59**	-	**F**	**0.59**	-	**F**
	C-D Road On-Ramp	Basic	AM	**0.79**	-	**F**	**0.79**	-	**F**
			PM	**0.71**	-	**F**	**0.70**	-	**F**
	Alton Pkwy Off-Ramp	Diverge	AM	**0.81**	-	**F**	**0.82**	-	**F**
			PM	**0.75**	-	**F**	**0.75**	-	**F**
	Alton Slip On-Ramp to SR-133 NB Off-Ramp	Weave	AM	0.89	35.63	E	0.90	36.36	E
			PM	0.87	34.57	D	**1.15**	-	**F**
	SR-133 NB On-Ramp to Sand Canyon Off-Ramp	Weave	AM	**1.36**	-	**F**	**1.37**	-	**F**
			PM	**1.41**	-	**F**	**1.40**	-	**F**
I-5 SB	Jeffrey to SR-133 NB	Weave	AM	**0.64**	-	**F**	**0.69**	-	**F**
			PM	0.71	30.95	D	0.78	34.35	D
	SR-133 SB to Alton Pkwy	Weave	AM	**1.18**	-	**F**	**1.24**	-	**F**
			PM	0.94	41.68	E	**1.11**	-	**F**
I-405 NB	Jeffrey Slip On-Ramp	Merge	AM	**1.03**	-	**F**	**1.07**	-	**F**
			PM	0.66	25.77	C	0.67	26.46	C
I-405 SB	Sand Canyon Off-Ramp	Diverge	AM	**1.06**	-	**F**	**1.09**	-	**F**
			PM	0.91	37.51	E	0.92	37.63	E
	Sand Canyon Loop On-Ramp	Merge	**AM**	**0.66**	-	**F**	**0.77**	30.57	D
			PM	**0.75**	-	**F**	**0.76**	-	**F**
	Sand Canyon to SR-133	Basic	**AM**	**0.76**	-	**F**	0.90	36.37	E
			PM	**0.83**	-	**F**	**0.83**	-	**F**
	SR-133 Off-Ramp	Diverge	AM	0.99	33.40	D	**1.04**	-	**F**
			PM	**1.05**	-	**F**	**1.06**	-	**F**
SR-133 SB	SR-241 to Irvine Center Dr	Weave	AM	**0.61**	-	**F**	**0.61**	-	**F**
			PM	0.18	5.46	A	0.18	5.54	A

NB: northbound; SB: southbound; HOV: high occupancy vehicle; V/C: Volume to Capacity ratio; LOS: level of service; Rd: Road; Ave: Avenue; St: Street; Wy: Way; Pkwy: Parkway; Blvd: Boulevard; "-": either the segment is over capacity or specific portions of the facility such as HOV lanes, on/off ramps, etc. are over capacity; blank cells: the HCM 2010 methodology cannot calculate V/C for this type of facility, specifically a diverge with a high number of lanes.

Freeway mainline segments operating below acceptable standards are noted in **bold**. Locations where there is a Project-related impact are shaded. The specific threshold that is triggered is discussed later in this section under Threshold Evaluation.

Caltrans has a goal of maintaining a LOS E for freeway/toll mainlines.

The decrease in V/C ratio, with Project, is due to rerouting of traffic at intersections, which can improve LOS if traffic is moved to lane groups with more capacity.

Source: Transportation Impact Analysis, (Full data in Table 5-5), Fehr & Peers, 2015

Year 2017 Traffic Impacts With and Without the Proposed Project

This section analyzes the impacts of the proposed Project on Year 2017 traffic conditions in the study area. For the portion of the study area in the City of Lake Forest, ITAM-derived Project changes were added to LFTAM-based future traffic volumes.

The Year 2017 analysis evaluated potential impacts on 199 intersections using the ICU methodology; 16 intersections using the Caltrans HCM methodology; 362 arterial roadway segments; 52 freeway ramps; and 118 freeway mainline segments. The analysis provides a comparison of the Year 2017 traffic conditions With and Without the Project. The analysis is presented for (1) the ADT volumes on the roadway network; (2) the peak hour intersection LOS; (3) the peak hour freeway/toll road ramp LOS; and (4) the peak hour freeway/toll road mainline LOS. The roadway network used for this evaluation includes the 2013–2017 committed roadway improvements shown in Table 4.15-14 provided as part of the discussion of the Planned Circulation System in Section 4.15.5.

Year 2017 Circulation System and Average Daily Traffic Volumes

An analysis of the mid-block peak hour roadway segments in the study area was conducted using the ADT V/C performance criteria and impact thresholds. Table 4.15-22 identifies the arterial roadway segments that are projected to be deficient. There would be 29 segment locations that are projected to operate at a deficient level. However, based on the ADT V/C performance criteria and impact thresholds, the Project would not cause any of the arterial roadway segment to operate at a deficient LOS.[7]

TABLE 4.15-22
YEAR 2017 PLUS PROPOSED PROJECT AVERAGE DAILY TRAFFIC (THOUSANDS) AND V/C RATIOS

Roadway Segment	Jurisdiction	Without Project			With Proposed Project		
		ADT	V/C	LOS	ADT	V/C	LOS
Culver (Main to I-405)	Irvine	53.6	0.99	E	53.7	0.99	E
Jeffrey (Alton to I-405)	Irvine	49.5	0.92	E	49.6	0.92	E
Sand Canyon (Alton to I-405)	Irvine	41.1	1.28	F	41.0	1.28	F
SR-133 (Laguna Canyon to Lake Forest)	Irvine	49.4	0.92	E	49.4	0.92	E
University (south of I-405)	Irvine	53.0	1.66	F	53.1	1.66	F
SR-133 (Lake Forest to SR-73)	Irvine	45.5	1.42	F	45.5	1.42	F
Bake (Commercentre to Irvine/Trabuco)	Lake Forest	36.0	0.96	E	36.2	0.97	E
Bake (Irvine/Trabuco to Toledo)	Irvine	54.2	1.00	F	54.5	1.01	F
Bake (Toledo to Jeronimo)	Irvine	57.3	1.06	F	57.6	1.07	F
Bake (Jeronimo to Muirlands)	Irvine	62.2	1.15	F	62.4	1.16	F
Bake (Rockfield to I-5)	Irvine	71.2	1.13	F	71.5	1.14	F
Lake Forest (Rockfield to I-5)	Lake Forest	64.0	1.14	F	64.0	1.14	F
El Toro (Aliso Creek to SR-73)	Laguna Beach	39.2	1.05	F	39.2	1.05	F

[7] The Year 2017 Intersection Location Analysis Locations is depicted on Figures 6-1 in the TIS.

TABLE 4.15-22
YEAR 2017 PLUS PROPOSED PROJECT AVERAGE DAILY TRAFFIC (THOUSANDS) AND V/C RATIOS

Roadway Segment	Jurisdiction	Without Project			With Proposed Project		
		ADT	V/C	LOS	ADT	V/C	LOS
El Toro (south of SR-73)	Laguna Beach	16.9	1.35	F	16.9	1.35	F
Irvine (Red Hill to Browning)	Tustin	41.6	1.11	F	41.5	1.11	F
Irvine (Browning to Tustin Ranch)	Tustin	37.1	0.99	E	37.1	0.99	E
Trabuco (east of Culver)	Irvine	29.8	0.93	E	29.8	0.93	E
Trabuco (east of Sand Canyon)	Irvine	31.6	0.99	E	31.7	0.99	E
Roosevelt (Nimitz to Jeffrey)	Irvine	11.9	0.92	E	11.9	0.92	E
Barranca (Culver to W. Yale Loop)	Irvine	31.5	0.98	E	31.5	0.98	E
Alton (E. Yale Loop to Jeffrey)	Irvine	29.4	0.92	E	29.4	0.92	E
Lake Forest (Laguna Canyon to Bake)	Irvine	30.6	0.96	E	30.6	0.96	E
El Toro (Rockfield to I-5)	Lake Forest	63.0	1.12	F	63.1	1.12	F
Alicia (Jeronimo to Muirlands)	Mission Viejo	59.0	1.05	F	59.2	1.05	F
Alicia (Muirlands to I-5)	Mission Viejo	60.5	0.92	E	60.6	0.92	E
Avd Carlota (Paseo de Valencia to El Toro)	Laguna Hills	30.5	1.22	F	30.5	1.22	F
Paseo de Valencia (Los Alisos to Laguna Hills)	Laguna Woods	34.3	0.92	E	34.3	0.92	E
Trabuco (east of O)	Irvine	19.3	1.49	F	19.3	1.49	F
Modjeska (Portola Springs to Irvine)	Irvine	12.7	0.98	E	12.7	0.98	E

Intersections operating below acceptable standards are noted in **bold.**

In general, the cities of Tustin, Irvine, Laguna Beach, Lake Forest, Laguna Hills, Laguna Woods, Aliso Viejo, Mission Viejo, and Orange, and the County of Orange have a goal of maintaining a LOS D for roadway segments, unless otherwise noted for specific intersections.

The decrease in V/C ratio, with Project, is due to rerouting of traffic at intersections, which can improve LOS if traffic is moved to lane groups with more capacity.

Source: *Transportation Impact Analysis*, (Full data in Table 6-1), Fehr & Peers, 2015

Year 2017 Peak Hour Intersection Levels of Service

The LOS was calculated using the ICU methodology for the study area intersections. Table 4.15-23 identifies those intersections that would operate at a deficient LOS. There would be seven intersection locations that are projected to operate at a deficient LOS without the Project. Based on the performance standards and impact threshold criteria, the addition of Year 2017 With Project traffic does not cause any of the intersections to exceed adopted thresholds.

TABLE 4.15-23
YEAR 2017 PLUS PROJECT INTERSECTION LOS SUMMARY (ICU METHODOLOGY)

			Without Project				With Proposed Project			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
ID	Intersection	Juris.	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
54	Browning Ave and Irvine Blvd	Tustin	**0.94**	**E**	0.79	C	**0.93**	**E**	0.78	C
135	Jamboree Rd NB and Warner Ave	Irvine	0.51	A	**0.94**	**E**	0.51	A	**0.94**	**E**
136	Jamboree Rd and Barranca Pkwy	Irvine	0.82	D	**0.96**	**E**	0.81	D	**0.96**	**E**
235	Culver Dr and University Dr	Irvine	0.77	C	**0.98**	**E**	0.77	C	**0.98**	**E**
291	Jeffrey Rd and Alton Pkwy	Irvine	**0.96**	**E**	0.88	D	**0.94**	**E**	0.87	D
322	Laguna Canyon Rd and SR-73 NB Ramps*	Laguna Beach	**1.01**	**F**	0.86	D	**1.01**	**F**	0.86	D
417	El Toro Rd and Portola Pkwy/S Margarita Pkwy	Lake Forest	0.65	B	**0.93**	**E**	0.64	B	**0.93**	**E**

ID: Intersection Identification Number; Juris.: jurisdiction; V/C: volume-to-capacity ratio; LOS: level of service; NB: Northbound; SR: State Route

Intersections operating below acceptable standards are noted in **bold.**

In general, the cities of Tustin, Irvine, Laguna Beach, Lake Forest, Laguna Hills, Laguna Woods, Aliso Viejo, Mission Viejo, and Orange, and the County of Orange have a goal of maintaining a LOS D for intersections, unless otherwise noted for specific intersections.

*A LOS E is maintained for this intersection in the city of Laguna Beach.

The decrease in V/C ratio, with Project, is due to rerouting of traffic at intersections, which can improve LOS if traffic is moved to lane groups with more capacity.

Source: Fehr & Peers 2015 (see Table 6-1 for complete data).

In addition to the ICU analysis, the HCM methodology was used to assess LOS for freeway/highway ramp intersections. Table 4.15-24 identifies those intersections that are projected to have a deficient LOS using the HCM methodology. There would be four freeway/highway ramp intersection locations that are projected to operate at a deficient LOS without the Project. The following three freeway/highway intersections would have a Project-related impact using the HCM methodology for the specified time periods.

- Jeffrey Road and I-5 Northbound (PM) (Threshold 4.15-66)
- Jeffrey Road and Walnut Avenue (AM and PM) (Threshold 4.15-66)
- Sand Canyon Avenue and I-5 Northbound (AM) (Threshold 4.15-66)

Year 2017 Peak Hour Freeway/Toll Road Ramp Levels of Service

An evaluation of the freeway and toll road ramp LOS was conducted for Year 2017 Without Project and With Project conditions. Table 4.15-25 identifies two freeway/highway ramps that are projected to operate at a deficient LOS without the Project. However, based on the performance criteria and impact thresholds, the Project will not contribute sufficient traffic to cause any of the ramps to exceed the applicable threshold in the Year 2017.

TABLE 4.15-24
YEAR 2017 PLUS PROJECT CALTRANS RAMP INTERSECTION
LOS SUMMARY (HCM METHODOLOGY)

ID	Intersection	Control	Peak Hour	No Project		Plus Project	
				Delay (seconds)	LOS	Delay (seconds)	LOS
287	Jeffrey Rd and I-5 NB Ramps	Signal	AM	17.9	B	18	B
			PM	**46.4**	**D**	**46.5**	**D**
288	Jeffrey Rd and Walnut Ave/I-5 SB Ramps	Signal	AM	**59.5**	**E**	**61.6**	**E**
			PM	**99.2**	**F**	**99.7**	**F**
303	Sand Canyon Ave and I-5 NB Ramps/Marine Way	Signal	AM	29.9	C	**35.8**	**D**
			PM	**42.8**	**D**	**42.4**	**D**
312	San Canyon Ave and I-405 SB Ramps	Signal	AM	**36.3**	**D**	**35.9**	**D**
			PM	24.5	C	24.4	C

Caltrans: California Department of Transportation; ID: Intersection Identification Number; LOS: level of service; I: Interstate; NB: Northbound; SB: Southbound

Intersections operating below acceptable standards are noted in **bold.** Locations where there is a Project-related impact are shaded. The specific threshold that is triggered is discussed later in this section under Threshold Evaluation.

Caltrans has a goal of maintaining a LOS C for ramp intersections.

The decrease in delay, with Project, is due to rerouting of traffic at intersections, which can improve LOS if traffic is moved to lane groups with more capacity.

Source: Fehr & Peers 2015 (see Table 6-2 for complete data)

TABLE 4.15-25
YEAR 2017 PLUS PROJECT FREEWAY/TOLL ROAD RAMP LOS SUMMARY

Interchange	Ramp	Lanes	Peak Hour Capacity	Existing without Proposed Project						Existing Plus Proposed Project					
				AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
				Vol.	V/C	LOS	Vol.	V/C	LOS	Vol.	V/C	LOS	Vol.	V/C	LOS
I-5 at Bake Pkwy	SB Off	2	3,000	**3,176**	**1.06**	**F**	2,259	0.75	C	**3,176**	**1.06**	**F**	2,260	0.75	C
SR-133 at Barranca	NB On	1	1,080	410	0.38	A	**1,350**	**1.25**	**F**	412	0.38	A	**1,339**	**1.24**	**F**

Vol: Volume; V/C: volume-to-capacity ratio; LOS: level of service; I: Interstate; NB: Northbound; SB: Southbound; SR: State Route

Freeway/toll road ramps operating below acceptable standards are noted in **bold.**

Caltrans has a goal of maintaining a LOS E for freeway/toll road ramps.

Source: Fehr & Peers 2015 (see Table 6-3 for complete data)

Year 2017 Peak Hour Freeway/Toll Road Mainline Levels of Service

An evaluation of the Year 2017 Without Project and With Project freeway and toll road mainline segments was conducted. Table 4.15-26 identifies 22 locations that would operate at a deficient LOS without the Project; however, based on the performance criteria and impact thresholds, the Project would not cause any mainline segment to exceed the applicable threshold in Year 2017.

TABLE 4.15-26
YEAR 2017 PLUS PROPOSED PROJECT FREEWAY MAINLINE LOS SUMMARY

Freeway/Toll Road	Segment	Type	Peak Hour	No Project			Plus Proposed Project		
				V/C	Density	LOS	V/C	Density	LOS
I-5 NB	I-405 Off-Ramp	Diverge	AM		–	**F**		–	**F**
			PM		**20.39**	**F**		–	**F**
	I-405 Off-Ramp to Bake Pkwy On-Ramp	Basic	AM	**0.76**	–	**F**	**0.76**	–	**F**
			PM	**0.62**	–	**F**	**0.63**	–	**F**
	Collector-Distributor Road On-Ramp	Basic	AM	**0.83**	–	**F**	**0.83**	–	**F**
			PM	**0.74**	–	**F**	**0.74**	–	**F**
	Alton Pkwy Off-Ramp	Diverge	AM	**0.86**	–	**F**	**0.86**	–	**F**
			PM	**0.79**	–	**F**	**0.78**	–	**F**
	Alton Pkwy Slip On-Ramp to SR-133 NB Off-Ramp	Weave	AM	0.92	38.38	E	0.93	38.56	E
			PM	**1.25**	–	**F**	**1.24**	–	**F**
	SR-133 NB On-Ramp to Sand Canyon Ave Off-Ramp	Weave	AM	**1.46**	–	**F**	**1.46**	–	**F**
			PM	**1.56**	–	**F**	**1.56**	–	**F**
I-5 SB	Culver Dr Off-Ramp to Jeffrey Rd On-Ramp	Basic	AM	0.91	37.53	E	0.91	37.26	E
			PM	**1.01**	–	**F**	**1.00**	–	**F**
	Jeffrey Rd Off-Ramp	Diverge	AM	0.92	38.35	E	0.93	38.59	E
			PM	**1.08**	–	**F**	**1.07**	–	**F**
	Jeffrey Rd to SR-133 NB	Weave	AM	**0.72**	–	**F**	**0.73**	–	**F**
			PM	0.85	38.53	E	0.84	38.28	E
	SR-133 SB to Alton Pkwy	Weave	AM	**1.33**	–	**F**	**1.35**	–	**F**
			PM	**1.20**	–	**F**	**1.21**	–	**F**
I-405 NB	Jeffrey Rd Off-Ramp	Basic	AM	**0.92**	–	**F**	**0.92**	–	**F**
			PM	0.72	26.73	D	0.72	26.60	D
	Jeffrey Rd Off- to On-Ramp	Basic	AM	**1.00**	–	**F**	**1.01**	–	**F**
			PM	0.72	26.56	D	0.72	26.36	D
	Jeffrey Rd Loop On-Ramp	Merge	AM	**0.93**	–	**F**	**0.94**	–	**F**
			PM	0.61	25.32	C	0.61	25.18	C
	Jeffrey Rd Slip On-Ramp	Merge	AM	**1.21**	–	**F**	**1.22**	–	**F**
			PM	0.71	27.64	C	0.70	27.51	C

TABLE 4.15-26
YEAR 2017 PLUS PROPOSED PROJECT FREEWAY MAINLINE LOS SUMMARY

Freeway/Toll Road	Segment	Type	Peak Hour	No Project			Plus Proposed Project		
				V/C	Density	LOS	V/C	Density	LOS
I-405 SB	Jeffrey Rd Slip On-Ramp	Merge	AM	**0.95**	**–**	**F**	**0.95**	**–**	**F**
			PM	0.93	34.90	D	0.93	34.94	D
	Jeffrey Rd to Sand Canyon Ave	Basic	AM	**1.03**	**–**	**F**	**1.03**	**–**	**F**
			PM	0.94	39.93	E	0.94	40.02	E
	Sand Canyon Ave Off-Ramp	Diverge	AM	**1.15**	**–**	**F**	**1.15**	**–**	**F**
			PM	**1.02**	**–**	**F**	**1.02**	**–**	**F**
	Sand Canyon Ave Loop On-Ramp	Merge	AM	0.80	31.47	D	0.80	31.43	D
			PM	**0.82**	**–**	**F**	**0.82**	**–**	**F**
	Sand Canyon Ave to SR-133	Basic	AM	0.93	38.65	E	0.93	38.65	E
			PM	**0.90**	**–**	**F**	**0.90**	**–**	**F**
	SR-133 Off-Ramp	Diverge	AM	**1.08**	**–**	**F**	**1.08**	**–**	**F**
			PM	**1.14**	**–**	**F**	**1.14**	**–**	**F**
SR-133 NB	Irvine Blvd Slip On-Ramp to SR-241	Weave	AM	0.24	5.81	A	0.24	5.91	A
			PM	**1.04**	**–**	**F**	**1.04**	**–**	**F**
SR-133 SB	SR-241 to Irvine Center Dr	Weave	AM	**0.66**	**–**	**F**	**0.66**	**–**	**F**
			PM	0.25	7.35	A	0.25	7.35	A

V/C: volume-to-capacity ratio; LOS: level of service; I: Interstate; NB: Northbound; SR: State Route; SB: Southbound; HOV: high-occupancy vehicle; "-": either the segment is over capacity or specific portions of the facility such as HOV lanes, on/off ramps, etc. are over capacity; blank cells: the HCM 2010 methodology cannot calculate V/C for this type of facility, specifically a diverge with a high number of lanes.

Segments operating below acceptable standards are noted in **bold.**

Caltrans has a goal of maintaining a LOS E for freeway/toll road mainlines.

The decrease in V/C ratio, with Project, is due to rerouting of traffic at intersections, which can improve LOS if traffic is moved to lane groups with more capacity.

Source: Fehr & Peers 2015 (see Table 6-4 for complete data)

Year 2035 Traffic Impacts With and Without the Proposed Project

The 2035 scenario is a long-range evaluation that analyzes the impacts of the proposed Project on Year 2035 traffic conditions in the study area. The Year 2035 scenario assumes full build-out of the Project and the regional growth projected in 2035. ITAM 12.4 Year 2035 was used for conducting this analysis. For the portion of the study area in the City of Lake Forest, ITAM-derived Project changes were added to LFTAM-based future traffic volumes.

The Year 2035 analysis evaluated potential impacts on 209 intersections using the ICU methodology; 18 intersections using the Caltrans HCM methodology; 362 arterial roadway segments; 56 freeway ramps; and 121 freeway mainline segments. The analysis provides a comparison of the Year 2035 traffic conditions With and Without the Project. The analysis is presented for (1) the ADT volumes on the roadway network; (2) the peak hour intersection LOS; (3) the peak hour freeway/toll road ramp LOS; and (4) the peak hour freeway/toll road mainline LOS. The roadway network used for this evaluation is the Year 2035 network discussed under Planned Circulation System in Section 4.15.5.

Year 2035 Circulation System and Average Daily Traffic Volumes

An analysis of the mid-block peak hour roadway segments in the study area was conducted using the ADT V/C performance criteria and impact thresholds. Table 4.15-27 identifies the 43 segment locations that are projected to operate at a deficient level. However, based on the ADT V/C performance criteria and impact thresholds, the Project would not cause any of the arterial roadway segments to operate at a deficient LOS.[8]

TABLE 4.15-27
YEAR 2035 PLUS PROPOSED PROJECT AVERAGE DAILY TRAFFIC (THOUSANDS) AND V/C RATIOS

Roadway Segment	Jurisdiction	Without Project			With Proposed Project		
		ADT	V/C	LOS	ADT	V/C	LOS
Culver (Barranca to Alton)	Irvine	49.8	0.92	E	49.8	0.92	E
Culver (Alton to Main)	Irvine	49.5	0.92	E	49.5	0.92	E
Culver (Main to I-405)	Irvine	56.5	1.05	F	56.5	1.05	F
Jeffrey (Alton to I-405)	Irvine	53.3	0.99	E	53.3	0.99	E
Sand Canyon (Alton to I-405)	Irvine	44.2	1.38	F	44.2	1.38	F
SR-133 (Laguna Canyon to Lake Forest)	Irvine	51.5	0.95	E	51.5	0.95	E
University (south of I-405)	Irvine	62.1	1.15	F	62.2	1.15	F
SR-133 (Lake Forest to SR-73)	Irvine	47.6	1.49	F	47.6	1.49	F
Alton (Rancho to Commercentre)	Lake Forest	54.0	0.96	E	54.5	0.97	E
Bake (Commercentre to Irvine/Trabuco)	Lake Forest	38.0	1.01	F	38.1	1.02	F
Bake (Irvine/Trabuco to Toledo)	Irvine	57.3	1.06	F	57.8	1.07	F
Bake (Toledo to Jeronimo)	Irvine	60.4	1.12	F	60.8	1.13	F
Bake (Jeronimo to Muirlands)	Irvine	67.3	1.25	F	67.7	1.25	F
Bake (Rockfield to I-5)	Irvine	85.6	1.19	F	85.8	1.19	F
Lake Forest (Rancho to Trabuco)	Lake Forest	35.0	0.93	E	35.1	0.94	E
Lake Forest (Rockfield to I-5)	Lake Forest	76.0	1.35	F	76.4	1.36	F
El Toro (Aliso Creek to SR-73)	Laguna Beach	41.5	1.11	F	41.5	1.11	F
El Toro (south of SR-73)	Laguna Beach	17.2	1.38	F	17.2	1.38	F
Irvine (Newport to Red Hill)	Tustin	51.9	0.92	E	51.8	0.92	E
Irvine (Red Hill to Browning)	Tustin	48.3	1.29	F	48.3	1.29	F
Irvine (Browning to Tustin Ranch)	Tustin	42.7	1.14	F	42.7	1.14	F
Trabuco (east of Culver)	Irvine	30.6	0.96	E	30.7	0.96	E
Trabuco (east of Sand Canyon)	Irvine	41.7	1.30	F	41.9	1.31	F
Roosevelt (Nimitz to Jeffrey)	Irvine	12.5	0.96	E	12.5	0.96	E
Marine (east of Sand Canyon)	Irvine	32.8	1.03	F	32.8	1.03	F
Oak Canyon (Valley Oak to Sand Canyon)	Irvine	14.1	1.09	F	14.1	1.09	F
Barranca (Culver to W. Yale Loop)	Irvine	34.6	1.08	F	34.7	1.08	F
Barranca (W Yale Loop to Lake)	Irvine	31.5	0.98	E	31.5	0.98	E

8 The Year 2035 intersection analysis locations are depicted on Figure 7-1 in the TIA.

TABLE 4.15-27
YEAR 2035 PLUS PROPOSED PROJECT AVERAGE DAILY TRAFFIC (THOUSANDS) AND V/C RATIOS

Roadway Segment	Jurisdiction	Without Project			With Proposed Project		
		ADT	V/C	LOS	ADT	V/C	LOS
Barranca (Creek to E Yale Loop	Irvine	29.1	0.91	E	29.1	0.91	E
Barranca (E. Yale Loop to Jeffrey)	Irvine	31.2	0.98	E	31.2	0.98	E
Alton (E. Yale Loop to Jeffrey)	Irvine	31.8	0.99	E	31.8	0.99	E
Lake Forest (Laguna Canyon to Bake)	Irvine	31.3	0.98	E	31.4	0.98	E
El Toro (Muirlands to Rockfield)	Lake Forest	51.0	0.91	E	51.1	0.91	E
El Toro (Rockfield to I-5)	Lake Forest	66.0	1.17	F	66.0	1.17	F
Alicia (Jeronimo to Muirlands)	Mission Viejo	60.0	1.07	F	60.1	1.07	F
Alicia (Muirlands to I-5)	Mission Viejo	60.7	1.08	F	60.9	1.08	F
Alicia (I-5 to Paseo de Valencia)	Laguna Hills	51.1	0.91	E	51.0	0.91	E
Portola (Rancho to El Toro)	Lake Forest	62.0	1.10	F	61.9	1.10	F
Avd Carlota (Paseo de Valencia to El Toro)	Laguna Hills	32.2	1.29	F	32.2	1.29	F
Paseo de Valencia (Los Alisos to Laguna Hills)	Laguna Woods	37.5	3.00	F	37.5	3.00	F
Trabuco (east of O)	Irvine	20.8	1.60	F	21.0	1.62	F
Modjeska (Portola Springs to Irvine)	Irvine	15.0	1.15	F	15.0	1.15	F
LQ (east of LY)	Irvine	12.6	0.97	E	12.6	0.97	E

Intersections operating below acceptable standards are noted in **bold.**

In general, the cities of Tustin, Irvine, Laguna Beach, Lake Forest, Laguna Hills, Laguna Woods, Aliso Viejo, Mission Viejo, and Orange, and the County of Orange have a goal of maintaining a LOS D for roadway segments, unless otherwise noted for specific intersections.

The decrease in V/C ratio, with Project, is due to rerouting of traffic at intersections, which can improve LOS if traffic is moved to lane groups with more capacity.

Source: *Transportation Impact Analysis*, (Full data in Table 7-1), Fehr & Peers, 2015

Year 2035 Peak Hour Intersection Levels of Service

The LOS was calculated using the ICU methodology for the study area intersections. Table 4.15-28 identifies those intersections that would operate at a deficient LOS. There would be 22 intersection locations that are projected to operate at a deficient LOS without the Project. Based on the performance standards and impact threshold criteria, the Project either contributes to impacts at some intersections that are already deficient without triggering impact threshold criteria or would not contribute sufficient traffic volume to the deficient intersection to exceed the threshold.

TABLE 4.15-28
YEAR 2035 PLUS PROPOSED PROJECT INTERSECTION LOS SUMMARY (ICU METHODOLOGY)

			Without Project				With Proposed Project			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
ID	Intersection	Juris.	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
54	Browning Ave and Irvine Blvd	Tustin	**0.98**	**E**	0.89	D	**0.98**	**E**	0.89	D
135	Jamboree Rd NB and Warner Ave	Irvine	0.58	A	**1.07**	**F**	0.58	A	**1.06**	**F**
136	Jamboree Rd and Barranca Pkwy	Irvine	0.88	D	**0.94**	**E**	0.88	D	**0.95**	**E**
220	Culver Dr and Irvine Blvd	Irvine	0.87	D	**0.93**	**E**	0.87	D	**0.93**	**E**
224	Culver Dr and Walnut Ave	Irvine	0.77	C	**0.91**	**E**	0.77	C	**0.91**	**E**
229	Culver Dr and Alton Pkwy	Irvine	0.84	D	**0.94**	**E**	0.85	D	**0.95**	**E**
235	Culver Dr and University Dr	Irvine	0.88	D	**0.97**	**E**	0.88	D	**0.97**	**E**
291	Jeffrey Rd and Alton Pkwy	Irvine	**0.98**	**E**	0.90	D	**0.97**	**E**	**0.90**	**E**
306	Sand Canyon Ave and Oak Canyon/Laguna Canyon Rd	Irvine	0.76	C	**0.92**	**E**	0.76	C	**0.92**	**E**
322	Laguna Canyon Rd and SR-73 NB Ramps*	Laguna Beach	**0.91**	**E**	0.63	B	**0.91**	**E**	0.63	B
334	SR-133 NB Ramps/Gateway Blvd and Pacifica*	Irvine	0.76	C	**0.93**	**E**	0.75	C	**0.94**	**E**
368	Bake Pkwy and I-5 SB Ramps*	Irvine	0.82	D	**0.93**	**E**	0.82	D	**0.92**	**E**
374	Lake Forest Dr and Portola Pkwy	Lake Forest	0.62	B	**0.90**	**E**	0.63	B	**0.90**	**E**
378	Lake Forest Dr and Jeronimo Rd	Lake Forest	0.80	C	**0.91**	**E**	0.80**	C	**0.92**	**E**
380	Lake Forest Dr and Rockfield Blvd	Lake Forest	0.81	D	**0.91**	**E**	0.82	D	**0.92**	**E**
417	El Toro Rd and Portola Pkwy/S Margarita Pkwy	Lake Forest	0.86	D	**1.11**	**F**	0.86	D	**1.11**	**F**
424	Los Alisos Blvd and Rockfield Blvd/Fordview St	Lake Forest	**0.94**	**E**	**0.92**	**E**	**0.94**	**E**	**0.92**	**E**
465	SR-241/SR-261 NB Ramps and Chapman Ave	Orange	0.77	C	**0.93**	**E**	0.78	C	**0.94**	**E**
514	Alton Pkwy and Rancho Pkwy	Lake Forest	**0.91**	**E**	0.74	C	**0.91**	**E**	0.75	C
516	Lake Forest Dr and Rancho Pkwy	Lake Forest	0.86	D	**1.10**	**F**	0.87	D	**1.10**	**F**
517	Portola Pkwy and Rancho Pkwy	Lake Forest	0.72	C	**1.21**	**F**	0.72	C	**1.21**	**F**
560	"O" St and Marine Wy	Irvine	**0.93**	**E**	**1.24**	**F**	**0.93**	**E**	**1.24**	**F**

ID: Intersection Identification Number; Juris.: jurisdiction; V/C: Volume to Capacity ratio; LOS: level of service; NB: Northbound; I: Interstate; SR: State Route; SB: Southbound

Intersections operating below acceptable standards are noted in **bold.** Locations where there is a Project-related impact are shaded. The specific threshold that is triggered is discussed later in this section under Threshold Evaluation.

In general, the cities of Tustin, Irvine, Laguna Beach, Lake Forest, Laguna Hills, Laguna Woods, Aliso Viejo, Mission Viejo, and Orange, and the County of Orange have a goal of maintaining a LOS D for intersections, unless otherwise noted for specific intersections.

*A LOS E is maintained for these intersections in the cities of Laguna Beach and Irvine.
** V/C ratio is 0.802 (LOS D) before rounding.

Source: Fehr & Peers, 2015 (see Table 7-2 for complete data).

In addition to the ICU analysis, the HCM methodology was used to assess LOS for freeway/highway ramp intersections. Table 4.15-29 identifies those intersections that are projected to have a deficient LOS using the HCM methodology. There would be 10 intersection locations that are projected to operate at a deficient LOS without the Project. Based on the performance standards and impact threshold criteria, Project-related impacts using the HCM methodology would occur at the following eight intersections during the specified time periods:

- Jeffrey Road and Walnut Avenue (AM and PM) (Threshold 4.15-66)
- Jeffrey Road and I-405 NB (PM) (Threshold 4.15-66)
- Sand Canyon Avenue and I-5 NB/Marine Way (AM and PM) (Threshold 4.15-66)
- Sand Canyon Avenue and I-5 SB (AM) (Threshold 4.15-66)
- SR-133 SB and Irvine Boulevard (PM) (Threshold 4.15-66)
- Fortune Drive/I-5 SB and Enterprise Drive (PM) (Threshold 4.15-66)
- Bake Parkway and I-5 SB (PM) (Threshold 4.15-66)
- SR-133 NB and Trabuco Road (PM) (Threshold 4.15-66)

TABLE 4.15-29
YEAR 2035 PLUS PROPOSED PROJECT CALTRANS RAMP INTERSECTION LOS SUMMARY (HCM METHODOLOGY)

ID	Intersection	Control	Peak Hour	No Project		Plus Project	
				Delay (sec.)	LOS	Delay (sec.)	LOS
288	Jeffrey Rd and Walnut Ave/I-5 SB Ramps	Signal	AM	**65.9**	**E**	**67**	**E**
			PM	**121.1**	**F**	**122.2**	**F**
293	Jeffrey Rd and I-405 NB Ramps	Signal	AM	**36.3**	**D**	**35.7**	**D**
			PM	**36**	**D**	**36.3**	**D**
303	Sand Canyon Ave and I-5 NB Ramps/Marine Way	Signal	AM	**73.6**	**E**	**75**	**E**
			PM	**68.8**	**E**	**70.9**	**E**
305	Sand Canyon Ave and I-5 SB Ramps	Signal	AM	**37.3**	**D**	**37.4**	**D**
			PM	28.9	C	26.7	C
312	Sand Canyon Ave and I-405 SB Ramps	Signal	AM	**52.4**	**D**	**52.3**	**D**
			PM	25.6	C	25.8	C
316	SR-133 SB Ramps and Irvine Blvd	Signal	AM	**38.2**	**D**	**38**	**D**
			PM	**35.1**	**D**	**35.3**	**D**
351	Fortune Dr/I-5 SB Ramps and Enterprise Dr	Signal	AM	25.5	C	25.3	C
			PM	**54.2**	**D**	**55.1**	**E**
368	Bake Pkwy and I-5 SB Ramps	Signal	AM	29.2	C	29.1	C
			PM	**47.9**	**D**	**48.4**	**D**
486	SR-133 SB Ramps and Trabuco Rd	Signal	AM	**54.2**	**D**	**51.9**	**D**
			PM	29	C	31.4	C
487	SR-133 NB Ramps and Trabuco Rd	Signal	AM	30.5	C	31.1	C
			PM	**50.7**	**D**	**55.4**	**E**

TABLE 4.15-29
YEAR 2035 PLUS PROPOSED PROJECT CALTRANS RAMP INTERSECTION LOS SUMMARY (HCM METHODOLOGY)

ID	Intersection	Control	Peak Hour	No Project		Plus Project	
				Delay (sec.)	LOS	Delay (sec.)	LOS

ID: Intersection Identification Number; sec.: seconds; LOS: level of service; I: Interstate; NB: Northbound; SB: Southbound; SR: State Route

Intersections operating below acceptable standards are noted in **bold.** Locations where there is a Project-related impact are shaded. The specific threshold that is triggered is discussed later in this section under Threshold Evaluation.

Caltrans has a goal of maintaining a LOS C for ramp intersections.

The decrease in delay, with Project, is due to rerouting of traffic at intersections, which can improve LOS if traffic is moved to lane groups with more capacity.

Source: Fehr & Peers 2015 (see Table 7-3 for complete data)

Year 2035 Peak Hour Freeway/Toll Road Ramps Levels of Service

An evaluation of the freeway/toll road ramp LOS was conducted for Year 2035 Without Project and With Project freeway/toll road ramps. As shown in Table 4.15-30, eight freeway/toll road ramps would operate at a deficient LOS without the Project. While the Project may contribute to impacts at the freeway/toll road ramps listed in Table 4.15-30, based on the performance criteria and impact thresholds, the addition of Project traffic would not cause any of the remaining freeway/toll road ramps to operate at a deficient LOS or an exceedance of applicable thresholds.

TABLE 4.15-30
YEAR 2035 PLUS PROPOSED PROJECT FREEWAY/TOLL ROAD RAMP
LOS SUMMARY

Interchange	Ramp	Lanes	Peak Hour Capacity	Without Project						With Proposed Project					
				AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
				Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS
I-5 at Jeffrey	SB On	1	1,080	**1146**	**1.06**	**F**	992	0.92	E	**1145**	**1.06**	**F**	990	0.92	E
I-5 at Sand Canyon	SB Off	1	1,500	**1521**	**1.01**	**F**	929	0.62	B	**1530**	**1.02**	**F**	923	0.62	B
I-5 at Alton	SB Off	2	2,250	**2318**	**1.03**	**F**	1020	0.45	A	**2327**	**1.03**	**F**	1010	0.45	A
I-5 at Bake	SB Off	2	3,000	**3274**	**1.09**	**F**	2293	0.76	C	**3264**	**1.09**	**F**	2283	0.76	C
I-405 at Sand Canyon	SB Off	1	1,500	**1740**	**1.16**	**F**	1091	0.73	C	**1740**	**1.16**	**F**	1094	0.73	C
I-405 at Irvine Center	SB Off	2	2,250	**2384**	**1.06**	**F**	1787	0.79	C	**2397**	**1.07**	**F**	1787	0.79	C
SR-133 at Trabuco	SB On	1	1,080	**1594**	**1.06**	**F**	1310	0.87	D	**1590**	**1.06**	**F**	1320	0.88	D
SR-133 at Barranca	SB On	1	1,500	180	0.17	A	**1269**	**1.18**	**F**	180	0.17	A	**1270**	**1.18**	**F**
	NB On	1	1,500	540	0.50	A	**1731**	**1.60**	**F**	541	0.50	A	**1746**	**1.62**	**F**

Vol: Volume; V/C: volume-to-capacity ratio; LOS: level of service; I: Interstate; NB: Northbound; SB: Southbound; SR: State Route

Freeway/toll road ramps operating below acceptable standards are noted in **bold.**

Caltrans has a goal of maintaining a LOS E for freeway/toll road ramps.

Source: Fehr & Peers 2015 (see Table 6-3 for complete data)

Year 2035 Peak Hour Freeway/Toll Road Mainline Levels of Service

The AM and PM peak hour levels of service for freeway/toll road mainline segments in the study area are shown in Table 4.15-31, below. As shown in Table 4.15-29, there are 37 freeway/toll road mainline segments operating at a deficient LOS without the Project. Based on performance criteria and impact thresholds, the addition of Project traffic would not cause any deficient operation or an exceedance of applicable thresholds. While the Project may contribute traffic to the freeway/toll road mainline LOS, the contribution is not sufficient to exceed the threshold.

TABLE 4.15-31
YEAR 2035 PLUS PROPOSED PROJECT FREEWAY MAINLINE LOS SUMMARY

Freeway	Segment	Type	Peak Hour	No Project			Plus Proposed Project		
				V/C	Density	LOS	V/C	Density	LOS
I-5 NB	I-405 Off-Ramp	Diverge	AM		–	**F**		–	**F**
			PM		–	**F**		–	**F**
	I-405 Off-Ramp to Bake Pkwy On-Ramp	Basic	AM	**0.80**	–	**F**	**0.80**	–	**F**
			PM	**0.64**	–	**F**	**0.65**	–	**F**
	Collector-Distributor Road On-Ramp	Basic	AM	**0.87**	–	**F**	**0.88**	–	**F**
			PM	**0.77**	–	**F**	**0.77**	–	**F**
	Alton Pkwy Off-Ramp	Diverge	AM	**0.91**	–	**F**	**0.92**	–	**F**
			PM	**0.82**	–	**F**	**0.82**	–	**F**
	Alton Pkwy Slip On-Ramp to SR-133 NB Off-Ramp	Weave	AM	0.97	42.19	E	0.97	42.40	E
			PM	**1.29**	–	**F**	**1.28**	–	**F**
	SR-133 NB On-Ramp to Sand Canyon Ave Off-Ramp	Weave	AM	**1.48**	–	**F**	**1.48**	–	**F**
			PM	**1.57**	–	**F**	**1.57**	–	**F**
I-5 SB	Culver Dr Off-Ramp to Jeffrey Rd On-Ramp	Basic	AM	0.99	43.78	E	0.98	42.92	E
			PM	**1.07**	–	**F**	**1.07**	–	**F**
	Jeffrey Rd Off-Ramp	Diverge	AM	1.00	41.14	E	0.99	40.82	E
			PM	**1.13**	–	**F**	**1.13**	–	**F**
	Jeffrey Rd to SR-133 NB	Weave	AM	**0.79**	–	**F**	**0.79**	–	**F**
			PM	0.91	41.10	E	0.90	40.93	E
	Sand Canyon Ave Off-Ramp	Diverge	AM	**1.04**	–	**F**	**1.04**	–	**F**
			PM	0.91	37.39	E	0.91	37.32	E
	SR-133 SB to Alton Pkwy	Weave	AM	**1.39**	–	**F**	**1.39**	–	**F**
			PM	**1.27**	–	**F**	**1.27**	–	**F**
	Spectrum Center On-Ramp to I-405 On-Ramp	Basic	AM	0.78	29.23	D	0.78	29.47	D
			PM	**1.03**	–	**F**	**1.02**	–	**F**
	I-405 On-Ramp	Basic	AM	0.56	20.29	C	0.56	20.32	C
			PM	**0.70**	–	**F**	**0.69**	–	**F**

TABLE 4.15-31
YEAR 2035 PLUS PROPOSED PROJECT FREEWAY MAINLINE LOS SUMMARY

Freeway	Segment	Type	Peak Hour	No Project			Plus Proposed Project		
				V/C	Density	LOS	V/C	Density	LOS
I-405 NB	Jeffrey Rd Off-Ramp	Basic	AM	**0.93**	–	**F**	**0.93**	–	**F**
			PM	0.75	27.93	D	0.75	27.84	D
	Jeffrey Rd Off- to On-Ramps	Basic	AM	**1.02**	–	**F**	**1.02**	–	**F**
			PM	0.74	27.67	D	0.74	27.62	D
	Jeffrey Rd Loop On-Ramp	Merge	AM	**0.98**	–	**F**	**0.98**	–	**F**
			PM	0.64	26.34	C	0.64	26.30	C
	Jeffrey Rd Slip On-Ramp	Merge	AM	**1.25**	–	**F**	**1.25**	–	**F**
			PM	0.74	28.72	D	0.74	28.69	D
I-405 SB	University Dr/Jeffrey Rd Off-Ramp	Diverge	AM	**1.03**	–	**F**	**1.03**	–	**F**
			PM	0.90	37.48	E	0.90	37.52	E
	Jeffrey Rd Slip On-Ramp	Merge	AM	**1.06**	–	**F**	**1.06**	–	**F**
			PM	0.98	36.52	E	0.98	36.52	E
	Jeffrey Rd to Sand Canyon Ave	Basic	AM	**1.09**	–	**F**	**1.09**	–	**F**
			PM	0.99	44.43	E	1.00	44.43	E
	Sand Canyon Ave Off-Ramp	Diverge	AM	**1.24**	–	**F**	**1.24**	–	**F**
			PM	**1.08**	–	**F**	**1.08**	–	**F**
	Sand Canyon Ave Loop On-Ramp	Merge	AM	0.82	32.40	D	0.82	32.44	D
			PM	**0.85**	–	**F**	**0.85**	–	**F**
	Sand Canyon Ave to SR-133	Basic	AM	0.97	41.77	E	0.97	41.87	E
			PM	**0.93**	–	**F**	**0.94**	–	**F**
	SR-133 Off-Ramp	Diverge	AM	**1.12**	–	**F**	**1.12**	–	**F**
			PM	**1.17**	–	**F**	**1.17**	–	**F**
	Bake Pkwy Off-Ramp	Basic	AM	**0.66**	–	**F**	**0.66**	–	**F**
			PM	0.62	22.56	C	0.62	22.60	C
SR-133 NB	I-5 NB On-Ramp	Merge	AM	0.44	19.17	B	0.45	19.26	B
			PM	**1.04**	–	**F**	**1.04**	–	**F**
	I-5 NB to Add Lane	Basic	AM	0.43	15.69	B	0.44	15.77	B
			PM	**1.01**	–	**F**	**1.02**	–	**F**
	I-5 SB to Trabuco Rd	Weave	AM	**0.48**	–	**F**	**0.49**	–	**F**
			PM	**1.03**	–	**F**	**1.04**	–	**F**
	Irvine Blvd Slip On-Ramp to SR-241	Weave	AM	0.46	11.90	B	0.46	11.96	B
			PM	**1.30**	–	**F**	**1.31**	–	**F**
SR-133 SB	SR-241 to Irvine Center Dr	Weave	AM	**0.97**	–	**F**	**0.97**	–	**F**
			PM	0.42	12.65	B	0.42	12.70	B
	Trabuco Rd to I-5 NB	Weave	AM	**0.90**	–	**F**	**0.90**	–	**F**
			PM	0.37	13.97	B	0.37	13.97	B

TABLE 4.15-31
YEAR 2035 PLUS PROPOSED PROJECT FREEWAY MAINLINE LOS SUMMARY

Freeway	Segment	Type	Peak Hour	No Project			Plus Proposed Project		
				V/C	Density	LOS	V/C	Density	LOS
SR-241 NB	Portola Pkwy Off-Ramp	Diverge	AM	**1.06**	–	**F**	**1.07**	–	**F**
			PM	0.58	25.78	C	0.58	25.78	C
	Portola Pkwy to Toll Road	Basic	AM	**1.05**	–	**F**	**1.05**	–	**F**
			PM	0.54	19.40	C	0.54	19.40	C
	Toll Road Off-Ramp	Diverge	AM	**1.12**	–	**F**	**1.13**	–	**F**
			PM	0.50	12.66	B	0.50	12.66	B
	Toll Road and Portola Pkwy On-Ramp to SR-133 SB Off-Ramp	Weave	AM	**1.10**	–	**F**	**1.10**	–	**F**
			PM	0.47	17.18	B	0.47	17.18	B
SR-241 SB	SR-133 SB Off-Ramp	Diverge	AM	**0.95**	–	**F**	**0.95**	–	**F**
			PM	0.61	15.03	B	0.61	15.08	B
	SR-133 NB On-Ramp to Toll Road Off-Ramp	Weave	AM	0.37	13.53	B	0.36	13.48	B
			PM	**0.88**	–	**F**	**0.88**	–	**F**

V/C: volume-to-capacity; LOS: level of service; I: Interstate; NB: northbound; SR: State Route; SB: southbound; HOV: high-occupancy vehicle.

Freeway mainline segments operating below acceptable standards are noted in **bold.**

Caltrans has a goal of maintaining a LOS E for freeway/toll road mainlines.

The decrease in V/C ratio, with Project, is due to rerouting of traffic at intersections, which can improve LOS if traffic is moved to lane groups with more capacity.

Source: Fehr & Peers 2015 (see Table 7-5 for complete data).

Post-2035 Traffic Impacts With and Without the Proposed Project

This scenario assumes full buildout of the proposed Project in addition to full buildout of the *City of Irvine General Plan.* ITAM 12.4 Post-2035 was used for conducting this analysis. For the portion of the study area in the City of Lake Forest, ITAM-derived Project changes were added to LFTAM-based future traffic volumes.

The Post-2035 analysis evaluated potential impacts on 213 intersections using the ICU methodology; 18 intersections using the Caltrans HCM methodology; 362 arterial roadway segments; 57 freeway ramps; and 121 freeway mainline segments. The analysis provides a comparison of the Post-2035 traffic conditions With and Without the Project. The analysis is presented for the (1) ADT volumes on the roadway network; (2) the peak hour intersection LOS; (3) the peak hour freeway/toll road ramp LOS; and (4) the peak hour freeway/toll road mainline LOS. The roadway network used for this evaluation is the Year 2035 and Post-2035 network discussed under Planned Circulation System in Section 4.15.5.

Post-2035 Circulation System and Average Daily Traffic Volumes

An analysis of the mid-block peak hour roadway segments in the study area was conducted using the ADT V/C performance criteria and impact thresholds. Table 4.15-32 identifies 37 arterial roadway segment locations that are projected to operate at a deficient level. However,

based on the ADT V/C performance criteria and impact thresholds, the Project would not cause an exceedance of the applicable thresholds of significance.[9]

TABLE 4.15-32
POST-2035 PLUS PROPOSED PROJECT AVERAGE DAILY TRAFFIC (THOUSANDS) AND V/C RATIOS

Roadway Segment	Jurisdiction	Without Project			With Proposed Project		
		ADT	V/C	LOS	ADT	V/C	LOS
Culver (Barranca to Alton)	Irvine	51.9	0.96	E	52.0	0.96	E
Culver (Alton to Main)	Irvine	50.8	0.94	E	50.8	0.94	E
Culver (Main to I-405)	Irvine	56.8	1.05	F	56.8	1.05	F
Jeffrey (Alton to I-405)	Irvine	51.6	0.96	E	51.8	0.96	E
SR-133 (Laguna Canyon to Lake Forest)	Irvine	54.2	1.00	F	54.2	1.00	F
University (south of I-405)	Irvine	59.5	1.10	F	59.5	1.10	F
SR-133 (Lake Forest to SR-73)	Irvine	50.0	1.56	F	50.0	1.56	F
Bake (Commercentre to Irvine/Trabuco)	Lake Forest	37.0	0.99	E	37.0	0.99	E
Bake (Irvine/Trabuco to Toledo)	Irvine	55.9	1.04	F	56.2	1.04	F
Bake (Toledo to Jeronimo)	Irvine	59.1	1.09	F	59.3	1.10	F
Bake (Jeronimo to Muirlands)	Irvine	66.3	1.23	F	66.5	1.23	F
Bake (Rockfield to I-5)	Irvine	87.7	1.22	F	87.7	1.22	F
Lake Forest (Rancho to Trabuco)	Lake Forest	35.0	0.93	E	34.8	0.93	E
Lake Forest (Rockfield to I-5)	Lake Forest	69.0	1.23	F	69.1	1.23	F
Irvine (Newport to Red Hill)	Tustin	57.5	1.02	F	57.5	1.02	F
Irvine (Red Hill to Browning)	Tustin	57.4	1.02	F	57.5	1.02	F
Irvine (Browning to Tustin Ranch)	Tustin	52.6	0.93	E	52.7	0.94	E
Trabuco (east of Culver)	Irvine	31.2	0.98	E	31.3	0.98	E
Trabuco (east of Sand Canyon)	Irvine	41.7	1.30	F	41.8	1.31	F
Roosevelt (Nimitz to Jeffrey)	Irvine	13.0	1.00	E	13.0	1.00	E
Marine (east of Sand Canyon)	Irvine	34.9	1.09	F	35.0	1.09	F
Oak Canyon (Valley Oak to Sand Canyon)	Irvine	14.2	1.09	F	14.2	1.09	F
Barranca (Culver to W. Yale Loop)	Irvine	33.1	1.03	F	33.1	1.03	F
Barranca (W Yale Loop to Lake)	Irvine	29.6	0.93	E	29.6	0.93	E
Barranca (E. Yale Loop to Jeffrey)	Irvine	29.3	0.92	E	29.3	0.92	E
Alton (E. Yale Loop to Jeffrey)	Irvine	29.6	0.93	E	29.6	0.93	E
Lake Forest (Laguna Canyon to Bake)	Irvine	32.1	1.00	F	32.1	1.00	F
El Toro (Rockfield to I-5)	Lake Forest	58.0	1.03	F	58.3	1.04	F
Alicia (Jeronimo to Muirlands)	Mission Viejo	59.3	1.05	F	59.4	1.06	F
Alicia (Muirlands to I-5)	Mission Viejo	59.9	1.06	F	60.0	1.07	F
Portola (Lake Forest to Glenn Ranch)	Lake Forest	52.0	0.92	E	52.0	0.92	E
Portola (Rancho to El Toro)	Lake Forest	55.0	0.98	E	54.9	0.98	E

[9] The Post-2035 intersection analysis locations are depicted on Figure 8-1 in the TIA.

TABLE 4.15-32
POST-2035 PLUS PROPOSED PROJECT AVERAGE DAILY TRAFFIC (THOUSANDS) AND V/C RATIOS

Roadway Segment	Jurisdiction	Without Project			With Proposed Project		
		ADT	V/C	LOS	ADT	V/C	LOS
Avd Carlota (Paseo de Valencia to El Toro)	Laguna Hills	30.1	1.20	F	30.1	1.20	F
Trabuco (east of O)	Irvine	20.9	1.61	F	21.1	1.62	F
Modjeska (Portola Springs to Irvine)	Irvine	14.9	1.14	F	14.9	1.14	F
Portola (Portola Springs to SR-241)	Irvine	30.8	0.96	E	30.8	0.96	E
LQ (east of LY)	Irvine	12.3	0.95	E	12.4	0.95	E

Intersections operating below acceptable standards are noted in **bold.**

In general, the cities of Tustin, Irvine, Laguna Beach, Lake Forest, Laguna Hills, Laguna Woods, Aliso Viejo, Mission Viejo, and Orange, and the County of Orange have a goal of maintaining a LOS D for roadway segments, unless otherwise noted for specific intersections.

The decrease in V/C ratio, with Project, is due to rerouting of traffic at intersections, which can improve LOS if traffic is moved to lane groups with more capacity.

Source: *Transportation Impact Analysis*, (Full data in Table 8-1), Fehr & Peers, 2015

Post-2035 Peak Hour Intersection Levels of Service

The levels of service were calculated using the ICU methodology for the study area intersections. Table 4.15-33 identifies those intersections that would operate at a deficient LOS. There would be 18 intersection locations that are projected to operate at a deficient LOS without the Project. Based on the performance standards and impact threshold criteria, the Project either contributes to impacts at some intersections that are already deficient without triggering impact threshold criteria or would not contribute sufficient traffic volume to the deficient intersection to exceed the threshold.

TABLE 4.15-33
POST-2035 PLUS PROPOSED PROJECT INTERSECTION LOS SUMMARY (ICU METHODOLOGY)

ID	Intersection	Juris.	Without Project				With Proposed Project			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
16	Newport Ave and Irvine Blvd	Tustin	0.81	D	**0.92**	**E**	0.82	D	**0.92**	**E**
91	Tustin Ranch Rd and Irvine Blvd	Irvine	**1.08**	**F**	0.90	D	**1.09**	**F**	0.90	D
135	Jamboree Rd NB and Warner Ave	Irvine	0.56	A	**1.06**	**F**	0.56	A	**1.06**	**F**
136	Jamboree Rd and Barranca Pkwy	Irvine	0.84	D	**0.92**	**E**	0.84	D	**0.92**	**E**
220	Culver Dr and Irvine Blvd	Irvine	0.87	D	**0.94**	**E**	0.87	D	**0.95**	**E**
229	Culver Dr and Alton Pkwy	Irvine	0.79	C	**0.94**	**E**	0.79	C	**0.94**	**E**
232	Culver Dr and I-405 NB Ramps	Irvine	**0.96**	**E**	**1.00**	**E**	**0.96**	**E**	**1.00**	**F**
235	Culver Dr and University Dr	Irvine	0.81	D	**0.93**	**E**	0.81	D	**0.93**	**E**
291	Jeffrey Rd and Alton Pkwy	Irvine	**0.97**	**E**	**0.92**	**E**	**0.97**	**E**	**0.92**	**E**
306	Sand Canyon Ave and Oak	Irvine	0.85	D	**0.97**	**E**	0.85	D	**0.97**	**E**

TABLE 4.15-33
POST-2035 PLUS PROPOSED PROJECT INTERSECTION LOS SUMMARY
(ICU METHODOLOGY)

ID	Intersection	Juris.	Without Project				With Proposed Project			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
	Canyon/Laguna Cyn Rd									
361	Bake Pkwy and Portola Pkwy	Lake Forest	0.69	B	**1.00**	**E**	0.70	B	**1.00**	**E**
387	Ridge Route Dr and Rockfield Blvd	Lake Forest	0.77	C	**1.10**	**F**	0.77	C	**1.10**	**F**
417	El Toro Rd and Portola Pkwy/S Margarita Pkwy	Lake Forest	0.85	D	**1.08**	**F**	0.85	D	**1.08**	**F**
420	El Toro Rd and Jeronimo Rd	Lake Forest	**0.94**	**E**	0.89	D	**0.94**	**E**	0.89	D
424	Los Alisos Blvd and Rockfield Blvd/Fordview St	Lake Forest	**0.94**	**E**	0.90	**E**	**0.93**	**E**	**0.90**	**E**
444	Sand Canyon Ave and Burt Rd	Irvine	**0.96**	**E**	0.88	D	**0.96**	**E**	0.89	D
516	Lake Forest Dr and Rancho Pkwy	Lake Forest	0.86	D	**1.01**	**F**	0.86	D	**1.00**	**F**
517	Portola Pkwy and Rancho Pkwy	Lake Forest	0.73	C	**1.09**	**F**	0.73	C	**1.08**	**F**

ID: Intersection Identification Number; Juris.: jurisdiction; V/C: volume-to-capacity ratio; LOS: level of service; NB: Northbound; I: Interstate; SR: State Route; SB: Southbound

Intersections operating below acceptable standards are noted in **bold.** Locations where there is a Project-related impact are shaded. The specific threshold that is triggered is discussed later in this section under Threshold Evaluation.

In general, the cities of Tustin, Irvine, Laguna Beach, Lake Forest, Laguna Hills, Laguna Woods, Aliso Viejo, Mission Viejo, and Orange, and the County of Orange have a goal of maintaining a LOS D for intersections, unless otherwise noted for specific intersections.

The decrease in V/C ratio, with Project, is due to rerouting of traffic at intersections, which can improve LOS if traffic is moved to lane groups with more capacity.

Source: Fehr & Peers 2015 (see Table 8-2 for complete data)

In addition to the ICU analysis, the HCM methodology was used to assess LOS for freeway/highway ramp intersections. Table 4.15-34 identifies those intersections that are projected to have a deficient LOS using the HCM methodology. There would be 12 intersection locations that are projected to operate at a deficient LOS without the Project. Based on the performance standards and impact threshold criteria, Project-related impacts using the HCM methodology would occur at the following eight intersections and the specified timeframes:

- Jeffrey Road and Walnut Avenue (AM) (Threshold 4.15-66)
- Sand Canyon Avenue and I-5 Northbound (AM and PM) (Threshold 4.15-66)
- Sand Canyon Avenue and I-5 Southbound (AM and PM) (Threshold 4.15-66)
- SR-133 Southbound and Irvine Boulevard (AM) (Threshold 4.15-66)
- Portola Parkway and SR-241 Southbound (PM) (Threshold 4.15-66)
- Fortune Drive/I-5 Southbound and Enterprise Drive (PM) (Threshold 4.15-66)

- SR-133 Southbound and Trabuco Road (AM) (Threshold 4.15-66)
- SR-133 Northbound and Trabuco Road (PM) (Threshold 4.15-66)

TABLE 4.15-34
POST-2035 PLUS PROPOSED PROJECT CALTRANS RAMP INTERSECTION LOS SUMMARY (HCM METHODOLOGY)

ID	Intersection	Control	Peak Hour	No Project		Plus Project	
				Delay (sec.)	LOS	Delay (sec.)	LOS
288	Jeffrey Rd and Walnut Ave/I-5 SB Ramps	Signal	AM	**75.3**	**E**	**75.4**	**E**
			PM	**110.5**	**F**	**109.6**	**F**
303	Sand Canyon Ave and I-5 NB Ramps/Marine Way	Signal	AM	**94.1**	**F**	**94.8**	**F**
			PM	**98.2**	**F**	**98.8**	**F**
305	Sand Canyon Ave and I-5 SB Ramps/Marine Way	Signal	AM	**49.3**	**D**	**50.6**	**D**
			PM	**37**	**D**	**37.3**	**D**
312	Sand Canyon Ave and I-405 SB Ramps	Signal	AM	**63.3**	**E**	**61.9**	**E**
			PM	18.4	B	18.5	B
316	SR-133 SB Ramps and Irvine Blvd	Signal	AM	**35.6**	**D**	**35.7**	**D**
			PM	18.8	B	19	B
324	Portola Pkwy and SR-241 NB Ramps	SSSC	AM	0	A	0	A
			PM	**306.6**	**F**	**297.3**	**F**
325	Portola Pkwy and SR-241 SB Ramps	SSSC	AM	**43.4**	**E**	**42.5**	**E**
			PM	**126.4**	**F**	**133.8**	**F**
345	Alton Pkwy and I-5 NB Ramps	Signal	AM	**39.7**	**D**	**39.5**	**D**
			PM	7.7	A	7.6	A
351	Fortune Dr/I-5 SB Ramps and Enterprise Dr	Signal	AM	25.2	C	24.6	C
			PM	**55.2**	**E**	**55.5**	**E**
368	Bake Pkwy and I-5 SB Ramps	Signal	AM	29.2	C	29.5	C
			PM	**50.4**	**D**	**50.4**	**D**
486	SR-133 SB Ramps and Trabuco Rd	Signal	AM	**67.7**	**E**	**70**	**E**
			PM	**61.3**	**E**	**60.1**	**E**
487	SR-133 NB Ramps and Trabuco Rd	Signal	AM	32.3	C	32.6	C
			PM	**67.1**	**E**	**69**	**E**

ID: Intersection Identification Number; LOS: level of service; I: Interstate; NB: Northbound; SB: Southbound; SR: State Route; SSSC: Side Street Stop Controlled

Intersections operating below acceptable standards are noted in **bold.** Locations where there is a Project-related impact are shaded. The specific threshold that is triggered is discussed later in this section under Threshold Evaluation.

Caltrans has a goal of maintaining a LOS C for ramp intersections.

Source: Fehr & Peers 2015 (see Table 8-3 for complete data)

Post-2035 Peak Hour Freeway/Toll Road Ramp Levels of Service

An evaluation of the freeway/toll road ramp LOS was conducted for Post-2035 Without Project and With Project freeway/toll road ramps. Table 4.15-35 identifies seven freeway/toll road ramps that are projected to operate at a deficient LOS. Based on the performance standards and impact threshold criteria, the Project may contribute to impacts at the freeway/toll road ramps listed in Table 4.15-32, but the addition of Project traffic would not cause any of the freeway/toll road ramps to operate at a deficient LOS or an exceedance of applicable thresholds.

TABLE 4.15-35
POST-2035 PLUS PROPOSED PROJECT FREEWAY/TOLL ROAD RAMP LOS SUMMARY

Interchange	Ramp	Lanes	Peak Hour Capacity	Without Project						With Proposed Project					
				AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
				Vol.	V/C	LOS	Vol.	V/C	LOS	Vol.	V/C	LOS	Vol.	V/C	LOS
I-5 at Sand Canyon Ave	SB Off	1	1,500	**1,631**	**1.09**	**F**	1,021	0.68	B	**1,621**	**1.08**	**F**	1,021	0.68	B
I-5 at Alton Pkwy	SB Off	2	2,250	**2,417**	**1.07**	**F**	1,059	0.47	A	**2,410**	**1.07**	**F**	1,060	0.47	A
I-5 at Bake Pkwy	SB Off	2	3,000	**3,372**	**1.12**	**F**	2,380	0.79	C	**3,362**	**1.12**	**F**	2,378	0.79	C
I-405 at Sand Canyon Ave	NB Direct On	1	1,800	1,530	0.85	D	**1,880**	**1.04**	**F**	1,540	0.86	D	**1,890**	**1.05**	**F**
	SB Off	1	1,500	**2,199**	**1.47**	**F**	1,227	0.82	D	**2,179**	**1.45**	**F**	1,243	0.83	D
I-405 at Irvine Center Dr	SB Off	2	2,250	**2,452**	**1.09**	**F**	1,856	0.82	D	**2,452**	**1.09**	**F**	1,843	0.82	D
SR-133 at Trabuco Rd	SB On	1	1,500	**1,750**	**1.17**	**F**	1,424	0.95	E	**1,770**	**1.18**	**F**	1,420	0.95	E
SR-133 at Barranca Pkwy	SB On	1	1,080	130	0.12	A	**1,230**	**1.14**	**F**	130	0.12	A	**1,230**	**1.14**	**F**
	NB On	1	1,080	620	0.57	A	**1,750**	**1.62**	**F**	630	0.58	A	**1,766**	**1.64**	**F**

Vol: Volume; V/C: volume-to-capacity ratio; LOS: level of service; I: Interstate; NB: Northbound; SB: Southbound; SR: State Route

Freeway/toll road ramps operating below acceptable standards are noted in **bold.** Locations where there is a Project-related impact are shaded. The specific threshold that is triggered is discussed later in this section under Threshold Evaluation.

Caltrans has a goal of maintaining a LOS E for freeway/toll road ramps.

Source: Fehr & Peers 2015 (see Table 8-4 for complete data)

Post-2035 Peak Hour Freeway/Toll Road Mainline Levels of Service

The AM and PM peak hour levels of service for freeway/toll road mainline segments in the study area are shown in Table 4.15-36, below. As shown in Table 4.15-33, there are 46 freeway/toll road mainline segments that would operate at a deficient LOS without the Project. Based on performance criteria and impact thresholds, the addition of Project traffic would cause deficient operation at one segment, listed below. While the Project may contribute traffic to the freeway/toll road mainline LOS, the contribution is not sufficient to exceed the threshold.

- I-405 Southbound (SR-133 Off-Ramp) (PM) (Threshold 4.15-68)

TABLE 4.15-36
POST-2035 PLUS PROPOSED PROJECT FREEWAY MAINLINE LOS SUMMARY

Freeway/ Toll Road	Segment	Type	Peak Hour	No Project			Plus Proposed Project		
				V/C	Density	LOS	V/C	Density	LOS
I-5 NB	I-405 Off-Ramp	Diverge	AM		-	**F**		-	**F**
			PM		-	**F**		-	**F**
	I-405 Off-Ramp to Bake On-Ramp	Basic	AM	**0.81**	-	**F**	**0.80**	-	**F**
			PM	**0.64**	-	**F**	**0.62**	-	**F**
	C-D Road On-Ramp	Basic	AM	**0.88**	-	**F**	**0.88**	-	**F**
			PM	**0.77**	-	**F**	**0.77**	-	**F**
	Alton Pkwy Off-Ramp	Diverge	AM	**0.92**	-	**F**	**0.92**	-	**F**
			PM	**0.82**	-	**F**	**0.82**	-	**F**
	Alton Slip On-Ramp to SR-133 NB Off-Ramp	Weave	AM	0.98	42.71	E	0.96	41.18	E
			PM	**1.29**	-	**F**	**1.28**	-	**F**
	SR-133 NB On-Ramp to Sand Canyon Off-Ramp	Weave	AM	**1.51**	-	**F**	**1.51**	-	**F**
			PM	**1.60**	-	**F**	**1.60**	-	**F**
	SR-133 SB On-Ramp to Jeffrey Off-Ramp	Weave	AM	**0.90**	-	**F**	**0.90**	-	**F**
			PM	0.82	34.76	D	0.82	34.73	D
	Jeffrey Slip On-Ramp	Merge	AM	**0.93**	-	**F**	**0.92**	-	**F**
			PM	0.71	28.64	D	0.71	28.54	D
I-5 SB	Culver Off-Ramp to Jeffrey On-Ramp	Basic	AM	**1.07**	-	**F**	**1.06**	-	**F**
			PM	**1.13**	-	**F**	**1.13**	-	**F**
	Jeffrey Off-Ramp	Diverge	AM	**1.09**	-	**F**	**1.09**	-	**F**
			PM	**1.20**	-	**F**	**1.19**	-	**F**
	Jeffrey Off to On-Ramps	Basic	AM	**1.00**	-	**F**	1.00	44.86	E
			PM	**1.03**	-	**F**	**1.03**	-	**F**
	Jeffrey to SR-133 NB	Weave	AM	**0.84**	-	**F**	**0.84**	-	**F**
			PM	**0.94**	-	**F**	**0.94**	-	**F**
	Sand Canyon Off-Ramp	Diverge	AM	**1.10**	-	**F**	**1.09**	-	**F**
			PM	**0.96**	**38.99**	**E**	**0.96**	**39.08**	**E**
	SR-133 SB to Alton Pkwy	Weave	AM	**1.43**	-	**F**	**1.43**	-	**F**
			PM	**1.29**	-	**F**	**1.29**	-	**F**

TABLE 4.15-36
POST-2035 PLUS PROPOSED PROJECT FREEWAY MAINLINE LOS SUMMARY

Freeway/ Toll Road	Segment	Type	Peak Hour	No Project			Plus Proposed Project		
				V/C	Density	LOS	V/C	Density	LOS
I-5 SB cont.	Spectrum Center On-Ramp	Merge	AM	0.73	29.54	D	0.73	29.44	D
			PM	**0.99**	**-**	**F**	0.98	37.87	E
	Spectrum Center On-Ramp to I-405 On-Ramp	Basic	AM	0.81	30.77	D	0.81	30.86	D
			PM	**1.06**	**-**	**F**	**1.04**	**-**	**F**
	I-405 On-Ramp	Basic	AM	0.59	21.28	C	0.59	21.28	C
			PM	**0.74**	**-**	**F**	**0.73**	**-**	**F**
I-405 NB	Sand Canyon Off-Ramp to Lane Drop	Basic	AM	**0.85**	**-**	**F**	**0.85**	**-**	**F**
			PM	0.67	24.32	C	0.67	24.59	C
	Lane Drop to Sand Canyon On-Ramp/HOV Lane add	Basic	AM	**1.06**	**-**	**F**	**1.06**	**-**	**F**
			PM	0.84	32.46	D	0.84	32.94	D
	Sand Canyon Loop On-Ramp	Basic	AM	**0.91**	**-**	**F**	**0.91**	**-**	**F**
			PM	0.71	25.87	C	0.71	26.11	D
	Sand Canyon Slip On-Ramp	Merge	AM	**1.00**	**-**	**F**	**1.00**	**-**	**F**
			PM	0.90	32.82	D	0.90	32.96	D
	Sand Canyon Slip On-Ramp to Jeffrey Rd Off-Ramp	Basic	AM	**1.03**	**-**	**F**	**1.03**	**-**	**F**
			PM	0.86	33.74	D	0.86	34.09	D
	Jeffrey Rd Off-Ramp	Basic	AM	**1.03**	**-**	**F**	**1.03**	**-**	**F**
			PM	0.86	33.74	D	0.86	34.09	D
	Jeffrey Off to On-Ramp	Basic	AM	**1.13**	**-**	**F**	**1.13**	**-**	**F**
			PM	0.89	35.89	E	0.90	36.37	E
	Jeffrey Loop On-Ramp	Merge	AM	**1.22**	**-**	**F**	**1.22**	**-**	**F**
			PM	0.77	31.05	D	0.78	31.25	D
	Jeffrey Slip On-Ramp	Merge	AM	**1.51**	**-**	**F**	**1.51**	**-**	**F**
			PM	0.88	33.87	D	0.89	34.07	D
I-405 SB	University/Jeffrey Off-Ramp	Diverge	AM	**1.23**	**-**	**F**	**1.22**	**-**	**F**
			PM	1.00	41.05	E	1.00	41.18	E
	Jeffrey to Loop On-Ramp	Basic	AM	**1.08**	**-**	**F**	**1.08**	**-**	**F**
			PM	0.91	37.36	E	0.91	37.44	E
	Jeffrey Loop On-Ramp	Merge	AM	**1.11**	**-**	**F**	**1.11**	**-**	**F**
			PM	0.83	32.10	D	0.84	32.13	D
	Jeffrey Slip On-Ramp	Merge	AM	**1.32**	**-**	**F**	**1.31**	**-**	**F**
			PM	**1.05**	**-**	**F**	**1.05**	**-**	**F**
	Jeffrey to Sand Canyon	Basic	AM	**1.22**	**-**	**F**	**1.22**	**-**	**F**
			PM	**1.09**	**-**	**F**	**1.09**	**-**	**F**
	Sand Canyon Off-Ramp	Diverge	AM	**1.40**	**-**	**F**	**1.40**	**-**	**F**
			PM	**1.18**	**-**	**F**	**1.19**	**-**	**F**

TABLE 4.15-36
POST-2035 PLUS PROPOSED PROJECT FREEWAY MAINLINE LOS SUMMARY

Freeway/ Toll Road	Segment	Type	Peak Hour	No Project			Plus Proposed Project		
				V/C	Density	LOS	V/C	Density	LOS
I-405 SB cont.	Sand Canyon Loop On-Ramp	Merge	AM	**0.97**	-	**F**	**0.97**	-	**F**
			PM	**0.92**	-	**F**	**0.92**	-	**F**
	Sand Canyon Slip On-Ramp	Merge	AM	**1.01**	-	**F**	**1.01**	-	**F**
			PM	**0.94**	-	**F**	**0.94**	-	**F**
	SR-133 Off-Ramp	Diverge	AM	**1.23**	-	**F**	**1.23**	-	**F**
			PM	**0.99**	-	**F**	**1.21**	-	**F**
	Bake Pwky Off-Ramp	Basic	AM	**0.72**	-	**F**	**0.71**	-	**F**
			PM	0.69	25.24	C	0.69	25.39	C
SR-133 NB	I-5NB On-Ramp	Merge	AM	0.46	19.78	B	0.46	19.87	B
			PM	**1.08**	-	**F**	**1.09**	-	**F**
	I-5 NB to Lane Add	Basic	AM	0.45	16.27	B	0.45	16.35	B
			PM	**1.06**	-	**F**	**1.07**	-	**F**
	I-5 SB to Trabuco	Weave	AM	**0.52**	-	**F**	**0.52**	-	**F**
			PM	**1.04**	-	**F**	**1.05**	-	**F**
	Irvine Slip On to SR-241	Weave	AM	0.43	11.35	B	0.43	11.41	B
			PM	**1.30**	-	**F**	**1.31**	-	**F**
SR-133 SB	SR-241 to Irvine Center Dr	Weave	AM	**0.96**	-	**F**	**0.95**	-	**F**
			PM	0.38	11.19	B	0.38	11.29	B
	Trabuco to I-5 NB	Weave	AM	**0.94**	-	**F**	**0.94**	-	**F**
			PM	0.39	14.42	B	0.39	14.53	B
SR-241 NB	Toll Road Off-Ramp	Diverge	AM	**1.04**	-	**F**	**1.04**	-	**F**
			PM	0.43	10.08	B	0.43	10.12	B
	Toll Road & Portola On to SR-133 SB Off	Weave	AM	**1.02**	-	**F**	**1.02**	-	**F**
			PM	0.41	14.25	B	0.41	14.30	B
SR-241 SB	SR-133 SB Off-Ramp	Diverge	AM	**0.92**	-	**F**	**0.91**	-	**F**
			PM	0.55	12.98	B	0.55	13.08	B
	SR-133 NB On to Toll Road Off	Weave	AM	0.33	11.90	B	0.33	12.00	B
			PM	**0.87**	-	**F**	**0.87**	-	**F**

V/C: volume-to-capacity ratio; LOS: level of service; I: Interstate; NB: northbound; SR: State Route; SB: southbound; HOV: high occupancy vehicle; ; "-": either the segment is over capacity or specific portions of the facility such as HOV lanes, on/off ramps, etc. are over capacity; blank cells: the HCM 2010 methodology cannot calculate V/C for this type of facility, specifically a diverse with a high number of lanes.

Freeway mainline segments operating below acceptable standards with Project are noted in **bold.** Locations where there is a Project-related impact are shaded. The specific threshold that is triggered is discussed later in this section under Threshold Evaluation.

Caltrans has a goal of maintaining a LOS E for freeway/toll road mainlines.

The decrease in V/C ratio, with Project, is due to rerouting of traffic at intersections, which can improve LOS if traffic is moved to lane groups with more capacity.

Source: Fehr & Peers 2015 (see Table 8-5 for complete data)

Threshold Evaluation

This section provides an evaluation of the traffic data presented above based on the thresholds of significance. One of the thresholds of significance on the County Environmental Checklist is:

> Would the project conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

As written, this threshold does not provide specific measurable standards for determining if there is a potential environmental impact. Consistent with general practice, the County will use local performance standards for measuring impacts. The local performance standards and significance criteria reflect the standards established by the agency with jurisdiction over the roadway intersection or segment. The application of the significance thresholds is organized by jurisdiction. The following provides an evaluation of the local performance standards and significance criteria, based on the traffic data analysis set forth above. Thresholds 4.15-1 through 4.15-71 discuss impacts on traffic, specifically. Thresholds 4.15-72 and 4.15-73 assess potential impacts associated with physical design of the Project. The analysis of other modes of transportation (pedestrian and bicycle paths, and mass transit) is addressed in Threshold 4.15-74.

For ease of reference, Table 4.15-37 identifies those locations where Project impacts have been identified, along with the applicable threshold that has been triggered. Table 4.15-38 identifies mitigation measures, which if implemented, would reduce Project-related and cumulative impacts. However, as discussed in Section 4.15.8, Mitigation Program, though the County has committed to pay into NITM Program or through an alternative program for the payment of its fair-share toward the necessary improvements, because the local intersections are located in other jurisdictions, (i.e., Caltrans and the cities of Irvine and Tustin), the County does not control whether and cannot ensure when the improvements would be constructed. Therefore, the impacts would remain significant and unavoidable notwithstanding the imposition of the mitigation.

TABLE 4.15-37
IMPACT SUMMARY

	Existing Plus Project	Year 2017	Year 2035	Post-2035	Cumulative Impacts	
					Year 2035 (With Pending Projects) [a]	Post-2035 (with Pending Projects)
City Intersections						
Jamboree Rd NB Ramps and Warner Ave					Threshold 4.15-3	
Caltrans Intersections						
Jeffrey Rd and I-5 NB		Threshold 4.15-66				

TABLE 4.15-37
IMPACT SUMMARY

	Existing Plus Project	Year 2017	Year 2035	Post-2035	Cumulative Impacts	
					Year 2035 (With Pending Projects) [a]	Post-2035 (with Pending Projects)
Jeffrey Rd and Walnut Ave	Threshold 4.15-66	Threshold 4.15-66	Threshold 4.15-66	Threshold 4.15-66	Threshold 4.15-66	Threshold 4.15-66
Sand Canyon Ave and I-5 NB		Threshold 4.15-66	Threshold 4.15-66	Threshold 4.15-66		Threshold 4.15-66
Jeffrey Rd and I-405 NB			Threshold 4.15-66		Threshold 4.15-66	
Sand Canyon Ave and I-5 SB			Threshold 4.15-66	Threshold 4.15-66	Threshold 4.15-66	Threshold 4.15-66
Fortune Dr/I-5 SB and Enterprise Dr			Threshold 4.15-66	Threshold 4.15-66		Threshold 4.15-66
Bake Pkwy/I-5 SB			Threshold 4.15-66			Threshold 4.15-66
Trabuco Rd and SR-133 SB				Threshold 4.15-66		
Trabuco Rd and SR-133 NB			Threshold 4.15-66	Threshold 4.15-66	Threshold 4.15-66	Threshold 4.15-66
Portola Parkway and SR-241 NB						Threshold 4.15-66
Portola Parkway and SR-241 SB				Threshold 4.15-66		Threshold 4.15-66
SR-133 SB and Irvine Blvd			Threshold 4.15-66	Threshold 4.15-66	Threshold 4.15-66	
Caltrans Freeway Mainline Segments						
I-5 NB (Alton Pkwy Slip On-Ramp to SR-133 NB Off-Ramp)	Threshold 4.15-67					
I-5 SB (Jeffrey Rd to SR-133 NB)	Threshold 4.15-68					
I-5 SB (SR-133 SB to Alton Pkwy)	Threshold 4.15-67 and Threshold 4.15-68					
I-405 NB (Jeffrey Rd Slip On-Ramp)	Threshold 4.15-68					
I-405 SB (SR-133 Off-Ramp)	Threshold 4.15-67			Threshold 4.15-68		
I-405 SB (Sand Canyon Ave Off-Ramp)	Threshold 4.15-68					

I: Interstate; NB: Northbound; SB: Southbound; SR: State Route; Caltrans: California Department of Transportation

[a] The cumulative analysis uses the Year 2035 Plus Pending Project and Post-2035 Plus Pending Projects as the basis for the evaluation. As previously indicated, the Transportation Impact Analysis also evaluates a Year 2017 Plus Pending Projects.

Source: Fehr & Peers 2015

TABLE 4.15-38
MITIGATION MEASURES AND POST-MITIGATION LOS

	Year 2017	Year 2035	Post-2035	Cumulative Scenarios		Jurisdiction
				Year 2035 (Approved + Pending)	Post-2035 (Approved + Pending)	
City Intersections						
Jamboree Rd NB Ramps and Warner Ave				*Install east-west split signal phase, restripe inner NB through lane to shared left-through lane, and add second receiving lane on Jamboree on-ramp (0.83/D)*		Irvine
Caltrans Intersections						
Jeffrey Rd and I-5 NB	**Signal timing adjustments (46.2/D)**					Caltrans
Jeffrey Rd and Walnut Ave	**Restripe WB through lane to shared through-right lane (50.5/D, 97.6/F)**	**Signal timing adjustments (65.9/E, 121.1/F)**	**Signal timing adjustments (71.5/E)**	*Signal timing adjustments (68.1/E, 121.0/F)*	*Signal timing adjustments (74.7/E, 121.8/F)*	Caltrans
Sand Canyon Ave and I-5 NB	**Signal timing adjustments (81.2/F)**	**Signal timing adjustments (73.3/E, 68.8/E)**	**Signal timing adjustments (97.4/F, 94.6/F)**		*Signal timing adjustments (180.2/F, 190.4/F)*	Caltrans
Jeffrey Rd and I-405 NB		**Restripe outer SB through lane to shared through-right lane (35.7/D)**		*Signal timing adjustments (36.6/D)*		Caltrans
Sand Canyon Ave and I-5 SB		**Signal timing adjustments (37.3/D)**	**Signal timing adjustments (48.4/D, 36.8/D)**	*Signal timing adjustments (38.5/D)*	*Signal timing adjustments (50.9/D, 55.1/E)*	Caltrans

TABLE 4.15-38
MITIGATION MEASURES AND POST-MITIGATION LOS

	Year 2017	Year 2035	Post-2035	Cumulative Scenarios		Jurisdiction
				Year 2035 (Approved + Pending)	Post-2035 (Approved + Pending)	
Fortune Dr/I-5 SB and Enterprise Dr		**Add second EBL lane (33.2/C)**	**Signal timing adjustments (25.1/C)**		*Add second EBL lane (34.9/C)*	Caltrans
Bake Pkwy/I-5 SB		**Signal timing adjustments (47.4/D)**			*Add NBR lane (52.3/D)*	Caltrans
Trabuco Rd and SR-133 SB			**Signal timing adjustments (67.3/E)**			Caltrans
Trabuco Rd and SR-133 NB		**Signal timing adjustments (49.0/D)**	**Signal timing adjustments (63.6/E)**	*Signal timing adjustments (86.8/F)*	*Signal timing adjustments (99.3/F)*	Caltrans
Portola Parkway and SR-241 NB					*Traffic signal installation (5.3/A)*	Caltrans
Portola Parkway and SR-241 SB			**Traffic signal installation (4.6/A)**		*Traffic signal installation (4.5/A)*	Caltrans
SR-133 SB and Irvine Blvd		**Signal timing adjustments (35.1/D)**	**Signal timing adjustments (34.0/C)**	*Signal timing adjustments and restripe SB left turn lane to shared left-right lane (38.3/D)*		Caltrans

TABLE 4.15-38
MITIGATION MEASURES AND POST-MITIGATION LOS

	Year 2017	Year 2035	Post-2035	Cumulative Scenarios		Jurisdiction
				Year 2035 (Approved + Pending)	Post-2035 (Approved + Pending)	
Freeway Mainline Segments						
I-405 SB (SR-133 Off-Ramp)			**Additional travel lanes**			Caltrans

Note: Parenthesis denote post-mitigation volume/capacity ratio or delay and LOS.

NBR: Northbound Right; EBR: Eastbound Right; WBR: Westbound Right; NB: Northbound; SB: Southbound; WBL: Westbound Left; EBL: Eastbound Left; ovl: Overlap; HOV: High-Occupancy Vehicle

Italics – Cumulative Impacts
Bold – Direct Impacts

Red text denotes mitigations measures that require right of way acquisition and/or design variances.

Signal Timing and/or Restriping

Physical Improvements

Source: Fehr & Peers 2015

City of Irvine

Threshold 4.15-1 In the City of Irvine outside the Irvine Planning Area, Irvine Business Complex (IBC), the Bake Parkway/I-5 ramp, the Alton Parkway/Irvine Boulevard intersection, the Bake Parkway/Irvine Boulevard intersection, the Lake Forest/I-5 SB Ramp, and the Lake Forest/Irvine Center Drive, the addition of Project-generated trips increases the ICU at a study intersection by 0.02 or more of capacity, causing the intersection to change from an acceptable LOS D to LOS E or LOS F.

Threshold 4.15-2 In the City of Irvine not addressed by Threshold 4.15-1, the addition of Project-generated trips increases the ICU at a study intersection by 0.02 or more of capacity, causing the intersection to change from an acceptable LOS E to LOS F.

Threshold 4.15-3 In the City of Irvine outside of the Irvine Planning Area, Irvine Business Complex (IBC), the Bake Parkway/I-5 ramp, the Alton Parkway/Irvine Boulevard intersection, the Bake Parkway/Irvine Boulevard intersection, the Lake Forest/I-5 SB Ramp, and the Lake Forest/Irvine Center Drive, the addition of project-generated trips increases the ICU by 0.02 or more at a study intersection operating at LOS E or F under baseline conditions.

Threshold 4.15-4 In the City of Irvine outside of those identified by Threshold 4.15-3, the addition of project-generated trips increases the ICU by 0.02 or more at a study intersection operating at LOS F under baseline conditions.

Threshold 4.15-5 In the City of Irvine outside of PA33 (Irvine Spectrum Area) and PA36 (IBC), the addition of project generated trips increases the daily and peak hour V/C ratio on a roadway segment by more than 0.02 on a roadway segment, causing the roadway segment to change from an acceptable LOS D or better to LOS E or F.

Threshold 4.15-6 In the City of Irvine in PA33 (Irvine Spectrum Area) and PA36 (IBC), the addition of project generated trips increases the daily and peak hour V/C ratio on a roadway segment by more than 0.02 on a roadway segment, causing the roadway segment to change from an acceptable LOS E or better to LOS F.

Threshold 4.15-7 In the City of Irvine outside of PA33 (Irvine Spectrum Area) and PA36 (IBC), the addition of project generated trips increases the daily and peak hour V/C ratio on a roadway segment by more than 0.02 on a roadway segment operating at LOS E or F.

Threshold 4.15-8 In the City of Irvine in PA33 (Irvine Spectrum Area) and PA36 (IBC), the addition of project generated trips increases the daily and peak hour V/C ratio on a roadway segment by more than 0.02 on a roadway segment operating at LOS F.

Threshold 4.15-9 In the City of Irvine, the addition of project generated trips increases the V/C ratio on a freeway ramp to increase by more than 0.02, causing the freeway ramp segment to change from an acceptable LOS E or better to LOS F.

Threshold 4.15-10 In the City of Irvine, the addition of project generated trips increases the V/C ratio on a freeway ramp to increase by more than 0.02, on a freeway ramp segment operating at LOS F.

Existing Plus Project

No impacts were identified for the Existing Plus Project scenario based on the City of Irvine thresholds of significance.

Year 2017

No impacts were identified for the Year 2017 scenario based on the City of Irvine thresholds of significance.

Year 2035

No impacts were identified for the Year 2035 scenario based on the City of Irvine thresholds of significance.

Post-2035

No impacts were identified for the Year 2035 scenario based on the City of Irvine thresholds of significance.

Impact Conclusion: *Based on the traffic data analysis and the threshold evaluations above, the proposed Project would not result in significant impacts pursuant to City of Irvine thresholds of significance (Thresholds 4.15-1 through 4.15-10) in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios. No mitigation is required. However, the Project would contribute to a significant impact at the Jamboree Road northbound ramps and Warner Avenue intersection in the Year 2035 scenario.*

City of Tustin

Threshold 4.15-11 In the City of Tustin, the addition of project-generated trips increases the ICU at a study intersection by 0.02 or more of capacity, causing the intersection to change from an acceptable LOS D to LOS E or LOS F.

Threshold 4.15-12 In the City of Tustin, the addition of project-generated trips increases the ICU by 0.02 or more at a study intersection operating at LOS E or F under baseline conditions.

Threshold 4.15-13 In the City of Tustin, the addition of project generated trips increases the daily and peak hour V/C ratio on a roadway segment by more than 0.02 on a roadway segment, causing the roadway segment to change from an acceptable LOS D or better to LOS E or F.

Threshold 4.15-14 In the City of Tustin, the addition of project generated trips increases the daily and peak hour V/C ratio on a roadway segment by more than 0.02 on a roadway segment operating at LOS E or F.

Threshold 4.15-15 In the City of Tustin, the addition of project generated trips increases the V/C ratio on a freeway ramp to increase by more than 0.02, causing the freeway ramp segment to change from an acceptable LOS E or better to LOS F.

Threshold 4.15-16 In the City of Tustin, the addition of project generated trips increases the V/C ratio on a freeway ramp to increase by more than 0.02, on a freeway ramp segment operating at LOS F.

Existing Plus Project

No impacts were identified for the Existing Plus Project based on the City of Tustin thresholds of significance.

Year 2017

No impacts were identified for the Year 2017 scenario based on the City of Tustin thresholds of significance.

Year 2035

No impacts were identified for the Year 2035 scenario based on the City of Tustin thresholds of significance.

Post-2035

No impacts were identified for the Post-2035 scenario based on the City of Tustin thresholds of significance.

Impact Conclusion: *Based on the traffic data analysis and the threshold evaluations above, the proposed Project would not result in significant impacts pursuant to City of Tustin thresholds of significance (Thresholds 4.15-11 through 4.15-16) in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios. No mitigation is required.*

City of Laguna Beach

Threshold 4.15-17 In the City of Laguna Beach, the addition of project-generated trips increases the ICU at a study intersection by 0.02 or more of capacity,

causing the intersection to change from an acceptable LOS D to LOS E or LOS F.

Threshold 4.15-18 In the City of Laguna Beach, the addition of project-generated trips increases the ICU by 0.02 or more at a study intersection operating at LOS E or F under baseline conditions.

Threshold 4.15-19 In the City of Laguna Beach, the addition of project generated trips increases the daily and peak hour V/C ratio on a roadway segment by more than 0.02 on a roadway segment, causing the roadway segment to change from an acceptable LOS D or better to LOS E or F.

Threshold 4.15-20 In the City of Laguna Beach, the addition of project generated trips increases the daily and peak hour V/C ratio on a roadway segment by more than 0.02 on a roadway segment operating at LOS E or F.

Threshold 4.15-21 In the City of Laguna Beach, the addition of project generated trips increases the V/C ratio on a freeway ramp to increase by more than 0.02, causing the freeway ramp segment to change from an acceptable LOS E or better to LOS F.

Threshold 4.15-22 In the City of Laguna Beach, the addition of project generated trips increases the V/C ratio on a freeway ramp to increase by more than 0.02, on a freeway ramp segment operating at LOS F.

Existing Plus Project

No impacts were identified for the Existing Plus Project scenario based on the City of Laguna Beach thresholds of significance.

Year 2017

No impacts were identified for the Year 2017 scenario based on the City of Laguna Beach thresholds of significance.

Year 2035

No impacts were identified for the Year 2035 scenario based on the City of Laguna Beach thresholds of significance.

Post-2035

No impacts were identified for the Post-2035 scenario based on the City of Laguna Beach thresholds of significance.

Impact Conclusion: *Based on the traffic data analysis and the threshold evaluations above, the proposed Project would not result in significant impacts pursuant to City of Laguna Beach thresholds of significance (Thresholds 4.15-17 through 4.15-22) in the Existing Plus Project, 2017 Plus Project, Year 2035*

Plus Project, and Post-2035 Plus Project scenarios. No mitigation is required.

City of Lake Forest

Threshold 4.15-23 In the City of Lake Forest, the addition of Project-generated trips increases the ICU at a study intersection by 0.02 or more of capacity, causing the intersection to change from an acceptable LOS D to LOS E or LOS F.

Threshold 4.15-24 In the City of Lake Forest, the addition of Project-generated trips increases the ICU by 0.02 or more at a study intersection operating at LOS E or F under baseline conditions.

Threshold 4.15-25 In the City of Lake Forest, the addition of Project-generated trips increases the daily and peak hour V/C ratio by more than 0.02 on a roadway segment, causing the roadway segment to change from an acceptable LOS D or better to LOS E or F.

Threshold 4.15-26 In the City of Lake Forest, the addition of Project-generated trips increases the daily and peak hour V/C ratio by more than 0.02 on a roadway segment operating at LOS E or F.

Threshold 4.15-27 In the City of Lake Forest, the addition of Project-generated trips increases the V/C ratio on a freeway ramp by more than 0.02, causing the freeway ramp segment to change from an acceptable LOS E or better to LOS F.

Threshold 4.15-28 In the City of Lake Forest, the addition of Project-generated trips increases the V/C ratio by more than 0.02 on a freeway ramp segment operating at LOS F.

Existing Plus Project

No impacts were identified for the Existing Plus Project scenario based on the City of Lake Forest thresholds of significance.

Year 2017

No impacts were identified for the Year 2017 scenario based on the City of Lake Forest thresholds of significance.

Year 2035

No impacts were identified for the Year 2035 scenario based on the City of Lake Forest thresholds of significance.

Post-2035

No impacts were identified for the Post-2035 scenario based on the City of Lake Forest thresholds of significance.

Impact Conclusion: *Based on the traffic data analysis and the threshold evaluations above, the proposed Project would not result in significant impacts pursuant to City of Lake Forest thresholds of significance (Thresholds 4.15-23 through 4.15-28) in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios. No mitigation is required.*

City of Laguna Hills

Threshold 4.15-29 In the City of Laguna Hills, the addition of Project-generated trips increases the ICU at a study intersection by 0.02 or more of capacity, causing the intersection to change from an acceptable LOS D to LOS E or LOS F.

Threshold 4.15-30 In the City of Laguna Hills, the addition of Project-generated trips increases the ICU by 0.02 or more at a study intersection operating at LOS E or F under baseline conditions.

Threshold 4.15-31 In the City of Laguna Hills, the addition of Project-generated trips increases the daily and peak hour V/C ratio on a roadway segment by more than 0.02, causing the roadway segment to change from an acceptable LOS D or better to LOS E or F.

Threshold 4.15-32 In the City of Laguna Hills, the addition of Project-generated trips increases the V/C ratio on a roadway segment by more than 0.02 operating at LOS E or F.

Threshold 4.15-33 In the City of Laguna Hills, the addition of Project-generated trips increases the V/C ratio on a freeway ramp by more than 0.02, causing the freeway ramp segment to change from an acceptable LOS E or better to LOS F.

Threshold 4.15-34 In the City of Laguna Hills, the addition of Project-generated trips increases the V/C ratio by more than 0.02 on a freeway ramp segment operating at LOS F.

Existing Plus Project

No impacts were identified for the Existing Plus Project scenario based on the City of Laguna Hills thresholds of significance.

Year 2017

No impacts were identified for the Year 2017 scenario based on the City of Laguna Hills thresholds of significance.

Year 2035

No impacts were identified for the Year 2035 scenario based on the City of Laguna Hills thresholds of significance.

Post-2035

No impacts were identified for the Post-2035 scenario based on the City of Laguna Hills thresholds of significance.

Impact Conclusion: *Based on the traffic data analysis and the threshold evaluations above, the proposed Project would not result in significant impacts pursuant to City of Laguna Hills thresholds of significance (Thresholds 4.15-29 through 4.15-34) in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios. No mitigation is required.*

City of Laguna Woods

Threshold 4.15-35 In the City of Laguna Woods, the addition of Project-generated trips increases the ICU at a study intersection by 0.02 or more of capacity, causing the intersection to change from an acceptable LOS D to LOS E or LOS F.

Threshold 4.15-36 In the City of Laguna Woods, the addition of Project-generated trips increases the ICU by 0.02 or more at a study intersection operating at LOS E or F under baseline conditions.

Threshold 4.15-37 In the City of Laguna Woods, the addition of Project-generated trips increases the daily and peak hour V/C ratio by more than 0.02 on a roadway segment, causing the roadway segment to change from an acceptable LOS D or better to LOS E or F.

Threshold 4.15-38 In the City of Laguna Woods, the addition of Project-generated trips increases the daily and peak hour V/C ratio by more than 0.02 on a roadway segment operating at LOS E or F.

Threshold 4.15-39 In the City of Laguna Woods, the addition of Project-generated trips increases the V/C ratio on a freeway ramp by more than 0.02, causing the freeway ramp segment to change from an acceptable LOS E or better to LOS F.

Threshold 4.15-40 In the City of Laguna Woods, the addition of Project-generated trips increases the V/C ratio by more than 0.02 on a freeway ramp segment operating at LOS F.

Existing Plus Project

No impacts were identified for the Existing Plus Project scenario based on the City of Laguna Woods thresholds of significance.

Year 2017

No impacts were identified for the Year 2017 scenario based on the City of Laguna Woods thresholds of significance.

Year 2035

No impacts were identified for the Year 2035 scenario based on the City of Laguna Woods thresholds of significance.

Post-2035

No impacts were identified for the Post-2035 scenario based on the City of Laguna Woods thresholds of significance.

Impact Conclusion: *Based on the traffic data analysis and the threshold evaluations above, the proposed Project would not result in significant impacts pursuant to City of Laguna Woods thresholds of significance (Thresholds 4.15-35 through 4.15-40) in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project and Post-2035 Plus Project scenarios. No mitigation is required.*

City of Aliso Viejo

Threshold 4.15-41 In the City of Aliso Viejo, the addition of Project-generated trips increases the ICU at a study intersection by 0.02 or more of capacity, causing the intersection to change from an acceptable LOS D to LOS E or LOS F.

Threshold 4.15-42 In the City of Aliso Viejo, the addition of Project-generated trips increases the ICU by 0.02 or more at a study intersection operating at LOS E or F under baseline conditions.

Threshold 4.15-43 In the City of Aliso Viejo, the addition of Project-generated trips increases the daily and peak hour V/C ratio by more than 0.02 on a roadway segment, causing the roadway segment to change from an acceptable LOS D or better to LOS E or F.

Threshold 4.15-44 In the City of Aliso Viejo, the addition of Project generated trips increases the daily and peak hour V/C ratio by more than 0.02 on a roadway segment operating at LOS E or F.

Threshold 4.15-45 In the City of Aliso Viejo, the addition of Project-generated trips increases the V/C ratio on a freeway ramp by more than 0.02, causing the freeway ramp segment to change from an acceptable LOS E or better to LOS F.

Threshold 4.15-46 In the City of Aliso Viejo, the addition of Project-generated trips increases the V/C ratio by more than 0.02, on a freeway ramp segment operating at LOS F.

Existing Plus Project

No impacts were identified for the Existing Plus Project scenario based on the City of Aliso Viejo thresholds of significance.

Year 2017

No impacts were identified for the Year 2017 scenario based on the City of Aliso Viejo thresholds of significance.

Year 2035

No impacts were identified for the Year 2035 scenario based on the City of Aliso Viejo thresholds of significance.

Post-2035

No impacts were identified for the Post-2035 scenario based on the City of Aliso Viejo thresholds of significance.

Impact Conclusion: *Based on the traffic data analysis and the threshold evaluations above, the proposed Project would not result in significant impacts pursuant to City of Aliso Viejo thresholds of significance (Thresholds 4.15-41 through 4.15-46) in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios. No mitigation is required.*

City of Mission Viejo

Threshold 4.15-47 In the City of Mission Viejo, the addition of Project-generated trips increases the ICU at a study intersection by 0.02 or more of capacity, causing the intersection to change from an acceptable LOS D to LOS E or LOS F.

Threshold 4.15-48 In the City of Mission Viejo, the addition of Project-generated trips increases the ICU by 0.02 or more at a study intersection operating at LOS E or F under baseline conditions.

Threshold 4.15-49 In the City of Mission Viejo, the addition of Project-generated trips increases the daily and peak hour V/C ratio by more than 0.02 on a roadway segment, causing the roadway segment to change from an acceptable LOS D or better to LOS E or F.

Threshold 4.15-50 In the City of Mission Viejo, the addition of Project-generated trips increases the daily and peak hour V/C ratio by more than 0.02 on a roadway segment operating at LOS E or F.

Threshold 4.15-51 In the City of Mission Viejo, the addition of Project-generated trips increases the V/C ratio on a freeway ramp by more than 0.02, causing the

freeway ramp segment to change from an acceptable LOS E or better to LOS F.

Threshold 4.15-52 In the City of Mission Viejo, the addition of Project-generated trips increases the V/C ratio by more than 0.02 on a freeway ramp segment operating at LOS F.

Existing Plus Project

No impacts were identified for the Existing Plus Project scenario based on the City of Mission Viejo thresholds of significance.

Year 2017

No impacts were identified for the Year 2017 scenario based on the City of Mission Viejo thresholds of significance.

Year 2035

No impacts were identified for the Year 2035 scenario based on the City of Mission Viejo thresholds of significance.

Post-2035

No impacts were identified for the Post-2035 scenario based on the City of Mission Viejo thresholds of significance.

Impact Conclusion: *Based on the traffic data analysis and the threshold evaluations above, the proposed Project would not result in significant impacts pursuant to City of Mission Viejo thresholds of significance (Thresholds 4.15-47 through 4.15-52) in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project and Post-2035 Plus Project scenarios. No mitigation is required.*

City of Orange

Threshold 4.15-53 In the City of Orange, the addition of Project-generated trips increases the ICU at a study intersection by 0.02 or more of capacity, causing the intersection to change from an acceptable LOS D to LOS E or LOS F.

Threshold 4.15-54 In the City of Orange, the addition of Project-generated trips increases the ICU by 0.02 or more at a study intersection operating at LOS E or F under baseline conditions.

Threshold 4.15-55 In the City of Orange, the addition of Project-generated trips increases the daily and peak hour V/C ratio by more than 0.02 on a roadway segment, causing the roadway segment to change from an acceptable LOS D or better to LOS E or F.

Threshold 4.15-56 In the City of Orange, the addition of Project-generated trips increases the daily and peak hour V/C ratio by more than 0.02 on a roadway segment operating at LOS E or F.

Threshold 4.15-57 In the City of Orange, the addition of Project-generated trips increases the V/C ratio on a freeway ramp by more than 0.02, causing the freeway ramp segment to change from an acceptable LOS E or better to LOS F.

Threshold 4.15-58 In the City of Orange, the addition of Project-generated trips increases the V/C ratio by more than 0.02 on a freeway ramp segment operating at LOS F.

Existing Plus Project

No impacts were identified for the Existing Plus Project scenario based on the City of Orange thresholds of significance.

Year 2017

No impacts were identified for the Year 2017 scenario based on the City of Orange thresholds of significance.

Year 2035

No impacts were identified for the Year 2035 scenario based on the City of Orange thresholds of significance.

Post-2035

No impacts were identified for the Post-2035 scenario based on the City of Orange thresholds of significance.

Impact Conclusion: *Based on the traffic data analysis and the threshold evaluations above, the proposed Project would not result in significant impacts pursuant to City of Orange thresholds of significance (Thresholds 4.15-53 through 4.15-58) in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios. No mitigation is required.*

County of Orange

Threshold 4.15-59 In the County of Orange, the addition of Project-generated trips increases the ICU at a study intersection by 0.01 or more of capacity, causing the intersection to change from an acceptable LOS D to LOS E or LOS F.

Threshold 4.15-60 In the County of Orange, the addition of Project-generated trips increases the ICU by 0.01 or more at a study intersection operating at LOS E or F under baseline conditions.

Threshold 4.15-61 In the County of Orange, the addition of Project-generated trips increases the daily and peak hour V/C ratio by more than 0.01 on a roadway segment, causing the roadway segment to change from an acceptable LOS D or better to LOS E or F.

Threshold 4.15-62 In the County of Orange, the addition of Project-generated trips increases the daily and peak hour V/C ratio by more than 0.01 on a roadway segment operating at LOS E or F.

Threshold 4.15-63 In the County of Orange, the addition of Project-generated trips increases the V/C ratio on a freeway ramp by more than 0.01, causing the freeway ramp segment to change from an acceptable LOS E or better to LOS F.

Threshold 4.15-64 In the County of Orange, the addition of Project-generated trips increases the V/C ratio by more than 0.01 on a freeway ramp segment operating at LOS F.

Existing Plus Project

No impacts were identified for the Existing Plus Project scenario based on the County of Orange thresholds of significance.

Year 2017

No impacts were identified for the Year 2017 scenario based on the County of Orange thresholds of significance.

Year 2035

No impacts were identified for the Year 2035 scenario based on the County of Orange thresholds of significance.

Post-2035

No impacts were identified for the Post-2035 scenario based on the County of Orange thresholds of significance.

Impact Conclusion: *Based on the traffic data analysis and the threshold evaluations above, the proposed Project would not result in significant impacts pursuant to County of Orange thresholds of significance (Thresholds 4.15-59 through 4.15-64) in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios. No mitigation is required.*

California Department of Transportation

Caltrans Intersections

Threshold 4.15-65 The addition of Project-generated trips causes the LOS at a study intersection to degrade from LOS A, B, or C to D, E, or F (as measured by the application of the HCM methodologies).

Threshold 4.15-66 The addition of Project-generated trips causes any increase in delay at a study intersection (as measured by the application of HCM methodologies) where the intersection operates at LOS D, E, or F prior to the addition of Project traffic.

Caltrans Mainline Freeway Facilities

Threshold 4.15-67 The addition of Project-generated trips increases the V/C on a freeway mainline by more than 0.03, and causes the LOS to degrade from LOS A, B, C, D, or E to LOS F.

Threshold 4.15-68 The addition of project-generated trips increases the V/C on a freeway mainline by more than 0.03 on a facility operating at LOS F prior to the addition of Project traffic.

Existing Plus Proposed Project

Caltrans Intersections

The Jeffrey Road and Walnut Avenue/I-5 southbound intersection would be significantly impacted under the proposed Project in the AM and PM peak hours. This intersection already operates at an unacceptable LOS, and the Project traffic would cause an increase in delay at this intersection in excess of the applicable threshold (Threshold 4.15-66).

Caltrans Mainline Freeway Facilities

I-5 northbound from the Alton Parkway slip on-ramp to the SR-133 northbound off-ramp would be significantly impacted with the Project in the PM peak hour. This impact occurs because the additional Project traffic would increase the traffic on this mainline segment by 3 percent or more and cause the LOS to degrade to LOS F (Threshold 4.15-67).

I-5 southbound from Jeffrey Road to SR-133 northbound would be significantly impacted with the Project in the AM peak hour. This impact occurs because the additional Project traffic would increase the traffic on this mainline segment by 3 percent or more (Threshold 4.15-68).

I-5 southbound from SR-133 southbound to Alton Parkway would be significantly impacted with the Project in the AM and PM peak hours. In the AM peak hour, the Project would increase the traffic by 3 percent or more on a facility operating at LOS F prior to the addition of Project traffic (Threshold 4.15-68). In the PM peak hour, the Project would increase the traffic by 3 percent or more on a facility operating at an acceptable level and would degrade it to unacceptable levels (Thresholds 4.15-68 and 4.15-67).

I-405 northbound at the Jeffrey Road slip on-ramp would be significantly impacted with the Project in the AM peak hour, because the additional Project traffic would increase the traffic by 3 percent or more on a facility operating at LOS F prior to the addition of Project traffic (Threshold 4.15-68).

I-405 southbound at San Canyon off-ramp would be significantly impacted with the Project in the AM peak hour, because the additional Project traffic would increase the traffic by 3 percent or more on a facility operating at LOS F prior to the addition of Project traffic (Threshold 4.15-68).

I-405 southbound at the SR-133 Off-Ramp would be significantly impacted with the Project in the AM peak hour, because the additional Project traffic would increase the traffic on this mainline segment by 3 percent or more on a facility operating at an acceptable level and would degrade it to unacceptable level (Threshold 4.15-67).

2017 Plus Proposed Project

Caltrans Intersections

The Jeffrey Road and I-5 northbound ramps intersection would be impacted with the Project in the PM peak hour. This intersection already operates at an unacceptable LOS, and the Project traffic would cause an increase in delay at this intersection (Threshold 4.15-66).

The Jeffrey Road and Walnut Avenue intersection would be significantly impacted with the Project in the AM and PM peak hours. This intersection already operates at an unacceptable LOS in the AM and PM peak hours, and the Project traffic would cause an increase in delay at this intersection (Threshold 4.15-66).

The Sand Canyon Avenue and I-5 northbound ramps intersection would be significantly impacted with the Project in the AM peak hour. This intersection operates at an acceptable LOS in the AM peak hour, but the Project traffic would cause the LOS to degrade to unacceptable level (Threshold 4.15-65).

Caltrans Mainline Freeway Facilities

No freeway mainline impacts were identified for the Year 2017 scenario based on the Caltrans thresholds of significance (Thresholds 4.15-67 and 4.15-68).

Year 2035

Caltrans Intersections

The Jeffrey Road and Walnut Avenue/I-5 southbound ramps intersection would be significantly impacted with the Project in the AM and PM peak hours. This intersection already operates at an unacceptable LOS in the AM and PM peak hours, and the Project traffic would cause an increase in delay at this intersection (Threshold 4.15-66).

The Jeffrey Road and I-405 northbound ramps intersection would be significantly impacted with the Project in the PM peak hour. This intersection already operates at an unacceptable

LOS in the PM peak hour, and the Project traffic would cause an increase in delay at this intersection (Threshold 4.15-66).

The Sand Canyon Avenue and I-5 northbound ramps intersection would be significantly impacted with the Project in the AM and PM peak hours. This intersection already operates at an unacceptable LOS in the AM and PM peak hours, and the Project traffic would cause an increase in delay at this intersection (Threshold 4.15-66).

The Sand Canyon Avenue and I-5 southbound ramps intersection would be significantly impacted with the Project in the AM peak hour. This intersection already operates at an unacceptable LOS in the AM peak hour, and the Project traffic would cause an increase in delay at this intersection (Threshold 4.15-66).

The SR-133 Southbound and Irvine Boulevard intersection would be significantly impacted with Project in the PM peak hour. This intersection already operates at an unacceptable LOS in the PM peak hour, and the Project traffic would cause an increase in delay at this intersection (Threshold 4.15-66).

The Fortune Drive/I-5 Southbound and Enterprise Drive intersection would be significantly impacted with the Project in the PM peak hour. This intersection already operates at an unacceptable LOS in the PM peak hour, and the Project traffic would cause an increase in delay at this intersection (Threshold 4.15-66).

The Bake Parkway and I-5 Southbound ramps intersection would be significantly impacted with the Project in the PM peak hour. This intersection already operates at an unacceptable LOS in the PM peak hour, and the Project traffic would cause an increase in delay at this intersection (Threshold 4.15-66).

The Trabuco Road and SR-133 Northbound ramps intersection would be significantly impacted with the Project in the PM peak hour. This intersection already operates at an unacceptable LOS in the PM peak hour, and the Project traffic would cause an increase in delay at this intersection (Threshold 4.15-66).

Caltrans Mainline Freeway Facilities

No freeway mainline impacts were identified for the Year 2035 scenario based on Caltrans thresholds of significance (Thresholds 4.15-67 and 4.15-68).

Post-2035

Caltrans Intersections

The Jeffrey Road and Walnut Avenue/I-5 southbound ramps intersection would be significantly impacted with the Project in the AM peak hour. This intersection already operates at an unacceptable LOS in the AM peak hour, and the Project traffic would cause an increase in delay at this intersection (Threshold 4.15-66).

The Sand Canyon Avenue and I-5 northbound ramps intersection would be significantly impacted with the Project in the AM and PM peak hours. This intersection already operates at

an unacceptable LOS in the AM and PM peak hours, and the Project traffic would cause an increase in delay at this intersection (Threshold 4.15-66).

The Sand Canyon Avenue and I-5 southbound ramps intersection would be significantly impacted with the Project in the AM and PM peak hours. This intersection already operates at an unacceptable LOS in the AM and PM peak hours, and the Project traffic would cause an increase in delay at this intersection (Threshold 4.15-66).

The SR-133 Southbound and Irvine Boulevard intersection would be significantly impacted with Project in the AM peak hour. This intersection already operates at an unacceptable LOS in the AM peak hour, and the Project traffic would cause an increase in delay at this intersection (Threshold 4.15-66).

The Portola Parkway and SR-241 southbound ramps intersection would be significantly impacted with the Project in the PM peak hour. This intersection already operates at an unacceptable LOS in the PM peak hour, and the Project traffic would cause an increase in delay at this intersection (Threshold 4.15-66).

The Fortune Drive/I-5 Southbound and Enterprise Drive intersection would be significantly impacted with the Project in the PM peak hour. This intersection already operates at an unacceptable LOS in the PM peak hour, and the Project traffic would cause an increase in delay at this intersection (Threshold 4.15-66).

The Trabuco Road and SR-133 southbound ramps intersection would be significantly impacted with the Project in the AM peak hour. This intersection already operates at an unacceptable LOS in the AM peak hour, and the Project traffic would cause an increase in delay at this intersection (Threshold 4.15-66).

The Trabuco Road and SR-133 northbound ramps intersection would be significantly impacted with the Project in the PM peak hour. This intersection already operates at an unacceptable LOS in the PM peak hour, and the Project traffic would cause an increase in delay at this intersection (Threshold 4.15-66).

Caltrans Mainline Freeway Facilities

The I-405 Southbound at the SR-133 off-ramp would be significantly impacted with the Project in the PM peak hour. Project traffic would increase the traffic by 3 percent or more on a facility operating at LOS F prior to the addition of Project traffic (Threshold 4.15-68).

Impact Conclusion: *Based on the traffic data analysis and the threshold evaluations above, the proposed Project would result in significant impacts pursuant to Caltrans thresholds of significance (Thresholds 4.15-66 through 4.15-68) in the Existing Plus Project scenario. For this scenario one intersection pursuant to Threshold 4.15-66 and six mainline freeway segments pursuant to Thresholds 4.15-67 and 4.15-68 would have significant impacts.*

For the Year 2017 Plus Project scenario, there would be significant impacts at three intersections pursuant to Thresholds 4.15-65 and 4.15-66, and

there would be no impact to mainline freeway segments pursuant to Thresholds 4.15-67 and 4.15-68.

For Post-2035 Plus Project scenario, there would be impacts to eight intersections pursuant to Threshold 4.15-66, and there would be no impact to mainline freeway segments pursuant to Thresholds 4.15-67 and 4.15-68.

For the Year 2035 Plus Project scenarios, there would be impacts to eight intersections pursuant to Threshold 4.15-66, and there would be one impact to mainline freeway segments pursuant to Threshold 4.15-68.

While potential mitigation for the impacts to the intersections have been recommended and imposed that would reduce Project impacts to a less than significant level, the feasibility of the mitigation is uncertain and outside the control of the County of Orange; therefore, the impacts would remain significant and unavoidable. However, mitigation for impacts to freeway mainline segments would not be technically and financially feasible in addition to being outside the control of the County of Orange. Therefore, the impacts would remain significant and unavoidable (see Section 4.15.8, Mitigation Program for a discussion of the mitigation approach).

Orange County Transportation Authority Congestion Management Program

Threshold 4.15-69 The addition of Project-generated trips causes the LOS at a study intersection in the Orange County Transportation Authority Congestion Management Program to change from an acceptable LOS E to LOS F.

Threshold 4.15-70 The addition of Project-generated trips increases the ICU by 0.03 or more at a study intersection operating at LOS F under baseline conditions.

Threshold 4.15-71 The Project will not conflict with an applicable congestion management program, including, but not limited to LOS standard and travel demand measures, or other standards established by the County congestion management agency for designated roads or highways.

Under the CMP, key intersections in the CMP Highway System are monitored to ensure they are operating at acceptable levels. In the study area, 19 intersections are CMP intersections. As shown in Table 4.15-39, of the 19 intersections, 18 are forecasted to operate at acceptable LOS E or better based on a short-term Year 2017 analysis, as required by CMP. One CMP intersection (Laguna Canyon Road and SR-73 NB Ramps) is forecasted to operate at LOS F in the AM peak hour. However, addition of Project traffic will not cause the intersection to exceed its established LOS. Therefore, no Project-related impacts would occur and no mitigation is required.

TABLE 4.15-39
YEAR 2017 CONGESTION MANAGEMENT PLAN INTERSECTION LOS

ID	Intersection	Juris.	Without Project				With Proposed			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
125	Jamboree Rd/Irvine Blvd	Irvine	0.84	D	0.75	C	0.84	D	0.75	C
128	Jamboree Rd/I-5 NB Ramps	Irvine	0.68	B	0.73	C	0.68	B	0.73	C
129	Jamboree Rd/I-5 SB Ramps	Irvine	0.66	B	0.59	A	0.66	B	0.59	A
133	Jamboree Rd/Edinger Ave	Irvine	0.34	A	0.57	A	0.35	A	0.57	A
159	SR-260 SB Ramps/Irvine Blvd	Irvine	0.57	A	0.53	A	0.57	A	0.53	A
160	SR-260 NB Ramps/Irvine Blvd	Irvine	0.59	A	0.70	B	0.61	B	0.70	B
316	SR-133 SB Ramps/Irvine Blvd	Irvine	0.61	B	0.52	A	0.61	B	0.53	A
317	SR-133 NB Ramps/Irvine Blvd	Irvine	0.59	A	0.74	C	0.59	A	0.75	C
322	Laguna Canyon Rd/SR-73 NB Ramps	Laguna Beach	**1.01**	**F**	0.86	D	**1.01**	**F**	0.86	D
323	Laguna Canyon Rd/SR-73 SB Ramps	Laguna Beach	0.34	A	0.38	A	0.34	A	0.38	A
357	Enterprise Dr/Fortune Dr/I-405 NB Ramps	Irvine	0.45	A	0.52	A	0.46	A	0.52	A
358	Irvine Center Dr/Enterprise Dr	Irvine	0.67	B	0.65	B	0.67	B	0.65	B
359	Irvine Center Dr/I-405 SB Ramps	Irvine	0.68	B	0.65	B	0.68	B	0.65	B
394	El Toro Rd/I-5 NB Ramps	Lake Forest	0.75	C	0.75	C	0.75	C	0.74	C
396	El Toro Rd/Avenida Carlota	Laguna Hills	0.61	B	0.78	C	0.61	B	0.79	C
398	El Toro Rd/Moulton Pkwy	Laguna Woods	0.54	A	0.49	A	0.55	A	0.49	A
400	El Toro Rd/SR-73 NB Ramps	Laguna Beach	0.69	B	0.70	B	0.69	B	0.70	B
401	El Toro Rd/SR-73 SB Ramps	Laguna Beach	0.46	A	0.68	B	0.46	A	0.69	B
418	El Toro Rd/Trabuco Rd	Lake Forest	0.67	B	0.74	C	0.68	B	0.74	C

NB: Northbound; SB: Southbound
Source: Fehr & Peers 2015.

Impact Conclusion: *Project-generated trips would not cause the LOS at a study intersection under the jurisdiction of OCTA CMP to change from an acceptable LOS E to LOS F. Additionally proposed Project-generated trips would not increase the ICU by 0.03 or more at a CMP study intersection operating at LOS F under baseline conditions. The proposed Project would not conflict with*

applicable CMP standards. No impacts would occur, and no mitigation is required.

General California Environmental Quality Act Thresholds

Threshold 4.15-72 The Project will not substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

The proposed signalized access points and Project driveways along Irvine Boulevard have been analyzed by Fehr & Peers to determine if there is adequate distance between signals and to determine if traffic operations would be adversely impacted. The analysis has utilized the City of Irvine Transportation Design Procedures (TDP) (February 2007). Exhibit 3-8a, Conceptual Circulation Plan in Section 3.0, Project Description, depicts the Project access points and controls.

As the Project will connect to external roadways (i.e., Irvine Boulevard), the City Traffic Study Guidelines require the inclusion of the City of Irvine TDP (February 2007) in the TIA and layout specific procedures and processes to comply with City requirements. Fehr & Peers identified 11 City TDPs as relevant to the Project. Detailed analysis demonstrating compliance with the TDPs is provided in the TIA (Appendix L of this EIR). City review/approval of intersection spacing and enhancements would also be required prior to implementing any of the applicable roadway improvements. With compliance with City TDPs (see DR TRAN-5 provided in Section 4.15.8, Mitigation Program), potential impacts associated with signalized access points and Project driveways along Irvine Boulevard would be less than significant as those connections must comply with applicable City or County requirements. The design of the roadways internal to the Project would be subject to the requirements of the Development Plan, which are consistent with applicable design standards intended to reduce hazards. Thus, the internal circulation and design of the roadways will promote safety and avoid hazards related to design features. To ensure that there is no conflict during the construction phase, the Development Plan provides for a Traffic Management Plan to be implemented during construction (see DR Tran-6).

Additionally, as described in detail in Section 4.10, Land Use and Planning, the Project as planned would not result in any land use incompatibility that would create hazards. The Project does not propose to place uses on the Project site that would conflict with the surrounding existing and planned uses in a manner that would create substantially increased transportation related hazards.

The undeveloped lands adjacent and to the west of the Project site across Irvine Boulevard and immediately to the north of the Project site are proposed for development of Districts 5 and 7 of the Great Park Neighborhoods, respectively. The proposed uses in these areas would include residential and community commercial, and a high school, which would be compatible with the multi-family residential and parks of the proposed Project.

Impact Conclusion: *With implementation of DRs TRAN-4 through TRAN-6,* which requires *compliance with applicable City or County requirements, Project-generated traffic would not substantially increase hazards due to a design feature including, without limitations, connections with external roadways.*

Compliance with the Circulation Design Guidelines in the Development Plan (e.g., safety enhancing features and speed reduction mechanisms) would also avoid any potentially significant impacts. Further, based on the nature of the uses and the design of the Project, the Project would not substantially increase hazards due to incompatible uses. Therefore, the Project would have a less than significant impact as it relates to Threshold 4.15-72 and no mitigation is required.

Threshold 4.15-73 The Project will not result in inadequate emergency access.

The proposed Project circulation and internal streets' design were developed consistent with applicable emergency access standards, and future roadways would be consistent with the established design standards and guidelines included in the Development Plan. The circulation for the Project is envisioned as two neighborhoods that each offer connections to the City of Irvine's regional multi-modal network. The proposed Project would meet the requirements for emergency access, and the standards and guidelines provided in the Development Plan would ensure that emergency access is not impeded. Additionally, the proposed street network has been designed to meet OCFA's access requirements for residential developments. Since access depends on the exact nature of the proposed future development, DR UTIL-2 requires that a Fire Master Plan be prepared in compliance with Chapter 5 of the Fire Code and Guidelines B-09 (Fire Master Plans for Commercial and Residential Development).

Future access to the site will be provided via Irvine Boulevard, which is classified as a six-lane Major Arterial Highway by the City of Irvine. Irvine Boulevard consist of three travel lanes in each direction and a Class II bike lane in each direction. The proposed Project accommodates construction of up to two signalized intersections on Irvine Boulevard. Non-signalized, full access intersections and right-in, right-out only intersections along Irvine Boulevard are also planned at two locations serving Planning Area 1. Additionally, Planning Area 2 includes a secondary emergency access off of Irvine Boulevard, located between the two retention basins. The internal circulation of the Project will typically include a two-lane street with on-street parking on least one side and parkways. The design guidelines and development standards include guidance for the internal streets and alleys. In light of compliance with applicable regulations, including, without limitations, OCFA access requirements, impacts would be less than significant, and no mitigation is required.

Impact Conclusion: *The proposed Project would not result in inadequate emergency access. The Project has been planned to be consistent with applicable emergency access requirements. Impacts would be less than significant and no mitigation is required.*

Threshold 4.15-74 The Project will not conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

The Project's circulation system proposes a multi-modal system that would be pedestrian friendly and provides for the use of automobiles, bicycles, and transit. The transportation options, as described in the Development Plan, would reduce traffic congestion and dependence on the automobile; would increase mobility; and would promote healthier and more active lifestyles.

Upon completion of on-going improvements, Irvine Boulevard would include a Class II bike lane in each direction, and the Project would promote connections to the Class II bike lane on Irvine Boulevard. The Guidelines provided in the Development Plan promote the use of alternative modes of travel to achieve the full vision of the multi-modal system through provision of sidewalks on at least one side of all streets and sharrows (a shared vehicle and bike lane) on internal streets. Those Guidelines also encourage provision and use of shared community bicycles and/or electric bikes, ample bicycle and pedestrian amenities, and fee-based EV charging stations within common parking structures.

Currently, OCTA bus service is provided to the east of the Project site on Alton Parkway and Irvine Boulevard. Additionally, bus service includes line 480, which is a shuttle to Irvine Station, allowing future residents of the Project to use Metrolink, Amtrak, and other OCTA bus lines for commuting. The provision of transit service is beyond the scope of the Project or jurisdiction of the County. However, the Project would not preclude future opportunities to improve transit access at the Project site. This can include bus stops along Irvine Boulevard for future OCTA service along this corridor.

Impact Conclusion: *Pursuant to Threshold 4.15-74, the Project would not conflict with adopted polices, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. The Project will create a multi-model circulation system that would accommodate various modes of transportation and facilitate connections to off-site public transit options. Implementation of DR TRAN-2 addresses the required improvements. Impacts would be less than significant and no mitigation is required.*

4.15.6 CUMULATIVE IMPACTS

As part of the ITAM Version 12.4, the City of Irvine maintains a list of pending projects. The cumulative analysis is based on the Year 2035 (Long-Term) plus all the proposed and pending projects and Post-2035 (buildout of the General Plan) plus all the proposed and pending projects. This includes all the Cumulative Projects identified in Table 4.0-1, Potential Cumulative Projects. The Year 2035 and Post-2035 scenario would also capture the long-range projects included in the Orange County Projections developed by the Center for Demographic Research (CDR). The projections, known as OCP-2014, and how they pertain to the cumulative analysis are discussed in Section 4.0-1, Cumulative Impact Assumptions.[10] For purposes of the discussion in the EIR, this is simply referenced as "the cumulative scenario". The roadway network used for this evaluation is the Year 2035 and Post-2035 network discussed under Planned Circulation System in Section 4.15.5.

As with the other Project scenarios, the analysis provides a comparison of the traffic conditions both With and Without the Project Year 2035 and Post-2035 plus pending projects, including the LOS for the (1) ADT volumes on the roadway network; (2) the peak hour intersection; (3) the peak hour freeway/toll road ramp; and (4) the peak hour freeway/toll road mainline.

[10] It should be noted that the TIA also evaluates 2017 conditions with pending projects. However, to ensure the worst-case cumulative conditions are evaluated, the EIR focuses on the Year 2035 and Post-2035 conditions with pending projects for cumulative analysis. The year 2017 with pending project scenarios is provided in Appendix L.

Year 2035 and Post-2035 Average Daily Traffic Volumes Proposed Project with Pending Projects

Tables 4.15-40 and 4.15-41 identify the arterial roadway segments for the Year 2035 With Pending Projects and Post-2035 With Pending Projects, respectively, that are projected to be deficient. There would be 47 segment locations in the Year 2035 With Pending Projects and 42 segment locations in Post-2035 With Pending Projects that are projected to operate at a deficient level. However, based on the ADT V/C performance criteria and impact thresholds, the Project would not cause an exceedance of the applicable thresholds of significance in the Year 2035 With Pending Projects and Post-2035 With Pending Projects. Therefore, consistent with the City of Irvine traffic study guidelines, peak hour ADT analysis was not warranted.

TABLE 4.15-40
PENDING YEAR 2035 PLUS PROPOSED PROJECT AVERAGE DAILY TRAFFIC (THOUSANDS) AND V/C RATIOS

Roadway Segment	Jurisdiction	Without Project			With Proposed Project		
		ADT	V/C	LOS	ADT	V/C	LOS
Culver (Barranca to Alton)	Irvine	49.9	0.92	E	49.9	0.92	E
Culver (Alton to Main)	Irvine	49.5	0.92	E	49.5	0.92	E
Culver (Main to I-405)	Irvine	56.4	1.04	F	56.4	1.04	F
Jeffrey (Alton to I-405)	Irvine	54.1	1.00	F	54.3	1.01	F
Sand Canyon (Alton to I-405)	Irvine	44.7	1.40	F	44.7	1.40	F
SR-133 (Laguna Canyon to Lake Forest)	Irvine	51.4	0.95	E	51.4	0.95	E
University (south of I-405)	Irvine	62.6	1.16	F	62.7	1.16	F
SR-133 (Lake Forest to SR-73)	Irvine	47.4	1.48	F	47.4	1.48	F
Alton (Rancho to Commercentre)	Lake Forest	54.0	0.96	E	54.6	0.97	E
Bake (Commercentre to Irvine/Trabuco)	Lake Forest	38.0	1.01	F	38.1	1.02	F
Bake (Irvine/Trabuco to Toledo)	Irvine	57.3	1.06	F	57.7	1.07	F
Bake (Toledo to Jeronimo)	Irvine	60.4	1.12	F	60.7	1.12	F
Bake (Jeronimo to Muirlands)	Irvine	67.3	1.25	F	67.7	1.25	F
Bake (Rockfield to I-5)	Irvine	88.3	1.23	F	88.6	1.23	F
Lake Forest (Rancho to Trabuco)	Lake Forest	35.0	0.93	E	35.0	0.93	E
Lake Forest (Rockfield to I-5)	Lake Forest	76.0	1.35	F	76.0	1.35	F
El Toro (Aliso Creek to SR-73)	Laguna Beach	41.5	1.11	F	41.5	1.11	F
El Toro (south of SR-73)	Laguna Beach	17.2	1.38	F	17.2	1.38	F
Irvine (Newport to Red Hill)	Tustin	52.1	0.93	E	52.2	0.93	E
Irvine (Red Hill to Browning)	Tustin	48.6	1.30	F	48.6	1.30	F
Irvine (Browning to Tustin Ranch)	Tustin	42.9	1.14	F	43.0	1.15	F
Trabuco (east of Culver)	Irvine	30.9	0.97	E	31.0	0.97	E
Trabuco (east of Sand Canyon)	Irvine	43.7	1.37	F	43.9	1.37	F
Roosevelt (Nimitz to Jeffrey)	Irvine	12.5	0.96	E	12.5	0.96	E
Marine (east of Sand Canyon)	Irvine	47.4	1.48	F	47.4	1.48	F

TABLE 4.15-40
PENDING YEAR 2035 PLUS PROPOSED PROJECT AVERAGE DAILY TRAFFIC (THOUSANDS) AND V/C RATIOS

Roadway Segment	Jurisdiction	Without Project			With Proposed Project		
		ADT	V/C	LOS	ADT	V/C	LOS
Oak Canyon (Valley Oak to Sand Canyon)	Irvine	14.0	1.08	F	14.0	1.08	F
Barranca (Culver to W. Yale Loop)	Irvine	34.6	1.08	F	34.7	1.08	F
Barranca (W Yale Loop to Lake)	Irvine	31.5	0.98	E	31.5	0.98	E
Barranca (Creek to E Yale Loop	Irvine	29.6	0.93	E	29.7	0.93	E
Barranca (E. Yale Loop to Jeffrey)	Irvine	31.6	0.99	E	31.7	0.99	E
Alton (E. Yale Loop to Jeffrey)	Irvine	32.1	1.00	F	32.1	1.00	F
Lake Forest (Laguna Canyon to Bake)	Irvine	31.4	0.98	E	31.4	0.98	E
El Toro (Muirlands to Rockfield)	Lake Forest	51.0	0.91	E	51.2	0.91	E
El Toro (Rockfield to I-5)	Lake Forest	66.0	1.17	F	66.2	1.18	F
Alicia (Jeronimo to Muirlands)	Mission Viejo	60.0	1.07	F	60.0	1.07	F
Alicia (Muirlands to I-5)	Mission Viejo	60.8	1.08	F	60.9	1.08	F
Alicia (I-5 to Paseo de Valencia)	Laguna Hills	51.1	0.91	E	51.0	0.91	E
Portola (Rancho to El Toro)	Lake Forest	62.0	1.10	F	61.9	1.10	F
Avd Carlota (Paseo de Valencia to El Toro)	Laguna Hills	32.2	1.29	F	32.3	1.29	F
Trabuco (east of O)	Irvine	21.0	1.62	F	21.2	1.63	F
Marine (east of O)	Irvine	35.9	1.12	F	36.0	1.12	F
Modjeska (Portola Springs to Irvine)	Irvine	14.9	1.15	F	14.9	1.15	F
Marine (north of Barranca	Irvine	33.8	1.06	F	33.8	1.06	F
LQ (east of LY)	Irvine	13.0	1.00	E	13.0	1.00	E
Marine (east of B)	Irvine	30.9	0.97	E	30.9	0.97	E
G (Marine to E)	Irvine	12.5	0.96	E	12.6	0.97	E
Marine (west of B)	Irvine	33.5	1.05	F	33.5	1.05	F

In general, the cities of Tustin, Irvine, Laguna Beach, Lake Forest, Laguna Hills, Laguna Woods, Aliso Viejo, Mission Viejo, and Orange, and the County of Orange have a goal of maintaining an LOS D for roadway segments, unless otherwise noted for specific intersections.

The decrease in V/C ratio, with Project, is due to rerouting of traffic at intersections, which can improve LOS if traffic is moved to lane groups with more capacity.

Source: *Transportation Impact Analysis*, (Full data in Table 9-6), Fehr & Peers, 2015

TABLE 4.15-41
PENDING POST-2035 PLUS PROPOSED PROJECT AVERAGE DAILY TRAFFIC (THOUSANDS) AND V/C RATIOS

Roadway Segment	Jurisdiction	Without Project			With Proposed Project		
		ADT	V/C	LOS	ADT	V/C	LOS
Culver (Barranca to Alton)	Irvine	52.0	0.96	E	52.1	0.96	E
Culver (Alton to Main)	Irvine	50.9	0.94	E	50.9	0.94	E
Culver (Main to I-405)	Irvine	56.7	1.05	F	56.7	1.05	F
Jeffrey (Alton to I-405)	Irvine	52.1	0.96	E	52.0	0.96	E
Sand Canyon (Alton to I-405)	Irvine	49.1	0.91	E	49.2	0.91	E
SR-133 (Laguna Canyon to Lake Forest)	Irvine	54.1	1.00	F	54.1	1.00	F
University (south of I-405)	Irvine	59.8	1.11	F	59.8	1.11	F
SR-133 (Lake Forest to SR-73)	Irvine	49.9	1.56	F	49.9	1.56	F
Bake (Commercentre to Irvine/Trabuco)	Lake Forest	37.0	0.99	E	37.2	0.99	E
Bake (Irvine/Trabuco to Toledo)	Irvine	55.8	1.03	F	56.2	1.04	F
Bake (Toledo to Jeronimo)	Irvine	59.0	1.09	F	59.3	1.10	F
Bake (Jeronimo to Muirlands)	Irvine	66.2	1.23	F	66.5	1.23	F
Bake (Rockfield to I-5)	Irvine	91.0	1.26	F	91.4	1.27	F
Lake Forest (Rancho to Trabuco)	Lake Forest	35.0	0.93	E	34.8	0.93	E
Lake Forest (Rockfield to I-5)	Lake Forest	69.0	1.23	F	69.0	1.23	F
Irvine (Newport to Red Hill)	Tustin	57.8	1.03	F	57.9	1.03	F
Irvine (Red Hill to Browning)	Tustin	57.7	1.02	F	57.8	1.03	F
Irvine (Browning to Tustin Ranch)	Tustin	53.0	0.94	E	53.0	0.94	E
Trabuco (east of Culver)	Irvine	31.3	0.98	E	31.4	0.98	E
Trabuco (east of Sand Canyon)	Irvine	43.6	1.36	F	43.7	1.37	F
Roosevelt (Nimitz to Jeffrey)	Irvine	13.0	1.00	E	13.0	1.00	E
Marine (east of Sand Canyon)	Irvine	50.0	1.56	F	50.1	1.57	F
Oak Canyon (Valley Oak to Sand Canyon)	Irvine	14.2	1.09	F	14.2	1.09	F
Barranca (Culver to W. Yale Loop)	Irvine	33.2	1.04	F	33.2	1.04	F
Barranca (W Yale Loop to Lake)	Irvine	29.7	0.93	E	29.7	0.93	E
Barranca (E. Yale Loop to Jeffrey)	Irvine	29.6	0.93	E	29.6	0.93	E
Alton (E. Yale Loop to Jeffrey)	Irvine	29.8	0.93	E	29.8	0.93	E
Lake Forest (Laguna Canyon to Bake)	Irvine	32.1	1.00	F	32.1	1.00	F
El Toro (Rockfield to I-5)	Lake Forest	58.0	1.03	F	58.2	1.03	F
Alicia (Jeronimo to Muirlands)	Mission Viejo	59.2	1.05	F	59.3	1.05	F
Alicia (Muirlands to I-5)	Mission Viejo	59.9	1.06	F	60.0	1.07	F
Portola (Rancho to El Toro)	Lake Forest	55.0	0.98	E	54.9	0.98	E
Avd Carlota (Paseo de Valencia to El Toro)	Laguna Hills	30.1	1.20	F	30.1	1.20	F
Trabuco (east of O)	Irvine	21.2	1.63	F	21.4	1.65	F
Marine (east of O)	Irvine	35.1	1.10	F	35.1	1.10	F

TABLE 4.15-40
PENDING YEAR 2035 PLUS PROPOSED PROJECT AVERAGE DAILY TRAFFIC (THOUSANDS) AND V/C RATIOS

Roadway Segment	Jurisdiction	Without Project			With Proposed Project		
		ADT	V/C	LOS	ADT	V/C	LOS
Modjeska (Portola Springs to Irvine)	Irvine	14.8	1.14	F	14.8	1.14	F
Marine (north of Barranca	Irvine	34.5	1.08	F	34.5	1.08	F
Portola (Portola Springs to SR-241)	Irvine	30.8	0.96	E	30.8	0.96	E
LQ (east of LY)	Irvine	12.6	0.97	E	12.7	0.98	E
Marine (east of B)	Irvine	31.6	0.99	E	31.6	0.99	E
G (Marine to E)	Irvine	12.4	0.95	E	12.5	0.96	E
Marine (west of B)	Irvine	33.1	1.03	F	33.2	1.04	F

In general, the cities of Tustin, Irvine, Laguna Beach, Lake Forest, Laguna Hills, Laguna Woods, Aliso Viejo, Mission Viejo, and Orange, and the County of Orange have a goal of maintaining an LOS D for roadway segments, unless otherwise noted for specific intersections.

The decrease in V/C ratio, with Project, is due to rerouting of traffic at intersections, which can improve LOS if traffic is moved to lane groups with more capacity.

Source: *Transportation Impact Analysis*, (Full data in Table 9-11), Fehr & Peers, 2015

Proposed Project With Pending Projects Year 2035 and Post-2035 Peak Hour Intersection Levels of Service

The LOS was calculated using the ICU methodology for the study intersections. Tables 4.15-42 and 4.15-43 identify those intersections that would operate at a deficient LOS in the Year 2035 With Pending Projects and Post-2035 With Pending Projects, respectively. There would be 23 intersection locations in the Year 2035 With Pending Projects and 24 intersections in Post-2035 With Pending Project that are projected to operate at a deficient LOS without the Project. Based on the performance standards and impact threshold criteria, one intersection in the Year 2035 With Pending Projects is forecasted to have Project-related cumulative impacts based on the adopted thresholds. No intersections in Post-2035 With Pending Projects would have Project-related cumulative impacts based on the adopted thresholds.

Year 2035

- Jamboree Road Northbound and Warner Avenue (PM) (Threshold 4.15-3)

TABLE 4.15-42
PENDING YEAR 2035 PLUS PROPOSED PROJECT INTERSECTION LOS SUMMARY (ICU METHODOLOGY)

			Without Project, With Pending Projects				With Proposed Project, With Pending Projects			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
ID	Intersection	Juris.	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
54	Browning Ave and Irvine Blvd	Tustin	**1.00**	**E**	0.89	D	**1.00**	**E**	0.89	D
135	Jamboree Rd NB and Warner Ave	Irvine	0.58	A	**1.06**	**F**	0.58	A	**1.08**	**F**
136	Jamboree Rd and Barranca Pkwy	Irvine	0.89	D	**0.96**	**E**	0.89	D	**0.96**	**E**
220	Culver Dr and Irvine Blvd	Irvine	0.87	D	**0.94**	**E**	0.87	D	**0.94**	**E**
224	Culver Dr and Walnut Ave	Irvine	0.77	C	**0.93**	**E**	0.77	C	**0.93**	**E**
229	Culver Dr and Alton Pkwy	Irvine	0.85	D	**0.94**	**E**	0.84	D	**0.95**	**E**
235	Culver Dr and University Dr	Irvine	0.88	D	**0.97**	**E**	0.88	D	**0.97**	**E**
291	Jeffrey Rd and Alton Pkwy	Irvine	**0.98**	**E**	**0.91**	**E**	**0.98**	**E**	**0.91**	**E**
303	Sand Canyon Ave and I-5 NB Ramps/Marine Way	Irvine	**0.97**	**E**	**0.93**	**E**	**0.97**	**E**	**0.92**	**E**
306	Sand Canyon Ave and Oak Cyn/Laguna Cyn Rd	Irvine	0.78	C	**0.95**	**E**	0.78	C	**0.96**	**E**
322	Laguna Canyon Rd and SR-73 NB Ramps	Laguna Beach	**0.91**	**E**	0.63	B	**0.91**	**E**	0.63	B
333	SR-133 NB Ramps Gateway Blvd and Pacifica	Irvine	0.76	C	**0.94**	**E**	0.76	C	**0.93**	**E**
368	Bake Pkwy and I-5 SB Ramps	Irvine	0.83	D	**0.94**	**E**	0.83	D	**0.94**	**E**
374	Lake Forest Dr and Portola Pkwy	Lake Forest	0.62	B	**0.90**	**E**	0.62	B	**0.90**	**E**
378	Lake Forest Dr and Jeronimo Rd	Lake Forest	0.81	D	**0.91**	**E**	0.80	D	**0.91**	**E**
380	Lake Forest Dr and Rockfield Blvd	Lake Forest	0.82	D	**0.91**	**E**	0.82	D	**0.92**	**E**
417	El Toro Rd and Portola Pkwy/S Margarita Pkwy	Lake Forest	0.86	D	**1.11**	**F**	0.86	D	**1.11**	**F**
424	Los Alisos Blvd and Rockfield Blvd/Fordview St	Lake Forest	**0.94**	**E**	**0.92**	**E**	**0.94**	**E**	**0.92**	**E**
444	Sand Canyon Ave and Burt Rd	Irvine	**0.92**	**E**	0.88	D	**0.92**	**E**	**0.87**	**D**
465	SR-241/SR-261 NB Ramps and Chapman Ave	Orange	0.79	C	**0.95**	**E**	0.79	C	**0.95**	**E**
514	Alton Pkwy and Rancho Pkwy	Lake Forest	**0.91**	**E**	0.73	C	**0.91**	**E**	0.74	C
516	Lake Forest Dr and Rancho Pkwy	Lake Forest	0.87	D	**1.09**	**F**	0.86	D	**1.09**	**F**
517	Portola Pkwy and Rancho Pkwy	Lake Forest	0.72	C	**1.21**	**F**	0.73	C	**1.21**	**F**

ID: Intersection Identification Number; Juris.: jurisdiction; V/C: volume-to-capacity ratio; LOS: level of service; NB: Northbound; I: Interstate; SR: State Route; SB: Southbound

Intersections operating below acceptable standards are noted in **bold.** Locations where there is a Project-related cumulative impact are shaded. The specific threshold that is triggered is discussed later in this section under Threshold Evaluation.

In general, the cities of Tustin, Irvine, Laguna Beach, Lake Forest, Laguna Hills, Laguna Woods, Aliso Viejo, Mission Viejo, and Orange, and the County of Orange have a goal of maintaining a LOS D for intersections, unless otherwise noted for specific intersections.

Source: Fehr & Peers 2015 (see Table 9-6 for complete data)

TABLE 4.15-43
PENDING POST-2035 PLUS PROPOSED PROJECT INTERSECTION LOS SUMMARY (ICU METHODOLOGY)

			Without Project, With Pending Projects				With Proposed Project, With Pending Projects			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
ID	Intersection	Juris.	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
16	Newport Ave and Irvine Blvd	Tustin	0.82	D	**0.92**	**E**	0.82	D	**0.92**	**E**
91	Tustin Ranch Rd and Irvine Blvd	Irvine	**1.09**	**F**	0.90	D	**1.09**	**F**	0.90	D
135	Jamboree Rd NB and Warner Ave	Irvine	0.56	A	**1.07**	**F**	0.56	A	**1.06**	**F**
136	Jamboree Rd and Barranca Pkwy	Irvine	0.84	D	**0.93**	**E**	0.85	D	**0.93**	**E**
220	Culver Dr and Irvine Blvd	Irvine	0.87	D	**0.94**	**E**	0.87	D	**0.94**	**E**
224	Culver Dr and Walnut Ave	Irvin e	0.77	C	0.90	D	0.77	C	**0.91**	**E**
229	Culver Dr and Alton Pkwy	Irvine	0.79	C	**0.94**	**E**	0.80	C	**0.94**	**E**
232	Culver Dr and I-405 NB Ramps	Irvine	**0.96**	**E**	**1.02**	**E**	**0.96**	**E**	**1.01**	**F**
235	Culver Dr and University Dr	Irvine	0.81	D	**0.93**	**E**	0.81	D	**0.93**	**E**
291	Jeffrey Rd and Alton Pkwy	Irvine	**0.97**	**E**	**0.93**	**E**	**0.97**	**E**	**0.93**	**E**
303	Sand Canyon Ave and I-5 NB Ramps/Marine Way	Irvine	**1.08**	**F**	**1.08**	**F**	**1.08**	**F**	**1.08**	**F**
306	Sand Canyon Ave and Oak Cyn/Laguna Cyn Rd	Irvine	0.86	D	**1.01**	**F**	0.86	D	**1.02**	**F**
310	Sand Canyon Ave and Alton Pkwy	Irvine	0.72	C	**0.93**	**E**	0.72	C	**0.93**	**E**
322	Laguna Canyon Rd and SR-73 NB Ramps	Laguna Beach	**0.93**	**E**	0.67	B	**0.93**	**E**	0.67	B
333	SR-133 NB Ramps/Gateway Blvd and Pacifica*	Irvine	0.81	D	**0.99**	**E**	0.81	D	**0.99**	**E**
361	Bake Pkwy and Portola Pkwy	Lake Forest	0.69	B	**1.00**	**E**	0.70	B	**1.00**	**E**
368	Bake Pkwy and I-5 SB Ramps	Irvine	0.84	D	**0.93**	**E**	0.84	D	**0.94**	**E**
387	Ridge Route Dr and Rockfield Blvd	Lake Forest	0.77	C	**1.10**	**F**	0.78	C	**1.10**	**F**
417	El Toro Rd and Portola Pkwy/S Margarita Pkwy	Lake Forest	0.85	D	**1.08**	**F**	0.85	D	**1.08**	**F**
420	El Toro Rd and Jeronimo Rd	Lake Forest	**0.94**	**E**	0.89	D	**0.94**	**E**	0.89	D
444	Sand Canyon Ave and Burt Rd	Irvine	**0.98**	**E**	**0.92**	**E**	**0.99**	**E**	**0.92**	**E**
516	Lake Forest Dr and Rancho Pkwy	Lake Forest	0.85	D	**1.01**	**F**	0.86	D	**1.00**	**F**
517	Portola Pkwy and Rancho Pkwy	Lake Forest	0.73	C	**1.09**	**F**	0.73	C	**1.09**	**F**

TABLE 4.15-42
PENDING YEAR 2035 PLUS PROPOSED PROJECT INTERSECTION LOS SUMMARY (ICU METHODOLOGY)

ID	Intersection	Juris.	Without Project, With Pending Projects				With Proposed Project, With Pending Projects			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
560	Ridge Valley and Marine Way	Irvine	0.75	C	**0.91**	**E**	0.75	C	**0.92**	**E**

ID: Intersection Identification Number; Juris.: jurisdiction; V/C: volume-to-capacity ratio; LOS: level of service; NB: Northbound; I: Interstate; SR: State Route; SB: Southbound

Intersections operating below acceptable standards are noted in **bold.** Locations where there is a Project-related cumulative impact are shaded. The specific threshold that is triggered is discussed later in this section under Threshold Evaluation.

In general, the cities of Tustin, Irvine, Laguna Beach, Lake Forest, Laguna Hills, Laguna Woods, Aliso Viejo, Mission Viejo, and Orange, and the County of Orange have a goal of maintaining a LOS D for intersections, unless otherwise noted for specific intersections.

*A LOS E is maintained for this intersection in the City of Irvine.

Source: Fehr & Peers 2015 (see Table 9-11 for complete data)

In addition to the ICU analysis, the HCM methodology was used to assess LOS for freeway/highway ramp intersections for the cumulative scenario. Tables 4.15-44 and 4.15-45 identify those intersections that are projected to have a deficient LOS using the HCM methodology in the Year 2035 With Pending Projects and Post-2035 With Pending Projects, respectively. There would be 10 intersection locations in the Year 2035 and 12 intersection locations in Post-2035 that are projected to operate at a deficient LOS without the Project. Based on the performance standards and impact threshold criteria, five intersections in the Year 2035 With Pending Projects and eight intersections in Post-2035 With Pending Projects, listed below, are forecasted to have Project-related cumulative impacts based on the adopted thresholds. As with the deficient intersection under the ICU methodology, these are locations where the Project would substantially worsen the LOS at the intersections when combined with all of the cumulative projects. Additionally, the Project would contribute to cumulative impacts at all these locations because it would be contributing traffic to intersections that are projected to operate at a deficient LOS. Using the HCM methodology, the intersections that are forecasted to have Project-related cumulative impacts based on the adopted thresholds are listed below along with the applicable impacted timeframes:

Year 2035

- Jeffrey Road and Walnut Avenue (AM and PM) (Threshold 4.15-66)
- Jeffrey Road and I-405 NB (PM) (Threshold 4.15-66)
- Sand Canyon Avenue and I-5 SB (AM) (Threshold 4.15-66)
- SR-133 SB and Irvine Boulevard (AM) (Threshold 4.15-66)
- SR-133 NB and Trabuco Road (PM) (Threshold 4.15-66)

Post-2035

- Jeffrey Road and Walnut Avenue (AM and PM) (Threshold 4.15-66)
- Sand Canyon Avenue and I-5 NB (AM and PM) (Threshold 4.15-66)
- Sand Canyon Avenue and I-5 SB (PM) (Threshold 4.15-66)
- Portola Parkway and SR-241 NB (PM) (Threshold 4.15-66)
- Portola Parkway and SR-241 SB (PM) (Threshold 4.15-66)
- Fortune Drive/I-5 SB and Enterprise Drive (PM) (Threshold 4.15-66)
- Bake Parkway and I-5 SB (PM) (Threshold 4.15-66)
- Trabuco Road and SR-133 NB (AM and PM) (Threshold 4.15-66)

TABLE 4.15-44
PENDING YEAR 2035 PLUS PROPOSED PROJECT CALIFORNIA DEPARTMENT OF TRANSPORTATION RAMP INTERSECTION LOS SUMMARY (HCM METHODOLOGY)

ID	Intersection	Control	Peak Hour	No Project		Plus Project	
				Delay (sec.)	LOS	Delay (sec.)	LOS
288	Jeffrey Rd and Walnut Ave	Signal	AM	**68.1**	**E**	**68.9**	**E**
			PM	**123.3**	**F**	**125**	**F**
293	Jeffrey Rd and I-405 NB	Signal	AM	**35.8**	**D**	**35.4**	**D**
			PM	**36.6**	**D**	**36.7**	**D**
303	Sand Canyon Ave and I-5 NB	Signal	AM	**137.9**	**F**	**136.5**	**F**
			PM	**128.7**	**E**	**128.5**	**F**
305	San Canyon Ave and I-5 SB	Signal	AM	**38.5**	**D**	**38.6**	**D**
			PM	28	C	28.2	C
312	Sand Canyon Ave and I-405 SB	Signal	AM	**55**	**D**	**55**	**D**
			PM	26.6	C	27.3	C
316	SR-133 SB and Irvine Blvd	Signal	AM	**38.3**	**D**	**38.6**	**D**
			PM	**35.1**	**D**	**35.1**	**D**
351	Fortune Dr and I-5 SB/Enterprise Dr	Signal	AM	25.4	C	26	C
			PM	**58.6**	**E**	**58.3**	**E**
368	Bake Pkwy and I-5 SB	Signal	AM	30.5	C	30.5	C
			PM	**53.1**	**D**	**52.9**	**D**
486	SR-133 SB and Trabuco Rd	Signal	AM	**60.4**	**E**	**60.4**	**E**
			PM	30.8	C	30.8	C

TABLE 4.15-44
PENDING YEAR 2035 PLUS PROPOSED PROJECT CALIFORNIA DEPARTMENT OF TRANSPORTATION RAMP INTERSECTION LOS SUMMARY (HCM METHODOLOGY)

ID	Intersection	Control	Peak Hour	No Project		Plus Project	
				Delay (sec.)	LOS	Delay (sec.)	LOS
487	SR-133 NB and Trabuco Rd	Signal	AM	28	C	28.1	C
			PM	**89.2**	**F**	**92.5**	**F**

ID: Intersection identification number; sec.: seconds; LOS: level of service; I: Interstate; Northbound; SB: Southbound; SR: State Route; SSSC: Side Street Stop Controlled

Intersections operating below acceptable standards are noted in **bold.** Locations where there is a Project-related cumulative impact are shaded. The specific threshold that is triggered is discussed later in this section under Threshold Evaluation.

Caltrans has a goal of maintaining a LOS C for ramp intersections.

The decrease in delay, with Project, is due to rerouting of traffic at intersections, which can improve LOS if traffic is moved to lane groups with more capacity.

Source: Fehr & Peers 2015 (see Table 9-8 for complete data)

TABLE 4.15-45
PENDING POST-2035 PLUS PROPOSED PROJECT CALIFORNIA DEPARTMENT OF TRANSPORTATION RAMP INTERSECTION LOS SUMMARY (HCM METHODOLOGY)

ID	Intersection	Control	Peak Hour	No Project		Plus Project	
				Delay (sec.)	LOS	Delay (sec.)	LOS
288	Jeffrey Rd and Walnut Ave	Signal	AM	**74.7**	**E**	**75.1**	**E**
			PM	**123.1**	**F**	**123.4**	**F**
303	Sand Canyon Ave and I-5 NB	Signal	AM	**180.2**	**F**	**181.7**	**F**
			PM	**191**	**F**	**191.2**	**F**
305	Sand Canyon Ave and I-5 SB	Signal	AM	**50.9**	**D**	**51.2**	**D**
			PM	**55.6**	**E**	**56.7**	**E**
312	Sand Canyon Ave and I-405 SB	Signal	AM	**62.5**	**E**	**62.5**	**E**
			PM	18.4	B	18.6	B
316	SR-133 SB and Irvine Blvd	Signal	AM	**36.8**	**D**	**36.8**	**D**
			PM	18.9	B	19.1	B
324	Portola Pkwy and SR-241 NB	SSSC	AM	0	A	0	A
			PM	**326**	**F**	**341.9**	**F**
325	Portola Pkwy and SR-241 SB	SSSC	AM	**42.5**	**E**	**42.5**	**E**
			PM	**140.4**	**F**	**147**	**F**
345	Alton Pkwy and I-5 NB	Signal	AM	**43.6**	**D**	**42.8**	**D**
			PM	7.7	A	7.7	A
351	Fortune Dr and I-5 SB/Enterprise Dr	Signal	AM	31	C	33.3	C
			PM	**56.8**	**E**	**58.3**	**E**

TABLE 4.15-45
PENDING POST-2035 PLUS PROPOSED PROJECT CALIFORNIA DEPARTMENT OF TRANSPORTATION RAMP INTERSECTION LOS SUMMARY (HCM METHODOLOGY)

ID	Intersection	Control	Peak Hour	No Project		Plus Project	
				Delay (sec.)	LOS	Delay (sec.)	LOS
368	Bake Pkwy and I-5 SB	Signal	AM	31	C	31	C
			PM	**55.6**	**E**	**58.5**	**E**
486	SR-133 SB and Trabuco Rd	Signal	AM	**71.1**	**E**	**69.8**	**E**
			PM	**62.9**	**E**	**62.6**	**E**
487	SR-133 NB and Trabuco Rd	Signal	AM	31.5	C	32.3	C
			PM	**100.1**	**E**	**100.2**	**F**

ID: Intersection identification number; sec.: seconds; LOS: level of service; I: Interstate; Northbound; SB: Southbound; SR: State Route; SSSC: Side Street Stop Controlled

Intersections operating below acceptable standards are noted in **bold.** Locations where there is a Project-related cumulative impact are shaded. The specific threshold that is triggered is discussed later in this section under Threshold Evaluation.

Caltrans has a goal of maintaining a LOS C for ramp intersections.

The decrease in delay, with Project, is due to rerouting of traffic at intersections, which can improve LOS if traffic is moved to lane groups with more capacity.

Source: Fehr & Peers 2015 (see Table 9-12 for complete data)

Proposed Project with Pending Projects Year 2035 and Post-2035 Peak Hour Freeway/Toll Road Ramp Levels of Service

An evaluation of the freeway/toll road ramp LOS was conducted for the Year 2035 and Post-2035 Without Project (with Pending Projects) and With Project (with Pending Projects) freeway/toll road ramps. As shown in Tables 4.15-46 and 4.15-47, 11 freeway/toll road ramps in the Year 2035 With Pending Projects and 12 freeway/toll road ramps in Post-2035 With Pending Projects would operate at a deficient LOS without the Project. Based on the performance criteria and impact threshold criteria, no freeway/highway ramps would have Project-related cumulative impacts in the Year 2035 With Pending Projects and in Post-2035 With Pending Projects.

TABLE 4.15-46
PENDING YEAR 2035 PLUS PROPOSED PROJECT FREEWAY/TOLL ROAD RAMP LOS SUMMARY

Interchange	Ramp	Lanes	Peak Hour Capacity	Without Proposed Project, With Pending Projects						With Proposed Project, With Pending Projects					
				AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
				Vol.	V/C	LOS	Vol.	V/C	LOS	Vol.	V/C	LOS	Vol.	V/C	LOS
I-5 at Jeffrey Rd	SB On	1	1,080	**1144**	**1.06**	**F**	1000	0.93	E	**1143**	**1.06**	**F**	1002	0.93	E
I-5 at Sand Canyon	SB Off	1	1,500	1670	1.11	F	969	0.65	B	**1668**	**1.11**	**F**	969	0.65	B
I-5 at Alton Pkwy	SB Off	2	2,250	**2380**	**1.06**	**F**	1040	0.46	A	**2379**	**1.06**	**F**	1033	0.46	A
I-5 at Bake Pkwy	SB Off	2	3,000	**3265**	**1.09**	**F**	2286	0.76	C	**3264**	**1.09**	**F**	2285	0.76	C
I-405 at Sand Canyon Ave	NB Direct On	1	1,500	1440	0.96	E	**1510**	**1.01**	**F**	1450	0.97	E	**1503**	**1.00**	**F**
	SB Off	1	1,500	**1790**	**1.19**	**F**	1121	0.75	C	**1790**	**1.19**	**F**	1131	0.75	C
I-405 at Irvine Center Dr	SB Off	2	2,250	**2414**	**1.07**	**F**	1774	0.79	C	**2414**	**1.07**	**F**	1775	0.79	C
SR-133 at Trabuco Rd	SB On	1	1,500	**1654**	**1.10**	**F**	1310	0.87	D	**1660**	**1.11**	**F**	1310	0.87	D
	NB Off	1	1,500	885	0.59	A	1494	1.00	E	892	0.59	A	**1505**	**1.00**	**F**
SR-133 at Barranca Pkwy	SB On	1	1,080	200	0.19	A	**1283**	**1.19**	**F**	201	0.19	A	**1280**	**1.19**	**F**
	NB On	1	1,080	542	0.50	A	**1740**	**1.61**	**F**	550	0.51	A	**1750**	**1.62**	**F**

Vol.: volume; V/C: volume-to-capacity ratio; LOS: level of service; I: Interstate; NB: Northbound; SB: Southbound; SR: State Route

Intersections operating below acceptable standards are noted in **bold.** Locations where there is a Project-related cumulative impact are shaded. The specific threshold that is triggered is discussed later in this section under Threshold Evaluation.

Caltrans has a goal of maintaining a LOS E for freeway/toll road ramps.

The decrease in volume and V/C ratio, with Project, is due to rerouting of traffic at intersections, which can improve LOS if traffic is moved to lane groups with more capacity.

Source: Fehr & Peers 2015 (see Table 9-8 for complete data)

TABLE 4.15-47
PENDING POST-2035 PLUS PROPOSED PROJECT FREEWAY/TOLL ROAD RAMP LOS SUMMARY

Interchange	Ramp	Lanes	Peak Hour Capacity	Without Proposed Project, With Pending Projects						With Proposed Project, With Pending Projects					
				AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
				Vol.	V/C	LOS	Vol.	V/C	LOS	Vol.	V/C	LOS	Vol.	V/C	LOS
I-5 at Jeffrey	SB On	1	1080	1071	0.99	E	909	0.84	D	**1090**	**0.01**	**F**	900	0.83	D
I-5 at Sand Canyon Ave	NB On	1	1800	1300	0.72	C	**1830**	**1.02**	**F**	1300	0.72	C	**1830**	**1.02**	**F**
	SB Off	1	1500	**1757**	**1.17**	**F**	1142	0.76	C	**1758**	**1.17**	**F**	1142	0.76	C
I-5 at Alton Pkwy	SB Off	2	2250	**2510**	**1.12**	**F**	1110	0.49	A	**2518**	**1.12**	**F**	1110	0.49	A
I-5 at Bake Pkwy	SB Off	2	3000	**3362**	**1.12**	**F**	2369	0.79	C	**3362**	**1.12**	**F**	2381	0.79	C
I-405 at Sand Canyon Ave	NB Direct On	1	1800	1610	0.89	D	**2010**	**1.12**	**F**	1620	0.90	D	**2000**	**1.11**	**F**
	SB Off	1	1500	**2204**	**1.47**	**F**	1304	0.87	D	**2204**	**1.47**	**F**	1313	0.88	D
I-405 at Irvine Center Dr	SB Off	2	2250	**2472**	**1.10**	**F**	1853	0.82	D	**2462**	**1.09**	**F**	1866	0.83	D
SR-133 at Trabuco Rd	SB On	1	1500	**1800**	**1.20**	**F**	1440	0.96	E	**1810**	**1.21**	**F**	1430	0.95	E
	NB Off	1	1500	1035	0.69	B	**1536**	**1.02**	**F**	1035	0.69	B	**1543**	**1.03**	**F**
SR-133 at Barranca Pkwy	SB On	1	1080	160	0.15	A	**1259**	**1.17**	**F**	160	0.15	A	**1260**	**1.17**	**F**
	NB On	1	1080	630	0.58	A	**1850**	**1.71**	**F**	630	0.58	A	**1856**	**1.72**	**F**

Vol.: volume; V/C: volume-to-capacity ratio; LOS: level of service; I: Interstate; NB: Northbound; SB: Southbound; SR: State Route

Intersections operating below acceptable standards are noted in **bold.** Locations where there is a Project-related cumulative impact are shaded. The specific threshold that is triggered is discussed later in this section under Threshold Evaluation.

Caltrans has a goal of maintaining a LOS E for freeway/toll road ramps.

The decrease in volume and V/C ratio, with Project, is due to rerouting of traffic at intersections, which can improve LOS if traffic is moved to lane groups with more capacity.

Source: Fehr & Peers 2015 (see Table 9-13 for complete data)

Proposed Project with Pending Projects Year 2035 and Post-2035 Peak Hour Freeway/Toll Road Mainline Levels of Service

An evaluation of the freeway/toll road mainline levels of service was conducted for the Year 2035 and Post-2035 Without Project (with Pending Projects) and With Project (with Pending Projects) freeway mainline segments levels of service. As shown in Tables 4.15-48 and 4.15-49, 39 freeway/toll road mainlines in the Year 2035 With Pending Projects and 48 freeway/toll road mainlines in Post-2035 With Pending Projects would operate at a deficient LOS without the Project. Based on the performance criteria and impact threshold criteria, no Project-related cumulative impacts would occur on the mainline segments in the Year 2035 With Pending Projects and Post-2035 With Pending Projects.

TABLE 4.15-48
PENDING YEAR 2035 PLUS PROPOSED PROJECT FREEWAY MAINLINE LOS SUMMARY

Freeway	Segment	Type	Peak Hour	No Project			Plus Proposed Project		
				V/C	Density	LOS	V/C	Density	LOS
I-5 NB	I-405 Off-Ramp	Diverge	AM		-	**F**		-	**F**
			PM		-	**F**		-	**F**
	I-405 Off-Ramp to Bake On-Ramp	Basic	AM	**0.78**	-	**F**	**0.80**	-	**F**
			PM	**0.64**	-	**F**	**0.63**	-	**F**
	C-D Road On-Ramp	Basic	AM	**0.87**	-	**F**	**0.87**	-	**F**
			PM	**0.77**	-	**F**	**0.77**	-	**F**
	Alton Pkwy Off-Ramp	Diverge	AM	**0.91**	-	**F**	**0.92**	-	**F**
			PM	**0.82**	-	**F**	**0.83**	-	**F**
	Alton Slip On-Ramp to SR-133 NB Off-Ramp	Weave	AM	0.97	41.88	E	0.97	42.09	E
			PM	**1.30**	-	**F**	**1.29**	-	**F**
	SR-133 NB On-Ramp to Sand Canyon Off-Ramp	Weave	AM	**1.49**	-	**F**	**1.49**	-	**F**
			PM	**1.59**	-	**F**	**1.59**	-	**F**
	SR-133 SB On-Ramp to Jeffrey Off-Ramp	Weave	AM	**0.88**	-	**F**	**0.88**	-	**F**
			PM	0.80	33.50	D	0.80	33.57	D
I-5 SB	Culver Off-Ramp to Jeffrey On-Ramp	Basic	AM	0.99	43.61	E	0.98	43.35	E
			PM	**1.08**	-	**F**	**1.08**	-	**F**
	Jeffrey Off-Ramp	Diverge	AM	1.00	41.08	E	1.00	41.03	E
			PM	**1.14**	-	**F**	**1.15**	-	**F**
	Jeffrey to SR-133 NB	Weave	AM	**0.79**	-	**F**	**0.79**	-	**F**
			PM	0.91	41.46	E	0.92	41.62	E
	Sand Canyon Off-Ramp	Diverge	AM	**1.07**	-	**F**	**1.06**	-	**F**
			PM	0.92	37.64	E	0.92	37.67	E
	SR-133 SB to Alton Pkwy	Weave	AM	**1.40**	-	**F**	**1.40**	-	**F**
			PM	**1.27**	-	**F**	**1.27**	-	**F**
	Spectrum Center On-Ramp to I-405 On-Ramp	Basic	AM	0.77	29.07	D	0.78	29.39	D
			PM	**1.03**	-	**F**	**1.03**	-	**F**

TABLE 4.15-48
PENDING YEAR 2035 PLUS PROPOSED PROJECT FREEWAY MAINLINE LOS SUMMARY

Freeway	Segment	Type	Peak Hour	No Project			Plus Proposed Project		
				V/C	Density	LOS	V/C	Density	LOS
I-5 SB cont.	I-405 On-Ramp	Basic	AM	0.56	20.18	C	0.56	20.32	C
			PM	**0.70**	-	**F**	**0.70**	-	**F**
I-405 NB	Jeffrey Rd Off-Ramp	Basic	AM	**0.94**	-	**F**	**0.94**	-	**F**
			PM	0.76	28.28	D	0.76	28.24	D
	Jeffrey Off to On-Ramp	Basic	AM	**1.02**	-	**F**	**1.03**	-	**F**
			PM	0.75	28.11	D	0.75	28.06	D
	Jeffrey Loop On-Ramp	Merge	AM	**0.98**	-	**F**	**1.00**	-	**F**
			PM	0.65	26.61	C	0.65	26.57	C
	Jeffrey Slip On-Ramp	Merge	AM	**1.25**	-	**F**	**1.26**	-	**F**
			PM	0.75	29.15	D	0.75	29.11	D
I-405 SB	University/Jeffrey Off-Ramp	Diverge	AM	**1.04**	-	**F**	**1.03**	-	**F**
			PM	0.91	37.71	E	0.91	37.71	E
	Jeffrey Loop On-Ramp	Merge	AM	**0.88**	-	**F**	**0.87**	-	**F**
			PM	0.75	29.24	D	0.75	29.16	D
	Jeffrey Slip On-Ramp	Merge	AM	**1.08**	-	**F**	**1.08**	-	**F**
			PM	**0.99**	-	**F**	**0.98**	-	**F**
	Jeffrey to Sand Canyon	Basic	AM	**1.10**	-	**F**	**1.10**	-	**F**
			PM	**1.00**	-	**F**	**1.00**	-	**F**
	Sand Canyon Off-Ramp	Diverge	AM	**1.25**	-	**F**	**1.25**	-	**F**
			PM	**1.09**	-	**F**	**1.09**	-	**F**
	Sand Canyon Loop On-Ramp	Merge	AM	0.82	32.38	D	0.82	32.35	D
			PM	**0.85**	-	**F**	**0.86**	-	**F**
	Sand Canyon to SR-133	Basic	AM	0.97	41.98	E	0.97	41.87	E
			PM	**0.94**	-	**F**	**0.94**	-	**F**
	SR-133 Off-Ramp	Diverge	AM	**1.12**	-	**F**	**1.12**	-	**F**
			PM	**1.18**	-	**F**	**1.18**	-	**F**
	Bake Pwky Off-Ramp	Basic	AM	**0.66**	-	**F**	**0.66**	-	**F**
			PM	0.63	22.81	C	0.63	22.77	C
SR-133 NB	I-5NB On-Ramp	Merge	AM	0.44	19.09	B	0.45	19.26	B
			PM	**1.05**	-	**F**	**1.05**	-	**F**
	I-5 NB to Lane Add	Basic	AM	0.43	15.60	B	0.44	15.77	B
			PM	**1.03**	-	**F**	**1.02**	-	**F**
	I-5 SB to Trabuco	Weave	AM	**0.45**	-	**F**	**0.45**	-	**F**
			PM	**1.07**	-	**F**	**1.07**	-	**F**
	Irvine Slip On to SR-241	Weave	AM	0.46	12.01	B	0.45	12.07	B
			PM	**1.30**	-	**F**	**1.30**	-	**F**

TABLE 4.15-48
PENDING YEAR 2035 PLUS PROPOSED PROJECT FREEWAY MAINLINE LOS SUMMARY

Freeway	Segment	Type	Peak Hour	No Project			Plus Proposed Project		
				V/C	Density	LOS	V/C	Density	LOS
SR-133 SB	SR-241 to Irvine Center Dr	Weave	AM	**0.97**	**-**	**F**	**0.97**	**-**	**F**
			PM	0.42	12.85	B	0.42	12.85	B
	Trabuco to I-5 NB	Weave	AM	**0.90**	**-**	**F**	**0.91**	**-**	**F**
			PM	0.38	14.19	B	0.38	14.13	B
SR-241 NB	Portola Off-Ramp	Diverge	AM	**1.07**	**-**	**F**	**1.07**	**-**	**F**
			PM	0.59	25.94	C	0.59	25.94	C
	Portola to Toll Road	Basic	AM	**1.05**	**-**	**F**	**1.05**	**-**	**F**
			PM	0.54	19.56	C	0.54	19.56	C
	Toll Road Off-Ramp	Diverge	AM	**1.12**	**-**	**F**	**1.13**	**-**	**F**
			PM	0.50	12.84	B	0.50	12.84	B
	Toll Road & Portola On to SR-133 SB Off	Weave	AM	**1.10**	**-**	**F**	**1.10**	**-**	**F**
			PM	0.48	17.34	B	0.48	17.34	B
SR-241 SB	SR-133 SB Off-Ramp	Diverge	AM	**0.95**	**-**	**F**	**0.96**	**-**	**F**
			PM	0.61	15.30	B	0.62	15.38	B
	SR-133 NB On to Toll Road Off	Weave	AM	0.37	13.68	B	0.37	13.54	B
			PM	**0.88**	**-**	**F**	**0.88**	**-**	**F**

V/C: Volume to Capacity ratio; LOS: level of service; I: Interstate; NB: Northbound; SB: Southbound; HOV: high-occupancy vehicle; SR: State Route

Intersections operating below acceptable standards are noted in **bold.** Locations where there is a Project-related cumulative impact are shaded. The specific threshold that is triggered is discussed later in this section under Threshold Evaluation.

Caltrans has a goal of maintaining a LOS E for freeway/toll road mainlines.

The decrease in V/C ratio, with Project, is due to rerouting of traffic at intersections, which can improve LOS if traffic is moved to lane groups with more capacity.

Source: Fehr & Peers 2015 (see Table 9-14 for complete data)

TABLE 4.15-49
PENDING POST-2035 PLUS PROPOSED PROJECT FREEWAY MAINLINE LOS SUMMARY

Freeway	Segment	Type	Peak Hour	No Project			Plus Proposed Project		
				V/C	Density	LOS	V/C	Density	LOS
I-5 NB	I-405 Off-Ramp	Diverge	AM		-	**F**		-	**F**
			PM		-	**F**		-	**F**
	I-405 Off-Ramp to Bake On-Ramp	Basic	AM	**0.80**	-	**F**	**0.81**	-	**F**
			PM	**0.62**	-	**F**	**0.62**	-	**F**
	C-D Road On-Ramp	Basic	AM	**0.87**	-	**F**	**0.87**	-	**F**
			PM	**0.77**	-	**F**	**0.77**	-	**F**
	Alton Pkwy Off-Ramp	Diverge	AM	**0.91**	-	**F**	**0.92**	-	**F**
			PM	**0.82**	-	**F**	**0.82**	-	**F**
	Alton Slip On-Ramp to SR-133 NB Off-Ramp	Weave	AM	0.97	41.78	E	0.97	42.19	E
			PM	**1.30**	-	**F**	**1.30**	-	**F**
	SR-133 NB On-Ramp to Sand Canyon Off-Ramp	Weave	AM	**1.53**	-	**F**	**1.53**	-	**F**
			PM	**1.63**	-	**F**	**1.63**	-	**F**
	SR-133 SB On-Ramp to Jeffrey Off-Ramp	Weave	AM	**0.90**	-	**F**	**0.91**	-	**F**
			PM	0.83	35.40	E	0.82	34.97	D
	Jeffrey Slip On-Ramp	Merge	AM	**0.92**	-	**F**	**0.93**	-	**F**
			PM	0.72	29.12	D	0.71	28.75	D
I-5 SB	Culver Off-Ramp to Jeffrey On-Ramp	Basic	AM	**1.07**	-	**F**	**1.06**	-	**F**
			PM	**1.13**	-	**F**	**1.13**	-	**F**
	Jeffrey Off-Ramp	Diverge	AM	**1.09**	-	**F**	**1.09**	-	**F**
			PM	**1.20**	-	**F**	**1.20**	-	**F**
	Jeffrey Off to On-Ramps	Basic	AM	**1.00**	-	**F**	**1.00**	-	**F**
			PM	**1.03**	-	**F**	**1.04**	-	**F**
	Jeffrey to SR-133 NB	Weave	AM	**0.84**	-	**F**	**0.84**	-	**F**
			PM	**0.94**	-	**F**	**0.95**	-	**F**
	Sand Canyon Off-Ramp	Diverge	AM	**1.12**	-	**F**	**1.12**	-	**F**
			PM	0.98	39.86	E	0.98	39.83	E
	SR-133 SB to Alton Pkwy	Weave	AM	**1.44**	-	**F**	**1.45**	-	**F**
			PM	**1.30**	-	**F**	**1.29**	-	**F**
	Spectrum Center On-Ramp to I-405 On-Ramp	Basic	AM	0.80	30.60	D	0.80	30.60	D
			PM	**1.04**	-	**F**	**1.05**	-	**F**
	I-405 On-Ramp	Basic	AM	0.59	21.25	C	0.58	21.12	C
			PM	**0.73**	-	**F**	**0.73**	-	**F**

TABLE 4.15-49
PENDING POST-2035 PLUS PROPOSED PROJECT FREEWAY MAINLINE LOS SUMMARY

Freeway	Segment	Type	Peak Hour	No Project			Plus Proposed Project		
				V/C	Density	LOS	V/C	Density	LOS
I-405 NB	Sand Canyon Off-Ramp to Lane Drop	Basic	AM	**0.84**	**-**	**F**	**0.84**	**-**	**F**
			PM	0.67	24.25	C	0.67	24.32	C
	Lane Drop to Sand Canyon On-Ramp/HOV Lane add	Basic	AM	**1.05**	**-**	**F**	**1.05**	**-**	**F**
			PM	0.83	32.33	D	0.84	32.46	D
	Sand Canyon Loop On-Ramp	Basic	AM	**0.91**	**-**	**F**	**0.91**	**-**	**F**
			PM	0.70	25.75	C	0.70	25.83	C
	Sand Canyon Slip On-Ramp	Merge	AM	**1.01**	**-**	**F**	**1.01**	**-**	**F**
			PM	0.92	33.53	D	0.92	33.50	D
	Sand Canyon Slip On-Ramp to Jeffrey Rd Off-Ramp	Basic	AM	**1.03**	**-**	**F**	**1.03**	**-**	**F**
			PM	0.86	34.15	D	0.86	34.21	D
	Jeffrey Rd Off-Ramp	Basic	AM	**1.03**	**-**	**F**	**1.03**	**-**	**F**
			PM	0.86	34.15	D	0.86	34.21	D
	Jeffrey Off to On-Ramp	Basic	AM	**1.13**	**-**	**F**	**1.13**	**-**	**F**
			PM	0.90	36.29	E	0.90	36.53	E
	Jeffrey Loop On-Ramp	Merge	AM	**1.22**	**-**	**F**	**1.22**	**-**	**F**
			PM	0.78	31.22	D	0.78	31.32	D
	Jeffrey Slip On-Ramp	Merge	AM	**1.51**	**-**	**F**	**1.51**	**-**	**F**
			PM	0.89	34.12	D	0.89	34.14	D
I-405 SB	University/Jeffrey Off-Ramp	Diverge	AM	**1.25**	**-**	**F**	**1.25**	**-**	**F**
			PM	**1.00**	**-**	**F**	**1.00**	**-**	**F**
	Jeffrey to Loop On-Ramp	Basic	AM	**1.09**	**-**	**F**	**1.09**	**-**	**F**
			PM	0.92	38.13	E	0.92	38.21	E
	Jeffrey Loop On-Ramp	Merge	AM	**1.14**	**-**	**F**	**1.13**	**-**	**F**
			PM	0.84	32.32	D	0.84	32.43	D
	Jeffrey Slip On-Ramp	Merge	AM	**1.34**	**-**	**F**	**1.34**	**-**	**F**
			PM	**1.07**	**-**	**F**	**1.07**	**-**	**F**
	Jeffrey to Sand Canyon	Basic	AM	**1.23**	**-**	**F**	**1.23**	**-**	**F**
			PM	**1.10**	**-**	**F**	**1.10**	**-**	**F**
	Sand Canyon Off-Ramp	Diverge	AM	**1.41**	**-**	**F**	**1.41**	**-**	**F**
			PM	**1.20**	**-**	**F**	**1.20**	**-**	**F**
	Sand Canyon Off to On-Ramp	Basic	AM	**1.01**	**-**	**F**	**1.00**	**-**	**F**
			PM	1.00	44.76	E	1.00	44.76	E
	Sand Canyon Loop On-Ramp	Merge	AM	**0.99**	**-**	**F**	**0.98**	**-**	**F**
			PM	**0.92**	**-**	**F**	**0.92**	**-**	**F**
	Sand Canyon Slip On-Ramp	Merge	AM	**1.02**	**-**	**F**	**1.02**	**-**	**F**
			PM	**0.94**	**-**	**F**	**0.94**	**-**	**F**

TABLE 4.15-49
PENDING POST-2035 PLUS PROPOSED PROJECT FREEWAY MAINLINE LOS SUMMARY

Freeway	Segment	Type	Peak Hour	No Project			Plus Proposed Project		
				V/C	Density	LOS	V/C	Density	LOS
I-405 SB cont.	SR-133 Off-Ramp	Diverge	AM	**1.24**	**-**	**F**	**1.23**	**-**	**F**
			PM	**1.26**	**-**	**F**	**1.27**	**-**	**F**
	SR-133 On-Ramp to Irvine Center Dr Off-Ramp	Weave	AM	0.99	40.53	E	0.98	40.27	E
			PM	1.00	39.18	E	1.00	-	F
	Bake Pwky Off-Ramp	Basic	AM	**0.72**	**-**	**F**	**0.72**	**-**	**F**
			PM	0.69	25.32	C	0.69	25.28	C
SR-133 NB	I-5NB On-Ramp	Merge	AM	0.46	19.78	B	0.46	19.69	B
			PM	**1.09**	**-**	**F**	**1.10**	**-**	**F**
	I-5 NB to Lane Add	Basic	AM	0.45	16.27	B	0.45	16.18	B
			PM	**1.07**	**-**	**F**	**1.07**	**-**	**F**
	I-5 SB to Trabuco	Weave	AM	**0.49**	**-**	**F**	**0.49**	**-**	**F**
			PM	**1.06**	**-**	**F**	**1.07**	**-**	**F**
	Irvine Slip On to SR-241	Weave	AM	0.43	11.51	B	0.43	11.46	B
			PM	**1.29**	**-**	**F**	**1.29**	**-**	**F**
SR-133 SB	SR-241 to Irvine Center Dr	Weave	AM	**0.96**	**-**	**F**	**0.96**	**-**	**F**
			PM	0.38	11.23	B	0.38	11.29	B
	Trabuco to I-5 NB	Weave	AM	**0.94**	**-**	**F**	**0.94**	**-**	**F**
			PM	0.39	14.60	B	0.39	14.48	B
	Barranca Off-Ramp	Diverge	AM	1.00	41.34	E	**1.00**	**-**	**F**
			PM	0.39	18.17	B	0.38	18.07	B
SR-241 NB	Toll Road Off-Ramp	Diverge	AM	**1.03**	**-**	**F**	**1.04**	**-**	**F**
			PM	0.43	10.16	B	0.43	10.16	B
	Toll Road & Portola On to SR-133 SB Off	Weave	AM	**1.01**	**-**	**F**	**1.01**	**-**	**F**
			PM	0.41	14.36	B	0.41	14.35	B
SR-241 SB	SR-133 SB Off-Ramp	Diverge	AM	**0.93**	**-**	**F**	**0.92**	**-**	**F**
			PM	0.55	13.08	B	0.56	13.17	B
	SR-133 NB On to Toll Road Off	Weave	AM	0.33	12.09	B	0.33	12.14	B
			PM	**0.86**	**-**	**F**	**0.86**	**-**	**F**

V/C: Volume to Capacity ratio; LOS: level of service; I: Interstate; NB: Northbound; SB: Southbound; HOV: high-occupancy vehicle; SR: State Route

Intersections operating below acceptable standards are noted in **bold.** Locations where there is a Project-related cumulative impact are shaded. The specific threshold that is triggered is discussed later in this section under Threshold Evaluation.

Caltrans has a goal of maintaining a LOS E for freeway/toll road mainlines.

The decrease in V/C ratio, with Project, is due to rerouting of traffic at intersections, which can improve LOS if traffic is moved to lane groups with more capacity.

Source: Fehr & Peers 2015 (see Table 9-14 for complete data)

Threshold Evaluation

The following provides an assessment of the thresholds of significance as they apply to the cumulative scenario (Year 2035 With Pending Projects and Post-2035 With Pending Projects). Only those locations and thresholds where Project-related impacts have been identified are discussed.[11]

City of Irvine

Peak Hour Intersection LOS (ICU Methodology)

The intersection of Jamboree Road and Warner Avenue would be significantly impacted under the cumulative scenario in the PM peak hours for the Year 2035 With Pending Projects. The addition of Project-related traffic, in conjunction with the Year 2035 With Pending Projects traffic would exceed the applicable threshold by increasing the ICU by 0.02 and would cause an increase in delay at this location (Threshold 4.15-3).

No Project-related cumulative impacts to intersection would occur in the Post-2035 With Pending Projects scenario.

Freeway/Toll Road Ramp LOS

No Project-related cumulative impacts to freeway/toll road ramps would occur in the Year 2035 With Pending Projects and Post-2035 With Pending Projects scenarios.

California Department of Transportation

Caltrans Ramp Intersection LOS (HCM Methodology)

The Jeffrey Road and Walnut Avenue intersection would be significantly impacted under the cumulative scenario (Year 2035 With Pending Projects and Post-2035 With Pending Projects) in the AM and PM Peak hours. This intersection already operates at an unacceptable LOS in the AM and PM Peak hours in both cumulative scenarios, and the addition of Project-related traffic, in conjunction with the Year 2035 With Pending Projects and Post-2035 With Pending Projects, would cause an increase in delay at this intersection (Threshold 4.15-66).

The Jeffrey Road and I-405 northbound intersection would be significantly impacted under the cumulative scenarios (Year 2035 With Pending Projects) in the PM Peak hour. This intersection already operates at an unacceptable LOS and the addition of Project-related traffic, in conjunction with the Year 2035 With Pending Projects, would cause an increase in delay at this intersection (Threshold 4.15-66).

The Sand Canyon Avenue and I-5 southbound intersection would be significantly impacted under the cumulative scenario (Year 2035 With Pending Projects and Post-2035 With Pending Projects) in the AM peak hour. The intersection would be significantly impacted in the PM peak

[11] As previously indicated, the TIA also evaluated the 2017 Plus Project and Pending Projects. In the year 2017 Plus Project and Pending Projects, there was one Caltrans intersection that would have a Project-related impact (Jeffery Road and the I-5 northbound ramps) under Threshold 4.15-66.

hour in the Post-2035 With Pending Projects only. This intersection already operates at an unacceptable LOS in both cumulative scenarios, and the addition of Project-related traffic, in conjunction with the Year 2035 With Pending Projects and Post-2035 With Pending Projects, would cause an increase in delay at this intersection (Threshold 4.15-66).

The Sand Canyon Avenue and I-5 northbound intersection would be significantly impacted under the Post-2035 With Pending Projects cumulative scenario in the AM and PM peak hours. This intersection already operates at an unacceptable LOS, and the addition of Project-related traffic, in conjunction with Post-2035 traffic and pending traffic, would cause an increase in delay at this intersection (Threshold 4.15-66).

The SR-133 southbound and Irvine Boulevard intersection would be significantly impacted under the Year 2035 With Pending Projects cumulative scenario in the AM peak hour. This intersection already operates at an unacceptable LOS, and the addition of Project-related traffic, in conjunction with the Year 2035 and pending traffic, would cause an increase in delay at this intersection (Threshold 4.15-66).

The Trabuco Road and SR-133 northbound intersection would be significantly impacted under the cumulative scenario (Year 2035 With Pending Projects and Post-2035 With Pending Projects) in the PM peak hour. This intersection already operates at an unacceptable LOS, and the addition of Project-related traffic, in conjunction with the Year 2035 With Pending Projects and Post-2035 With Pending Project, would cause in an increase in delay at this location (Threshold 4.15-66).

The Portola Parkway and SR-241 northbound intersection would be significantly impacted under the Post-2035 With Pending Projects cumulative scenario in the PM peak hour. This intersection already operates at an unacceptable LOS and the addition of Project-related traffic, in conjunction with Post-2035 and pending traffic, would cause an increase in delay at this location (Threshold 4.15-66).

The Portola Parkway and SR-241 southbound intersection would be significantly impacted under the Post-2035 With Pending Project cumulative scenario in the PM peak hour. This intersection already operates at an unacceptable LOS and the addition of Project-related traffic, in conjunction with Post-2035 and pending traffic, would cause an increase in delay at this location (Threshold 4.15-66).

The Fortune Drive and I-5 southbound and Enterprise Drive intersection would be significantly impacted under the Post-2035 With Pending Project cumulative scenario in the PM peak hour. This intersection already operates at an unacceptable LOS, and the addition of Project-related traffic, in conjunction with Post-2035 and pending traffic, would cause an increase in delay at this location (Threshold 4.15-66).

The Bake Parkway and I-5 southbound intersection would be significantly impacted under the Post-2035 With Pending Project cumulative scenario in the PM peak hour. This intersection already operates at an unacceptable LOS, and the addition of Project-related traffic, in conjunction with Post-2035 and pending traffic, would cause an increase in delay at this location (Threshold 4.15-66).

Freeway/Toll Road Mainline LOS

No Project-related cumulative impacts to freeway/toll road mainline would occur in the Year 2035 With Pending Projects and Post-2035 With Pending Projects scenarios.

Impact Conclusion: *Based on the traffic data analysis and the threshold evaluations above, there would be a cumulative intersection impact, using the ICU methodology, associated with the Year 2035 Plus Project With Pending Projects, pursuant to Thresholds 4.15-3 in the City of Irvine. While potential mitigation has been recommended and imposed that would reduce impacts to less than significant levels for the impacts pursuant to Thresholds 4.15-3, the feasibility of the mitigation is uncertain and outside the control of the County of Orange; therefore, the impacts would remain significant and unavoidable.*

There would also be significant cumulative freeway/highway intersections impacts, using HCM methodology, associated with the Year 2035 With Pending Projects and Post-2035 With Pending Projects, pursuant to Threshold 4.15-66. While potential mitigation has been recommended and imposed to reduce Project impacts to a less than significant level, the feasibility of the mitigation is uncertain and outside the control of the County of Orange; therefore, the impacts would remain significant and unavoidable.

In addition to those locations discussed above where the specific thresholds are exceeded as a result of the Project, the Project would also contribute traffic to locations (intersections, ramps, and freeway mainlines) that are already operating at a deficient LOS, without exceeding thresholds.

Impact Summary

Table 4.15-34, Impact Summary, provides a summary of the intersections and freeway locations that would be significantly impacted either directly or indirectly (i.e., cumulatively) by one or more of the scenarios. It also identifies City intersections, Caltrans intersections, Caltrans Freeway On- and Off-Ramps, and Caltrans Freeway Mainline Segments that would be significantly impacted by the proposed Project.

4.15.7 MITIGATION PROGRAM

Potential mitigation measures were evaluated for each of the Project-related impacts. The goal of the mitigation measures was to enable the facility impacted by the Project to operate either at an adequate LOS, or for those locations with existing or projected deficiencies without the Project, to operate at pre-Project levels.

The measures summarized in Table 4.15-38, provide the LOS information after implementation of the mitigation measure. These measures can generally be grouped into one of four categories, which are discussed below. However, it should be noted that implementation of all the measures require involvement of other agencies. Following each measure is a brief

description of what is involved with implementation of the measure and an assessment of the type of environmental impacts, if any, that would be associated with implementation of the mitigation measure.

Category 1—Mitigation Measures Associated With Routine Operational Practices

As part of the traffic analysis, assumptions on signal timing are made. A number of the impacts identified could be avoided or minimized through optimization of the signal timing, which is considered part of the general signal maintenance. The signals are under the control of either the City of Irvine or Caltrans, which would be responsible for implementation of this mitigation measure. These mitigation measures are identified as MM TRAN-1 and MM TRAN-2 and would address the impacts to the following intersections:

City of Irvine

- Jeffrey Road and Walnut Avenue (AM and PM) (Threshold 4.15-66)[12]

Caltrans

- Jeffrey Road and I-5 NB (PM) (Threshold 4.15-66)
- Jeffrey Road and Walnut Avenue (AM and PM) (Threshold 4.15-66) [13]
- Sand Canyon Avenue and I-5 NB (AM) (Threshold 4.15-66)
- Sand Canyon Avenue and I-5 SB (AM) (Threshold 4.15-66)
- Fortune Drive and I-5 SB and Enterprise Drive (PM) (Threshold 4.15-66) [13]
- Bake Parkway and I-5 SB (PM) (Threshold 4.15-66)
- Trabuco Road and SR-133 SB (AM) (Threshold 4.15-66)
- SR-133 SB and Irvine Boulevard (PM) (Threshold 4.15-66)
- SR-133 NB & Trabuco Road

Optimization of the signal timing is considered general signal maintenance and would not result in any environmental impacts and will lead to the intersection operating at acceptable levels or pre-Project LOS. The City of Irvine would be responsible for implementation of MM TRAN-1 and Caltrans would be responsible for implementation of MM TRAN-2. Additionally, DR TRAN-3 provides that the County shall ensure access to the Project site for traffic signal maintenance is provided.

Should the City of Irvine or Caltrans elect not to make these signal timing adjustments, the County would be unable to implement these measures because they are located outside of the County jurisdiction. Therefore, the Project's impacts at these locations would remain significant and unavoidable as there is no other feasible mitigation that would fully reduce the identified impacts to less than significant.

Category 2 — Improvements at locations in the NITM Area but not identified as NITM improvements

[12] This intersection is located in the City of Irvine and modifications to the signal timing would be the responsibility of the City of Irvine. However, the Project impact is associated with the Caltrans threshold of adding trips to an intersection that is currently operating at LOS D or less.

[13] See Table 4.15-38 for additional mitigation measures applicable to this facility.

Since its inception in 2003, the NITM Program has evolved as additional development has occurred within the NITM area. Regularly updates to the program have occurred over time, during which the initial list of mitigation measures have been modified. In some instances, additional mitigation measures have been identified while others have been removed from the program because the proposed improvements were constructed or traffic forecasts indicated that the improvement is no longer needed.

As part of the Project, improvements not previously included in the NITM Program have been identified for locations in the NITM area. Inclusion of these improvements in the NITM Program and inclusion of the County as a NITM member (or alternative fair–share agreement with the City of Irvine) would provide a mechanism for the County to contribute a fair-share toward the improvements.

All improvements in this category would be evaluated by the City of Irvine NITM Committee to determine the most cost effective improvements. To demonstrate the ability to mitigate the potential impacts of the Project, the TIA has assessed possible mitigation strategies to determine what mitigation is feasible. The following improvement was determined to be feasible mitigation for the identified impact:

- Jeffrey Road and Walnut Avenue: Impacts to this intersection can be mitigated by restriping the outer westbound through lane to a shared through-right lane.

Though this improvement has not been identified in the NITM Program, MM TRAN-3 would be applicable to this improvement. This improvement has not been formally vetted by the City of Irvine for feasibility or an assessment of impacts.

Should the County be unable to join the NITM Program or a formal agreement cannot be reached between the County and the City relating to the payment of any applicable fees, the County would be unable to implement this measure because it is located outside of their jurisdiction. Therefore, the Project's impacts at this location would remain significant and unavoidable as there is no other feasible mitigation that would fully reduce the identified impact to less than significant.

Category 3—Improvements at locations which are under Caltrans jurisdiction and Not Addressed by NITM

Caltrans currently maintains jurisdictions over freeways, freeways ramps, and signalized freeway ramp intersections throughout the study area. Key facilities under Caltrans jurisdiction include I-5, I-405, SR-133, SR-241, and any ramps connecting from surface streets to these freeway facilities.

Category 1 identified locations under Caltrans jurisdiction where signal modification would provide sufficient mitigation to reduce impacts to less than significant. Additional improvements have been identified that would mitigate Project impacts to Caltrans facilities. These improvements fall into two subcategories—those that are technically feasible and can be accommodated within the existing right-of-way or cause limited impacts to adjacent properties; and those that are more regional in scope and would require substantial modification to the circulation network. The improvements that are technically feasible include:

- Jeffrey Road and I-405 NB: Impacts to this intersection can be mitigated by restriping the outer SB through lane to a shared SB through right lane.
- Fortune Drive/I-5 Southbound and Enterprise Drive Intersection: Impacts to this intersection can be mitigated by adding an additional eastbound left-turn lane at this intersection. This would require acquisition of right-of-way at the northwest corner and construction of a retaining wall; however, environmental impacts are anticipated to be less than significant given the previously developed nature of the area.

A subcategory of Caltrans improvements were determined not to be technically feasible based on Caltrans standards. This includes:

- Portola Parkway and SR-241 Southbound: Impacts to this intersection can be mitigated with the installation of a traffic signal; however, the intersection does not meet signal warrants.

Because the improvements necessary to mitigate the identified significant freeway impacts (i.e., providing increased capacity) are beyond the jurisdiction and control of the County, and because the agency with jurisdiction and control over these facilities (i.e., Caltrans) have no present plans to construct the necessary improvements within the timeframe necessary to mitigate the identified significant impacts, there is no mechanism by which the Project can contribute its fair-share towards the necessary improvements and, consequently, there is not substantial evidence that even with a fair-share payment the necessary improvements would be constructed. As such, the mitigation necessary to reduce the identified significant impacts is infeasible and the impacts are significant and unavoidable.

Category 4—Project Causes or Contributes to a Cumulative Impact

There are eleven locations where impacts have been identified in the Year 2035 Plus Project and Pending Projects or Post-2035 Plus Project and Pending Projects cumulative scenarios. Though it is uncertain if these conditions will ever exists because it assumes the full list of cumulative projects (see Table 4-1, Potential Cumulative Projects) is implemented, the TIA did evaluate possible mitigation measures for these locations. The following provides a summary of the impact assessment and if mitigation is feasible.

Year 2035 Plus Project and Pending Projects Scenario

For this scenario, there is one intersection using the ICU methodology in the City of Irvine and five freeway/highway intersections using HCM methodology that have impacts in this cumulative scenario. Each of these locations is discussed below:

- Jamboree Road NB ramps and Warner Avenue (PM) (Threshold 4.15-3): Impacts to this intersection, located in the City of Irvine, can be mitigated to acceptable/pre-Project conditions by restriping the inner eastbound through lane to a shared left/through lane, installing east/west split phases, and a second receiving lane on the Jamboree on-ramp. This improvement can be implemented with some right of way acquisition. This improvement could be accommodated with the implementation of MM TRAN-3 and impacts would be reduced to less than significant. However, as discussed for Category 2 mitigation measures, should the County be unable to join the NITM Program or a formal agreement not be reached between the County and the City of Irvine relating to the payment of any applicable fees, the County would be unable to

implement this measure because it is located outside of their jurisdiction. Therefore, the Project's impacts at this location would remain significant and unavoidable as there is no other feasible mitigation that would fully reduce the identified impacts to less than significant.

- Jeffrey Road and Walnut Avenue (AM and PM) (Threshold 4.15-66): Impacts to this intersection can be mitigated to pre-Project conditions with signal timing adjustments. This improvement could be accommodated with the implementation of MM TRAN-2 and impacts would be reduced to less than significant. However, as discussed for Category 1 mitigation measures, should the City not agree to the optimal signal timing adjustments the County would be unable to implement this measure because it is located outside of their jurisdiction. Therefore, the Project's impacts at this location would remain significant and unavoidable as there is no other feasible mitigation that would fully reduce the identified impacts to less than significant.
- Jeffrey Road and I-405 NB (PM) (Threshold 4.15-66): Impacts to this intersection can be mitigated to pre-Project conditions with signal timing adjustments. This improvement could be accommodated with the implementation of MM TRAN-2 and impacts would be reduced to less than significant. However, as discussed for Category 1 mitigation measures, should Caltrans not agree to the optimal signal timing adjustments the County would be unable to implement this measure because it is located outside of their jurisdiction. Therefore, the Project's impacts at this location would remain significant and unavoidable as there is no other feasible mitigation that would fully reduce the identified impacts to less than significant.
- Sand Canyon and I-5 SB (AM) (Threshold 4.15-66): Impacts to this intersection can be mitigated to pre-Project conditions with signal timing adjustments. This improvement could be accommodated with the implementation of MM TRAN-2 and impacts would be reduced to less than significant. However, as discussed for Category 1 mitigation measures, should Caltrans not agree to the optimal signal timing adjustments the County would be unable to implement this measure because it is located outside of their jurisdiction. Therefore, the Project's impacts at this location would remain significant and unavoidable as there is no other feasible mitigation that would fully reduce the identified impacts to less than significant.
- SR-133 SB and Irvine Boulevard (AM) (Threshold 4.15-66): Impacts to this intersection can be mitigated to pre-Project conditions with signal timing adjustments and restriping the southbound left-turn lane to a shared left/right lane. However, as discussed under Category 3, Caltrans has no mechanism by which the Project can contribute its fair-share towards the necessary improvements and, consequently, there is not substantial evidence that even with a fair-share payment the necessary improvements would be constructed. As such, the mitigation necessary to reduce the identified significant impacts is infeasible and the impacts are significant and unavoidable.
- SR-133 NB and Trabuco Road (PM) (Threshold 4.15-66): Impacts to this intersection can be mitigated to pre-Project conditions with signal timing adjustments. This improvement could be accommodated with the implementation of MM TRAN-2 and impacts would be reduced to less than significant. However, as discussed for Category 1 mitigation measures, should Caltrans not agree to the optimal signal timing adjustments the County would be unable to implement this measure because it is

located outside of their jurisdiction. Therefore, the Project's impacts at this location would remain significant and unavoidable as there is no other feasible mitigation that would fully reduce the identified impacts to less than significant.

Post-2035 Plus Project and Pending Projects Scenario

For this scenario, there eight freeway/highway intersections using HCM methodology that have impacts in this cumulative scenario. Each of these locations is discussed below:

- Jeffrey Road and Walnut Avenue (AM and PM) (Threshold 4.15-66): Impacts to this intersection can be mitigated to pre-Project conditions with signal timing adjustments. This improvement could be accommodated with the implementation of MM TRAN-2 and impacts would be reduced to less than significant. However, as discussed for Category 1 mitigation measures, should the City not agree to the optimal signal timing adjustments the County would be unable to implement this measure because it is located outside of their jurisdiction. Therefore, the Project's impacts at this location would remain significant and unavoidable as there is no other feasible mitigation that would fully reduce the identified impacts to less than significant.
- Sand Canyon Avenue and I-5 NB (AM and PM) (Threshold 4.15-66): Impacts to this intersection can be mitigated to pre-Project conditions with signal timing adjustments. This improvement could be accommodated with the implementation of MM TRAN-2 and impacts would be reduced to less than significant. However, as discussed for Category 1 mitigation measures, should Caltrans not agree to the optimal signal timing adjustments the County would be unable to implement this measure because it is located outside of their jurisdiction. Therefore, the Project's impacts at this location would remain significant and unavoidable as there is no other feasible mitigation that would fully reduce the identified impacts to less than significant.
- Sand Canyon Avenue and I-5 SB (AM and PM) (Threshold 4.15-66): Impacts to this intersection can be mitigated to pre-Project conditions with signal timing adjustments. This improvement could be accommodated with the implementation of MM TRAN-2 and impacts would be reduced to less than significant. However, as discussed for Category 1 mitigation measures, should Caltrans not agree to the optimal signal timing adjustments the County would be unable to implement this measure because it is located outside of their jurisdiction. Therefore, the Project's impacts at this location would remain significant and unavoidable as there is no other feasible mitigation that would fully reduce the identified impacts to less than significant.
- Portola Parkway and SR-241 NB (PM) (Threshold 4.15-66): Impacts to this intersection can be mitigated to acceptable/pre-Project conditions with the installation of a traffic signal. However, this intersection does not meet Caltrans peak hour signal warrants so the mitigation is infeasible. Therefore, this impact is deemed significant and unavoidable.
- Portola Parkway and SR-241 SB (PM) (Threshold 4.15-66): Impacts to this intersection can be mitigated to acceptable/pre-Project conditions with the installation of a traffic signal. However, this intersection does not meet Caltrans peak hour signal warrants so the mitigation is infeasible. Therefore, this impact is deemed significant and unavoidable.

- Fortune Drive/I-5 SB and Enterprise Drive (PM) (Threshold 4.15-66): Impacts to this intersection can be mitigated by adding an additional eastbound left-turn lane at this intersection. This would require acquisition of right-of-way at the northwest corner and construction of a retaining wall; however, environmental impacts are anticipated to be less than significant given the previously developed nature of the area. However, the County would be unable to implement this measure because it is located outside of their jurisdiction. Therefore, the Project's impacts at this location would remain significant and unavoidable.
- Bake Parkway and I-5 SB (PM) (Threshold 4.15-66): Impacts to this intersection can be mitigated to pre-Project conditions with the installation of a dedicated northbound right-turn lane. Minor right-of-way would be required and there would be a need to construct a retaining wall to minimize potential parking impacts on the adjacent land use; however, environmental impacts are anticipated to be less than significant given the previously developed nature of the area. However, the County would be unable to implement this measure because it is located outside of their jurisdiction. Therefore, the Project's impacts at this location would remain significant and unavoidable.
- SR-133 NB and Trabuco Road (PM) (Threshold 4.15-66): Impacts to this intersection can be mitigated to pre-Project conditions with signal timing adjustments. This improvement could be accommodated with the implementation of MM TRAN-2 and impacts would be reduced to less than significant. However, as discussed for Category 1 mitigation measures, should Caltrans not agree to the optimal signal timing adjustments the County would be unable to implement this measure because it is located outside of their jurisdiction. Therefore, the Project's impacts at this location would remain significant and unavoidable as there is no other feasible mitigation that would fully reduce the identified impacts to less than significant.

Category 5—Impacts Only Associated with the Existing Plus Project Scenario

As discussed earlier in this Section, the Existing Plus Project is a hypothetical point in time analysis that presumes that the entire Project traffic volume gets added to the existing environment (existing traffic volumes, existing roadway infrastructure, and existing land uses). For the Project, which will not be developed until 2018 at the earliest, such a result is neither feasible nor in furtherance of informed decision making. This approach can result in understating Project impacts because capacity that otherwise would be utilized by future development that precedes a Project is now available to the Project. Conversely, because this analysis does not account for future planned roadway network improvements that would increase roadway capacities, it also potentially can result in overstating Project impacts. As shown in Table 4.15-37 there are theoretical impacts to one Caltrans intersection and six segments of the freeway mainline facilities that only have impacts in the Existing Plus Project scenario. These are:

Caltrans Intersection

- Jeffrey Road and Walnut Avenue (AM and PM) (Threshold 4.15-66)

Caltrans Freeway/Highway Mainline Segments

- I-5 NB (Alton Slip On-Ramp to SR-133 NB Off-Ramp (PM) (Threshold 4.15-67)
- I-5 SB (Jeffrey to SR-133 NB) (AM) (Threshold 4.15-68)

- I-5 SB (SR-133 SB to Alton) (AM and PM) (Thresholds 4.15-67 and 4.15-68)
- I-405 NB (Jeffrey Slip On-Ramp) (AM) (Threshold 4.15-68)
- I-405 SB (Sand Canyon Off-Ramp) (AM) (Threshold 4.15-68)
- I-405 SB (SR-133 Off-Ramp) (AM) (Threshold 4.15-67)

Because these impacts are only associated with the hypothetical Existing Plus Project scenario, and the Project will not add all its traffic at one time to the road network as it exists today, the Project will not actually result in any traffic impacts to the existing condition. The amount of development associated with the Project does not exist in the existing condition. Further, this Section analyzes the traffic impacts in the 2017, 2035 and Post-2035 conditions. Thus, mitigation measures are not required for the Existing plus Project scenario. Nonetheless, as part of the TIA, improvements that could address the potential impacts were evaluated. For all the impacts other than the impact on I-405 SB from SR-133 Southbound to Alton Parkway, no feasible improvements were identified. Mitigating the identified significant impact to the mainline freeway would require reconstruction of the freeways to add travel lanes and upgrade each of the deficient ramp locations. Since the freeways in the study area are interconnected systems, it would not be possible, nor effective, to provide isolated spot improvements of one segment of the freeway where deficient operations are observed.

In 2014, OCTA completed an update of its Long Range Transportation Plan (LRTP), also known as Outlook 2035 (OCTA 2014). The plan provides as assessment of the transportation system over the next 20+ years. The LRTP identifies transportation improvements that are incorporated into SCAG's Regional Transportation Plan. This planning document identifies an extensive series of improvements to the regional network, many of which would be funded at least in part by the Measure M2, the voter approved ½ cent sales tax for transportation. Two improvements identified in the LRTP, which were included in Measure M2, are improvements to I-5 from the I-405 to the SR-55 and improvements to I-405 from I-5 to SR-55. Because of the regional nature of these improvements, they are beyond the scope of any individual project and therefore have been included as part of the regional transportation planning efforts. Both of these freeway improvement projects would improve the operation of the regional network and mitigate the impacts of the proposed Project. The benefit of these improvements is demonstrated by the absence of the identified impacts in the later year scenarios addressed in this Section. However, it should be noted that the exact schedule for completion of these improvements is unknown at this time. The most current schedule available from OCTA indicates that the environmental analysis on these projects is scheduled to continue into 2017 (OCTA 2015b). However, the Measure M2 schedule on the OCTA website does not identify the precise timing for design and construction of the improvements. Therefore, the above described improvements would mitigate the potential Project impacts to freeway mainline segments in the Existing Condition scenario though uncertainty exists about the timing for completion of these freeway improvements.

Development Requirements

The development requirements, identified below, would be applicable to the proposed Project and would help to avoid or minimize traffic impacts.

DR TRAN-1 Prior to issuance of building permits, the County or its designee shall pay applicable fees for the Major Thoroughfare and Bridge Fee Program (i.e.,

Foothill/Eastern Transportation Corridor Zone A) in a manner meeting the approval of the Manager of Building & Safety, or designee.

DR TRAN-2 Prior to issuance of a grading permit the County or its designee shall design and construct, or provide evidence of an acceptable form of financial security, that improvements (i.e., streets, bus stops, on-road bicycle trails, street names, signs, striping and stenciling) shall be done in accordance with plans and specifications meeting the approval of the Manager of Building & Safety, or designee. Further, all underground traffic signal conduits (e.g., signals, phones, power, loop detectors, etc.) and other appurtenances (e.g., pull boxes, etc.) needed for future traffic signal construction, and for future interconnection with adjacent intersections, shall be constructed all in accordance with plans and specifications meeting the approval of the Manager of Building & Safety, or designee.

DR TRAN-3 Prior to the issuance of any building permits, the County or its designee shall deliver an irrevocable offer to dedicate a traffic signal maintenance easement to the applicable jurisdiction at the applicable Project site access points along Irvine Boulevard in a manner meeting the approval of the Manager of Building & Safety, or designee.

DR TRAN-4 Prior to the issuance of any grading permits, the County or its designee shall provide adequate sight distance per Standard Plan 1117 at all street intersections, in a manner meeting the approval of the Manager of Building & Safety, or designee. The Project Applicant shall make all necessary revisions to the plan to meet the sight distance requirement such as removing slopes or other encroachments from the limited use area in a manner meeting the approval of the Manager of Building & Safety, or designee.

DR TRAN-5 In conjunction with Level I, II, or III reviews, individual development projects under the Development Plan that connect with external roadways shall be evaluated for consistency with applicable design requirements outlined in the City of Irvine *Transportation Design Procedures* or County of Orange equivalency. Consistency with the design requirements shall be in a manner meeting the approval of the Manager of Building & Safety, or designee.

DR TRAN-6 The County should prepare a construction traffic management plan, in coordination with the adjacent cities, prior to commencement of construction. The plan should address routing, hours, provisions for over-sized equipment, and site access. The County or its designee shall submit the final plan to the City of Irvine and monitor implementation throughout the construction process.

Mitigation Measures

MM TRAN-1 The County of Orange or its designee, shall coordinate with the City of Irvine to implement optimal signal timing adjustments during each phase of Project implementation at the Jeffrey Road and Walnut Avenue Intersection.

MM TRAN-2 The County of Orange or its designee, shall coordinate with Caltrans to implement optimal signal timing adjustments during each phase of Project implementation at the following locations:

- Jeffery Road and I-5 NB
- Sand Canyon Avenue and I-5 NB
- Jeffrey Road and I-405 NB
- Sand Canyon Avenue and I-5 SB
- Fortune Drive and I-5 SB and Enterprise Drive (as part of additional mitigation measures)
- Bake Parkway and I-5 SB (as part of additional mitigation measures)
- Trabuco Road and SR-133 SB
- Trabuco Road and SR-133 NB
- SR-133 SB and Irvine Boulevard (as part of additional mitigation measures)

MM TRAN-3 The County of Orange or its designee shall make a request to the City of Irvine to become a member of the NITM Program or enter into a separate formal agreement with the City of Irvine for the payment of their fair-share of the improvements identified in the NITM Program. If a separate formal agreement is to be implemented, the agreement shall be entered into prior to the issuance of building permits to ensure the fair-share allocation is distributed to all development within Project. Provided the County becomes a member of NITM or a separate agreement is reached, payment of the fees shall be done prior to the issuance of applicable building permits or pursuant to the payment schedule developed in conjunction with the formal agreement with the City of Irvine. If there are delays in reaching agreement, the fair-share allocation will be only applicable to the portion of future development where building permits have not been issued.

The County would contribute to these improvements on a fair share basis.

- Jamboree Road NB ramps and Warner Avenue: Impacts to this ramp can be mitigated by installing an east-west split signal phase, restriping the inner northbound through lane to shared left-through lane, and adding a second receiving lane on the Jamboree on-ramp.
- Jeffrey Road and Walnut Avenue: Impacts to this ramp can be mitigated by restriping the westbound through lane to a shared through-right lane.
- Jeffrey Road and I-405 NB: Impacts to this ramp can be mitigated by restriping the outer southbound through lane to a shared through-right lane.
- Fortune Drive and I-5 SB and Enterprise Drive: Impacts to this ramp can be mitigated by adding a second eastbound left turn lane.
- Bake parkway and I-5 SB: Impacts to this intersection can be mitigated by adding a northbound right turn lane.

- SR-133 SB and Irvine Boulevard: Impacts to this intersection can be mitigated by restriping the southbound left turn lane to a shared left-right lane.

4.15.8 LEVEL OF SIGNIFICANCE AFTER MITIGATION

The traffic impacts of the proposed Project have been identified for existing traffic conditions and 2017, 2035, and Post-2035 future traffic conditions. Additionally, the Year 2035 Plus Pending Projects and Post-2035 Plus Pending Projects have been evaluated as part of the cumulative analysis.

Mitigation measures have been proposed that, when implemented, would mitigate the Project-related and cumulative impacts to intersections, roadways, and freeway ramps. Because the most of these facilities are located in other jurisdictions, (i.e., Caltrans and the City of Irvine), the County of Orange has committed to pay into the NITM Program or through an alternative program for the payment of its fair-share toward the necessary improvements. However, since the facilities are outside of the County of Orange jurisdiction and the County cannot ensure that the improvements would be constructed, the impacts would remain significant and unavoidable. However, for those impacts within the City of Irvine, the City would have the ability to authorize the County's participation in the NITM Program, and therefore the impacts on Irvine facilities could be reduced to less than significant levels, in conjunction with the County's participation in the fee program.

As shown in Table 4.15-37, the majority of the identified significant freeway impacts would result from the addition of Project-related traffic to facilities that would operate at a deficient level even without Project traffic. The freeway improvements that would be necessary to increase freeway capacity would require reconstruction of the freeway system to add travel lanes and upgrade deficient ramp locations. Since the freeways in the study area are interconnected systems, it would not be possible or effective to provide isolated spot improvements of one segment of the freeway where deficient operations are projected. Given the scale of the improvement, it would not be feasible for the County of Orange to implement the improvement. Additionally, there is no mechanism by which the Project can contribute its fair share towards the necessary improvements and, consequently, there is not substantial evidence that, even with a fair-share payment, the necessary improvements would be constructed. As such, the mitigation necessary to reduce the identified significant impacts is infeasible and the impacts are significant and unavoidable.

4.15.9 REFERENCES

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4.16 UTILITIES AND SERVICE SYSTEMS

This section discusses the potential impacts of the proposed Project on wet utilities, including water, wastewater, and solid waste disposal services. Existing conditions of the utilities are also described. The analysis in this section is based on existing regulatory documents and coordination and consultation with the utility providers, *Irvine Ranch Water District Assessment of Water Supply for the West Alton Development Plan* ("Water Supply Assessment" or "WSA") (IRWD 2015a) in Appendix M-1, and the *Planning Areas 30 and 51 Great Park/Great Park Neighborhoods Sub Area Master Plan* (2011 SAMP) (IRWD 2011a). It should be noted that the SAMP was recently updated in September 2016 for Planning Area 51, which includes the Project site (2016 SAMP) (IRWD 2016a). Additionally, Irvine Ranch Water District (IRWD)'s Conditional Water and Sewer Will Serve Letter (IRWD 2015c), dated December 17, 2015, and Water Supply Verification (IRWD 2016b), dated May 23, 2016, are used in the analysis in this section and contained in Appendix M-2 and Appendix M-3, respectively. The *Irvine Ranch Water District Assessment of Water Supply for the West Alton Development Plan* is also Attachment C to the Water Supply Verification. Analysis of storm drain facilities is provided in Section 4.9, Hydrology/Water Quality.

Per Appendix F, Energy Conservation, of the California Environmental Quality Act (CEQA) Guidelines, a discussion of the proposed Project's impacts on electricity and natural gas is included in Section 6.0, Long Term Implications of the Project, of this EIR.

4.16.1 REGULATORY SETTING

State

Urban Water Management Planning Act

The California Urban Water Management Planning Act (*California Water Code,* Sections 10610–10656) requires urban water suppliers that provide over 3,000 acre-feet (af) of water annually or serve 3,000 or more connections to analyze the reliability of their water sources over a 20-year planning horizon. The Act requires urban water suppliers to prepare and update Urban Water Management Plans (UWMPs) that analyze the availability of water supplies to meet demands during normal, single-dry, and multiple-dry years as a way to encourage water conservation programs and create long-term planning obligations.

Water Conservation Act of 2009

The Water Conservation Act of 2009 or Senate Bill 7 (SB X7-7) was approved in November 2009 and requires urban water retail suppliers in California to reduce per capita water use by at least 10 percent on or before December 31, 2015, and to achieve a 20 percent reduction by December 31, 2020. In their 2010 UWMPs, urban retail water suppliers must include the baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates and references to the supporting data. Urban wholesale water suppliers must also include an assessment of present and proposed water conservation measures, programs, and policies needed to achieve the water use reductions required by this Act. While it does not require existing customers to undertake changes in product formulation, operations, or equipment that

would reduce process water use, suppliers may provide technical assistance and financial incentives to those customers to implement efficiency measures for process water.

Urban retail water suppliers and agricultural water suppliers would not be eligible for State water grants or loans for surface water or groundwater storage, recycling, desalination, water conservation, water supply reliability, and water supply augmentation unless they comply with the water conservation requirements established by this Act.

20x2020 Water Conservation Plan

The 20x2020 Water Conservation Plan, issued by the California Department of Water Resources (DWR) in 2010 pursuant to the Water Conservation Act of 2009 (SB X7-7), established a water conservation target of 20 percent reduction in water use by 2020 compared to 2005 baseline use.

Executive Orders for Drought State of Emergency

In January 2014, California Governor Jerry Brown declared a drought state of emergency and directed State officials to take all necessary actions to make water immediately available. The State Water Resources Control Board (SWRCB) was to consider petitions that could streamline water transfers and exchanges between water users and to notify water rights holders that they may be directed to cease or reduce water diversions based on water shortages. The SWRCB was also asked to modify requirements for releases of water from reservoirs or diversion limitations so that water may be conserved in reservoirs to protect cold water supplies for salmon; to maintain water supplies; and to improve water quality. The DWR and the SWRCB were directed to accelerate funding for projects that could enhance water supplies. The Governor also asked for a voluntary reduction in water consumption by 20 percent.

In April 2014, the Governor proclaimed a continued state of emergency and asked that the State strengthen its ability to manage water and habitat effectively in drought conditions. He directed the DWR and SWRCB to expedite approvals of voluntary water transfers to assist farmers. He also directed the California Department of Fish and Wildlife (CDFW) to accelerate monitoring of drought impacts on winter-run Chinook salmon in the Sacramento River and its tributaries and to execute habitat restoration projects that will help fish weather the ongoing drought. In response to the increased threat of wildfire season, the Governor called for streamlined contracting rules for the Governor's Office of Emergency Services and the California Department of Forestry and Fire Protection (CAL FIRE) to purchase equipment and allowed landowners to quickly clear brush and dead, dying, or diseased trees that increase fire danger.

The Governor also called on all Californians to redouble their efforts to conserve water and to take specific actions to avoid wasting water, including limiting lawn watering and car washing; he recommended that schools, parks, and golf courses limit the use of potable water for irrigation; and he asked that hotels and restaurants give customers options to conserve water by only serving water upon request as well as taking other measures. He also prevented homeowner associations from fining residents that limit their lawn watering.

In December 2014, Executive Order B-28-14 extended the Governor's January 2014 and April 2014 proclamations and extended the operation of the provisions in these proclamations to May 2016.

On April 1, 2015, in response to historically dry conditions, the Governor signed Executive Order B-29-15, which required a 25 percent reduction of urban potable water use throughout the State of California through February 28, 2016. The DWR was directed to lead a Statewide initiative, in partnership with local agencies, to collectively replace 50 million square feet of lawns and ornamental turf with drought-tolerant landscapes, and the California Energy Commission was asked to implement a Statewide appliance rebate program to provide monetary incentives for replacing inefficient household devices.

On May 9, 2016, the Governor issued Executive Order B-37-16. That order requires State agencies to establish new long term water conservation standards that build upon existing mandates. In addition, the order directs state agencies to help eliminate water waste by prohibiting certain practices that waste potable water, taking actions and providing funding to minimize water system leaks. The order also seeks to strengthen requirements for urban Water Shortage Contingency Plans and Agricultural Water Management Plans.

Senate Bill 610 and Senate Bill 221

On January 1, 2002, Senate Bill (SB) 610 and SB 221 took effect with the intent of improving the link between information on water supply availability and certain land use decisions made by Counties and Cities. SB 610 (Section 10910 et seq. of the *California Water Code*) requires land use planning entities, when evaluating certain large development projects, to request a water supply assessment (WSA) from the entity that would provide water to the project. The WSA must be prepared in conjunction with the land use approval process associated with a project and is required for any project that is subject to CEQA and meets certain criteria relative to size (e.g., a residential development of more than 500 dwelling units). The WSA must then be included in the project's environmental documentation.

SB 221 (Section 66473.7[b][2] of the *California Government Code*) requires land use planning agencies to include (as a condition in any tentative map that includes a subdivision involving more than 500 dwelling units) a requirement to obtain a written verification from the applicable public water system that sufficient water supplies are available for the subdivision. SB 221 requires a Water Supply Verification only for a residential subdivision that proposes more than 500 dwelling units or that would increase the public water system's number of existing service connections by at least 10 percent when the public water system has fewer than 5,000 service connections. It requires a County or City to deny approval of a tentative or parcel map if the County or City finds that the project does not have a sufficient, reliable water supply as defined in the bill.

California Integrated Waste Management Act (Assembly Bill 939)

Sections 40050 to 40063 of the *California Public Resources Code* is the California Integrated Waste Management Act of 1989 (Assembly Bill [AB] 939), which created the Board now known as California Department of Resources Recycling and Recovery (CalRecycle) and accomplished the following: (1) it required each jurisdiction in the State to submit detailed solid waste planning documents for CalRecycle approval; (2) it set diversion requirements of 25 percent in

1995 and 50 percent in 2000; (3) it established a comprehensive Statewide system of permitting, inspections, enforcement, and maintenance for solid waste facilities; and (4) it authorized local jurisdictions to impose fees based on the types or amounts of solid waste generated. Jurisdictions select and implement the combination of waste prevention, reuse, recycling, and composting programs that best meet the needs of their community while achieving the diversion requirements.

Construction and Demolition Waste Diversion Requirements

In 2002, SB 1374 required CalRecycle, by March 1, 2004, to adopt a model ordinance suitable for adoption by any local agency to require 50 to 75 percent diversion of construction and demolition (C&D) waste materials from landfills. It required jurisdictions to summarize progress made in diversion of C&D waste materials in their annual progress reports to CalRecycle. In determining penalties for a jurisdiction's failure to implement its source reduction and recycling element or its household hazardous waste element, the bill required CalRecycle to determine if the jurisdiction has provided information on whether C&D waste materials are at least a moderately significant portion of the waste stream and, if so, whether the jurisdiction has adopted a local C&D ordinance, adopted CalRecycle's model ordinance, or implemented another C&D diversion program.

Solid Waste Disposal Measurement Act of 2008

The purpose of the Solid Waste Disposal Measurement Act of 2008 (SB 1016) is to make the process of goal measurement (as established by AB 939) simpler, more timely, and more accurate. SB 1016 builds on AB 939 compliance requirements by implementing a simplified measure of a jurisdiction's performance. It accomplishes this by changing to a disposal-based indicator—the per capita disposal rate—which uses only two factors: (1) a jurisdiction's population (or in some cases employment) and (2) its disposal, as reported by disposal facilities.

Since 2008, CalRecycle calculates each jurisdiction's per capita (per resident or per employee) disposal rates each year. If business is the dominant source of a jurisdiction's waste generation, CalRecycle may use the per employee disposal rate. Each year's disposal rate will be compared to that jurisdiction's 50 percent per capita disposal target. As such, jurisdictions will not be compared to other jurisdictions or the Statewide average, but they will only be compared to their own 50 percent per capita disposal target. Among other benefits, per capita disposal is an indicator that allows for jurisdiction growth because, as residents or employees increase, report-year disposal tons can increase and still be consistent with the 50 percent per capita disposal target. A comparison of the reported annual per capita disposal rate to the 50 percent per capita disposal target will be useful for indicating progress or other changes over time.

Assembly Bill 341

On October 6, 2011, Governor Brown signed AB 341 establishing a State policy goal that no less than 75 percent of solid waste generated be source reduced, recycled, or composted by 2020 and requiring CalRecycle to provide a report to the Legislature that recommends strategies to achieve the policy goal by January 1, 2014. AB 341 also mandates that local jurisdictions implement commercial recycling by July 1, 2012. CalRecycle will review each jurisdiction's commercial recycling program every two to four years for compliance. Businesses and public

entities generating four cubic yards (cy) of trash or more and multi-family residential dwellings with five or more units are required to establish and maintain recycling service under AB 341.

Title 24 Green Building Standards

The 2013 California Green Building Standards Code (Title 24, Part 11 of the *California Code of Regulations*) requires the use of green building principles and practices in site planning and building design to promote energy and water efficiency and conservation, material conservation and resource efficiency, and environmental quality. Also known as the CALGreen Code, the voluntary and mandatory standards in the Code apply to new low-rise residential buildings, privately owned nonresidential buildings (i.e., theaters, restaurants, banks, offices, daycare centers, industrial buildings, laboratories, department stores, storage and accessory buildings), State-owned buildings, public schools, medical facilities, and additions/alterations to existing nonresidential buildings.

Mandatory measures include storm water pollution prevention, water conservation, and recycling and/or salvage of at least 50 percent of nonhazardous construction and demolition wastes. The Orange County Code adopts the CALGreen Code by reference, with specific amendments.

Regional

Orange County Water District Groundwater Management Plan

The Orange County Water District (OCWD) was formed in 1933 by the State Legislature to manage the region's groundwater basin, which provides approximately 70 percent of the water supply to 2.4 million residents in northern and central Orange County. There are 19 City water departments and water districts that are member agencies of OCWD and pump groundwater from the basin, including IRWD, which serves the Project site.

The OCWD adopted the Groundwater Management Plan 2015 Update, which discusses groundwater resources in the basin; hydrogeology; groundwater producers; OCWD objectives; programs for water supply monitoring, recharge, and replenishment; seawater intrusion monitoring and barrier management, water quality protection, and sustainable basin management; and OCWD facilities and projects to protect groundwater resources while increasing its sustainable yield. Current groundwater production from the basin is approximately 305,259 af per year (afy) (OCWD 2016).

Orange County Water District Long-Term Facilities Plan

OCWD has a Long Term Facilities Plan (LTFP) 2014 Update that identifies 65 potential projects that implement the Groundwater Management Plan and that would increase the groundwater basin's yield in a cost-effective manner and protect water quality. The LTFP includes existing and future water demands, current water supplies for groundwater recharge, and a list of projects. The projects are grouped into four categories: (1) water supply, (2) basin management, (3) recharge facilities, and (4) operational efficiency. It also discusses the selection process for prioritizing and focusing OCWD efforts on the most viable and beneficial projects. A total of 17 projects were identified for focused study and project benefits, project details, cost estimates, and proposed schedules. These projects are expected to be implemented

within a 20-year planning period but may be refined during future reevaluations and LTFP updates.

Municipal Water District of Orange County 2015 Regional Urban Water Management Plan

The Municipal Water District of Orange County (MWDOC) has adopted the 2015 Regional Urban Water Management Plan (RUWMP) in compliance with the Urban Water Management Planning Act. Adopted on May 18, 2016 by the MWDOC Board of Directors, the RUWMP (MWDOC 2016) provides a comprehensive assessment of water demands in MWDOC's service area; provides a regional perspective on current and proposed programs; determines water supply reliability; promotes the use of recycled water and other local resource supplies that reduce the need for imported supplies; and provides public information and education on water conservation.

Total retail water demand in fiscal year 2014-2015 was 499,120 afy and is projected to grow to 515,425 afy in 2040 or approximately 3.27 percent over the next 24 years. This increase in demand will be met by local groundwater, recycled water, surface water, and imported water from the Metropolitan Water District of Southern California (MWD) (MWDOC 2016). It has implemented demand management measures for water conservation and various programs and facilities to increase available supplies (e.g., recycled water and treated water). Water transfers and exchanges and ocean water desalination are also being considered by MWDOC to increase its long-term water supplies.

With the availability and reliability of imported water supply through MWD,[1] the RUWMP indicates that the MWDOC service area will have sufficient existing and planned water supplies to meet full service demands under every water-year hydrologic scenario from 2020 through 2040. The RUWMP includes a Water Shortage Contingency Plan that outlines the steps the MWDOC will take during water shortages due to variations in weather, natural disasters, or unanticipated situations. The allocation of imported water to its member (retail) water agencies would be based on MWD's Water Shortage Allocation Plan and any principles developed in consultation with the retail agencies (MWDOC 2016).

MWDOC; 28 of its member agencies; and the Cities of Anaheim, Fullerton, and Santa Ana have created the Orange County 20x2020 Regional Alliance in an effort to help these agencies meet the water use reduction targets required by Senate Bill 7 as part of the Seventh Extraordinary Session (SBx7-7). For this alliance, the interim regional target for Orange County is178 gallons per capita per day (gpcd) in 2015 and the final target is 158 gpcd in 2020. If the Regional Alliance meets its water use target on a regional basis, all agencies in the alliance are deemed compliant. If the Regional Alliance fails to meet its water use target, each individual supplier will have an opportunity to meet their water use targets individually. The actual 2015 gpcd achieved by the Regional Alliance is 125 gpcd indicating that not only has the region met its 2015 target but that it is already well below its 2020 water use target.

[1] MWD's 2015 Regional Urban Water Management Plan indicates that MWD can maintain reliability in meeting firm demands under a normal hydrologic year, the single-dry year, and a series of multiple-dry years from 2020 through 2040 (MWD 2016).

Irvine Ranch Water District 2015 Urban Water Management Plan

The IRWD has adopted its 2015 UWMP (IRWD 2016d) in compliance with the Urban Water Management Planning Act. Adopted on June 27, 2016 by the IRWD Board of Directors, the UWMP discusses the IRWD's water system; existing, current, and future water demands in its service area; available water supplies; supply reliability; and water shortage contingency planning.

The IRWD's supplies include imported water, groundwater, recycled water, and surface water. System demands from 1991 to 2005 indicate a 15-year annual average of 214 gpcd and a 5-year average from 2004 to 2008 of 204 gpcd. The confirmed 2020 target for IRWD is 171 gpcd. Water agencies must calculate a 2015 interim target in order to determine compliance in 2015. The interim water use target is the value halfway between the 15-year baseline and the confirmed 2020 target. Based on this, IRWD's 2015 interim target is 192 gpcd. The actual 2015 gpcd achieved by the IRWD is 129 gpcd indicating that not only has IRWD met its 2015 target but that it is already well below its 2020 water use target.

The UWMP lists the demand management measures that IRWD is implementing to reduce water consumption and to promote conservation. It discusses IRWD's Water Shortage Contingency Plan that outlines actions and responses to specific levels of drought. It also mentions the Catastrophic Supply Interruption Plan, which identifies potential emergencies, causes, severity, and anticipated duration and IRWD's actions for alternative supplies and storage.

The UWMP indicates that IRWD will have adequate water supplies to meet demands during normal, single-dry, and multiple-dry years to 2040.

Irvine Ranch Water District Sewer System Management Plan

The IRWD's Sewer System Management Plan (SSMP) discusses the sewerage facilities, operations and maintenance, and programs for monitoring and inspection; rehabilitation/replacement; overflow emergencies; fats, oils, and grease control; spill response; prevention of illicit discharges; audits; and communication. Inspection activities have identified less than one percent of the sewer pipelines requiring near-term action, such as local repairs and sewer rehabilitation. The SSMP also identifies capital improvement projects needed to increase the capacities of several sewer mains and to improve system reliability through new interceptors, bypass, and relief lines.

<u>County</u>

The County Solid Waste Integrated Waste Management Plan and the Construction and Demolition Program have been prepared in response to State requirements. As discussed below, it would be implemented as a means of meeting the requirements of the California Integrated Waste Management Act of 1989 and AB 939, respectively.

County Solid Waste Integrated Waste Management Plan

The California Integrated Waste Management Act of 1989 requires all Counties to prepare an Integrated Waste Management Plan (IWMP). The Orange County IWMP, last updated in 2007,

provides an update to the County's compliance with regulatory review and reporting requirements (OC Waste & Recycling 2007). Topics in the Countywide Integrated Waste Management Plan (CIWMP) include a Local Task Force review, an update to the *California Code of Regulations* (to Section 18788(3)(A)–(H) of Title 14), and an annual report review and a summary of findings. As reported in the CIWMP, the County's review of the IWMP finds that the goals, objectives, and policies in the elements are still applicable and consistent with current regulations.

Construction and Demolition Program

To comply with AB 939 and the CALGreen Code, the County of Orange implements a C&D waste reduction and recycling program that requires a 50 percent diversion of all C&D wastes (*California Public Resources Code,* Sections 40000 et seq.). Any construction or demolition work in the County requires a permit that estimates the C&D wastes and that identifies the waste haulers and facilities to be used for recycling, reusing, composting, and disposing of waste. Only County-approved C&D processing facilities and franchised waste haulers are allowed to be used, with receipts from these operators provided to the County as proof of recycling and verification that a good faith effort to achieve the 50 percent diversion was made.

4.16.2 METHODOLOGY

Information in this section is based on available site-specific facilities and consultation with affected public utility agencies, as applicable. Specific references are identified within the subsection for each respective issue.

4.16.3 EXISTING CONDITIONS

The 2016 SAMP addresses development changes associated with planned development projects located within IRWD designated Planning Area 51. The SAMP evaluates water (potable and nonpotable) and sanitary sewer/wastewater demands and distribution systems as well as IRWD's capacity to provide required services based on specific development plans for the area being served.

Potable (Domestic) and Nonpotable (Recycled) Water

Water services to the Project site are provided by the IRWD, as indicated in IRWD's December 17, 2015 Conditional Water and Sewer Will Serve Letter (IRWD 2015c) and in the Water Supply Verification (IRWD 2016b). The Will Serve Letter and the Water Supply Verification are provided in Appendix M-2 and Appendix M-3, respectively. The IRWD provides potable and nonpotable water service to a 181-square-mile area in south-central Orange County that includes the Project site. The IRWD has an extensive water system (potable and nonpotable) that includes system pipelines, wells, pumps, reservoirs, and pump stations. The proposed Project is located in Zone 3 of Planning Area (PA) 51. In the vicinity of the Project site, there is an existing 36-inch potable water line and an existing 16-inch recycled water line in Irvine Boulevard, located to the south/southwest of the Project site (PAs 1 and 2). There are two existing reservoirs located in the northeastern part of PA 51 that serve Zone 3.

Water Supply

IRWD's service area encompasses the City of Irvine; portions of unincorporated Orange County (north and south of Irvine); parts of and portions of the Cities of Orange, Tustin, Santa Ana, and Costa Mesa (west of Irvine); portions of the City of Newport Beach (south of Irvine); and portions of the City of Lake Forest (east of Irvine). The IRWD is a member agency of the OCWD and is the largest constituent agency of the MWDOC, a wholesale importer of water. MWDOC, in turn, is a member agency of the MWD, a consortium of 26 cities and water districts that supplies imported water, including water from the State Water Project (SWP) (IRWD 2015a).

The IRWD prepares two planning documents to guide water supply decision making. IRWD's principal planning document is its Water Resources Master Plan (WRMP), which is a comprehensive document compiling data and analyses that IRWD considers necessary for its planning needs. The IRWD also prepares a UWMP, a document required by State statute. The UWMP is based on the WRMP but contains defined elements that are required by Sections 10631 et seq. of the *California Water Code* and, as a result, is more limited than the WRMP in the treatment of supply and demand issues. Therefore, the IRWD primarily relies on its most recent WRMP. The UWMP is required to be updated in years ending with "five" and "zero", and IRWD's most recent update to that document was adopted in June 2016 (IRWD 2016d).

Assessment of water demands in the WSA are reviewed for three development projections (to 2035): (1) existing and committed demand (without the Project); (2) existing and committed demand, plus the Project; and (3) full WRMP buildout. In order to assess water supplies in the WSA, a comparison with demands is necessary; therefore, water supplies are classified as "currently available" or "under development", as discussed further below.

Currently available supplies are those presently operational and those that will be operational in the next several years. Supplies expected to be operational in the next several years are those that have completed or substantially completed the environmental and regulatory review process and have the necessary contracts (if any) in place to move forward. These supplies are in various stages of planning, design, or construction.

In general, supplies under development may necessitate the preparation and completion of environmental documents, regulatory approvals, and/or contracts prior to full construction and implementation.

The IRWD is also evaluating the development of additional supplies that are not included in either currently available or under-development supplies for purposes of the WSA. The WSA indicates that as outlined in the WRMP, prudent water supply and financial planning dictates that development of supplies be phased over time, consistent with the growth in demand (IRWD 2015a).

Water supplies available to IRWD come from groundwater pumped from the Orange County Groundwater Basin (including the Irvine Subbasin), captured local (native) surface water, recycled wastewater from IRWD's water reclamation plants, and supplemental imported water supplied by MWD through the MWDOC. The supply-demand comparisons in this section are broken down among the various sources and are further separated into potable and nonpotable water.

Table 4.16-1 shows the IRWD's existing water supply sources, which include a total of 99,086 af of potable water and 51,098 af of nonpotable water.

TABLE 4.16-1
IRVINE RANCH WATER DISTRICT WATER SUPPLY SOURCES (2015)

Source	Amount in acre-feet	Percent of Total*
Potable Water Supplies		
Treated Water Purchased from MWD	49,916	33.23%
Groundwater	37,532	24.99%
Irvine Desalter	5,309	3.53%
Wells 21 and 22	6,329	4.21%
Total	*99,086*	*65.96%*
Nonpotable Water Supplies		
Recycled Water	23,315	15.52%
Untreated Water Purchased from MWD	21,221	14.13%
Irvine Desalter	3,514	2.33%
Native/Surface Water (from Santiago Creek)	3,048	2.02%
Total	*51,098*	*34.00%*
Total Supplies	**150,184**	**100.00%**

MWD: Metropolitan Water District of Southern California.
* Percentages may not add to 100 percent due to rounding.
Source: IRWD 2015a.

In addition, water supplies under development includes several wells, the Baker Water Treatment Plant, and additional reclaimed water that would provide an additional 33,661 af of water annually.

Potable Water Supply

The IRWD's potable water supply comes primarily from imported sources and groundwater. The IRWD purchases 27 percent of its domestic water from the MWDOC, who purchases water from MWD, a regional water wholesaler that delivers water from Northern California and the Colorado River via the SWP and the Colorado River via the Colorado River Aqueduct. The majority of the IRWD's imported potable water is supplied from a single source, the MWD Diemer Filtration Plant, located north of Yorba Linda. Typically, the Diemer Filtration Plant receives a blend of Colorado River water from Lake Mathews through the MWD lower feeder and SWP water through the Yorba Linda Feeder.

Groundwater makes up approximately 48 percent of IRWD's total water supply and comes from local groundwater wells in the Orange County Groundwater Basin and the Irvine and Lake Forest Subbasins (IRWD 2015b).

Nonpotable (Recycled) Water Supply

IRWD produces approximately 21 percent of the nonpotable (recycled) water that comes primarily from the IRWD's Michelson Water Recycling Plant (MWRP) and the Los Alisos Water Recycling Plant (LAWRP). This water is used for agricultural and nonagricultural irrigation and other nonpotable uses. Untreated imported water is also used for agricultural and landscape irrigation. In addition, surface water from Santiago Creek is captured in Irvine Lake, which IRWD uses for agricultural irrigation (IRWD 2015b).

Reliability of Long-Term Water Supply

The reliability of the IRWD's water supply currently depends on the reliability of both groundwater and imported water supplies, which are managed and delivered by the OCWD and MWD, respectively.

As indicated in MWD's 2015 UWMP (MWD 2016), Southern California faces the challenge of satisfying its water demands and securing imported water supplies from the Sacramento/San Joaquin Delta. Increased environmental regulations and the collaborative competition for water from outside the region have resulted in reduced supplies of imported water. Major sources of uncertainty include Delta pumping restrictions, organism decline, climate change and sea level rise, and levee vulnerability to floods and earthquakes. To address the impacts of SWP cut back on MWD's water supply development targets, the MWD developed a long-term plan that established direction to address the range of potential changes in water supply planning, including uncertainties related to climate change and actions to protect endangered fisheries. With its adaptive resource management strategy, the MWD states it is sufficiently reliable to meet full-service demands at the retail level for all foreseeable hydrologic conditions, including water supply shortage conditions.

The IRWD's supplies are expected to remain essentially constant between normal, single-dry, and multiple-dry years. This is because the MWD states it can maintain reliable imported water supplies; groundwater pumping can be temporarily increased during dry years; and water banking in Kern County may provide supplemental water. Also, recycled water is unaffected by dry years, and surface water is only a small portion of the nonpotable supply.

Metropolitan Water District of Southern California

The MWD has a 5,200-square-mile service area and imports about half of the water used in Southern California. The other half of the water comes from local surface and groundwater supplies, recycled water, and water imported from the Owens Valley by the City of Los Angeles. Urban water demands use approximately 20 percent of California's developed water supply, and agricultural uses consume approximately 80 percent. The MWD imports water from the Colorado River and, through a contract with the State of California, from Northern California via the SWP. The SWP, MWD's Colorado River Aqueduct, and MWD's local water facilities and programs have many layers that provide reliability. The SWP includes the San Luis Reservoir, near the City of Los Banos in Central California, and, closer to Southern California, Pyramid and Castaic Lakes on the West Branch and Silverwood Lake and Lake Perris on the East Branch of the SWP. The MWD, in turn, has over one million af of surface water storage in Southern California, including the new Diamond Valley Reservoir near Hemet, in addition to large groundwater storage projects (MWD 2015).

Orange County Water District

The primary source of groundwater for IRWD is the Orange County Groundwater Basin. The OCWD is responsible for protecting water rights to the Santa Ana River in Orange County and for managing and replenishing the Orange County Groundwater Basin. The OCWD manages production in the basin through financial incentives and establishes the Basin Production Percentage each water year.

Total water demand within OCWD's boundaries for the 2014–2015 water year (beginning July 1, 2014, and ending June 30, 2015) was 425,349 af (OCWD 2016). Since the formation of OCWD in 1933, OCWD has made substantial investment in facilities, basin management, and water rights protection, resulting in the elimination and prevention of adverse long-term "mining" overdraft conditions. The OCWD has also invested in seawater intrusion control (injection barriers), recharge facilities, laboratories, and basin monitoring to effectively manage the basin and allow greater utilization of the storage capacity of the Basin. New replenishment strategies employed by the OCWD include recharge capacity and basin protection measures to meet projected production from the basin during average/normal rainfall and drought periods (IRWD 2015a).

Wastewater and Wastewater Treatment

The IRWD also provides wastewater treatment and collection services to the Project site. The existing sewer infrastructure system in PA 51 consists of a series of pipes ranging in size from 12 inches to 24 inches in diameter. To the south/southeast of Planning Area 2, there is an existing 8-inch sewer line in Irvine Boulevard that connects to a 15-inch sewer line in Alton Parkway. To the west of the Project site, an 8-inch sewer line in Merit Street along the eastern edge of Portola High School was constructed in conjunction with the City of Irvine's street improvements south of Irvine Boulevard.

The IRWD sewer system conveys wastewater to the MWRP in Irvine and the LAWRP in Lake Forest. The MWRP has the capacity to treat 28 million gallons of wastewater per day (mgd), and the LAWRP has a capacity of 7.5 mgd (IRWD 2016c, 2016e). Treated wastewater is used for agriculture and landscape irrigation (IRWD 2016e).

Solid Waste Collection and Disposal

The Regional Landfill Options for Orange County (RELOOC) Strategic Plan provides a 40-year plan to meet the waste disposal needs of Orange County (OC Waste & Recycling 2001). Approved in December 2001 and updated every five years or as needed, the Strategic Plan was developed to assess existing disposal system capabilities offered by the three County landfills (Frank R. Bowerman, Olinda Alpha, and Prima Deshecha) and identify long-range solid waste disposal options for the County. An update was approved in November 2007 (OC Waste & Recycling 2007). It discusses the planning process, the Strategic Plan's phased approach, and the implementation plan for the identified short-term and long-term strategies. Orange County (OC) Waste & Recycling updates the Strategic Plan for the RELOOC every year to monitor progress in implementing the strategies contained in the plan. These strategies include maximizing use of the existing landfill system through operational efficiencies, landfill expansion, diversion and recycling programs, and public education. Other strategies involve alternative technologies and partnerships.

OC Waste & Recycling is the government agency that owns and operates the local Orange County landfills, including the Frank R. Bowerman Landfill (FRB Landfill), which is located in the City of Irvine. OC Waste & Recycling operates three landfills in Orange County, which are listed below in Table 4.16-2, along with the actual average daily rate of disposal, the maximum daily permitted capacity, the remaining capacity, and the estimated closure date of each landfill.

TABLE 4.16-2
ORANGE COUNTY WASTE & RECYCLING LANDFILLS

Landfill	Address/City	Disposal Rate (tons per day)		Remaining Capacity (cubic yards)	Estimated Closure Date
		Maximum permitted	Annual Average Disposal		
Frank R. Bowerman	11002 Bee Cyn Access Rd, Irvine	11,500	7,000	185.1 million	2053
Prima Deshecha	32250 La Pata Ave, San Juan Capistrano	4,000	1,300	137.5 million	2067
Olinda Alpha	1942 North Valencia Ave, Brea	8,000	7,000	34.8 million	2021*

* This Landfill has additional capacity that will likely extend the life of the landfill operation beyond the estimated closure date of 2021.

Source: Arnau 2015a and Arnau 2016.

The City of Irvine contracts with Waste Management for waste pickup services in the City limits. Additionally, OC Waste & Recycling contracts with the major haulers in Orange County for waste pickup services in the unincorporated areas of Orange County. The Project site is located in OC Waste & Recycling's Franchise Area 6, which is Waste Management's franchise area. Waste Management would dispose its wastes into the Orange County landfill system. Waste Management provides residential and commercial services, including roll-off service for bins or specialized compactors, dumpster rentals, curbside bulky item pickup, and recycling services.

AB 939 requires that each County and City prepare a source reduction and recycling element showing how it will meet the following solid waste diversion goals: 25 percent by the year 1995 and 50 percent by the year 2000 and every year after. Compliance with AB 939 is now measured in terms of actual disposal amounts per person compared to target amounts; actual disposal amounts at or below targets are in compliance with AB 939. SB 1016 passed in 2008 and introduced a per capita disposal measurement system that measures the 50 percent diversion requirement using a disposal measurement equivalent. In 2014, California's Statewide disposal was 31.2 million tons and the population was 38.4 million residents. This resulted in a per resident disposal rate of 4.4 pounds per resident per day (pounds/resident/day), which was calculated using SB 1016's measurement system. This is slightly more than the 2013 rate of 4.3 pounds/resident/day, and the per-resident "diversion rate equivalent" to 65 percent remained the same (CalRecycle 2015c).

OC Waste & Recycling operates four Household Hazardous Waste Collection Centers (in Anaheim, Huntington Beach, Irvine, and San Juan Capistrano), where County residents may dispose of household hazardous wastes for free. The Irvine collection center is located west of Interstate (I) 5, approximately 3.5 miles from the site at 6411 Oak Canyon Road.

4.16.4 THRESHOLDS OF SIGNIFICANCE

In accordance with the County's Environmental Analysis Checklist, the Project would result in a significant impact related to utilities and service systems if it would:

Threshold 4.16-1 Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.

Threshold 4.16-2 Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental impacts.

Threshold 4.16-3 Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which would cause significant environmental effects.

Threshold 4.16-4 Have insufficient water supplies available to serve the Project from existing entitlements and resources, or are new or expanded entitlements needed.

Threshold 4.16-5 Result in a determination by the wastewater treatment provider, which serves or may serve the Project that it has inadequate capacity to serve the Project's projected demand in addition to the provider's existing commitments.

Threshold 4.16-6 Be served by a landfill with insufficient permitted capacity to accommodate the Project's solid waste disposal needs?

Threshold 4.16-7 Not comply with federal, state, and local statutes and regulations related to solid waste.

4.16.5 IMPACT ANALYSIS

As discussed in Section 4.0, Impact Analysis Introduction, the Development Plan identifies a number of development requirements which serve to minimize potential impacts (the development requirements are in Appendix C of the Development Plan). The inclusion of these requirements as appropriate, will be verified during the development review and/or ministerial permit process (e.g., building permit). The development requirements also include others measures that will reduce or avoid potentially significant Project impacts. The County intends to implement the development requirements as part of the Project and has included the development requirements in the Development Plan for that purpose. These measures are listed in Section 4.16.7, Mitigation Program because these measures will be tracked as part of the Mitigation Monitoring and Reporting Program.

Threshold 4.16-1

Would the Project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

The IRWD would provide sanitary sewer service to the Project site. The Santa Ana Regional Water Quality Control Board (RWQCB) is the applicable RWQCB for the City of Irvine. The IRWD's treatment plant was developed to ensure that adequate levels of treatment would be provided for the wastewater flows emanating from all land uses within its service area. The implementation of the Project would result in the development of typical urban uses and not any uses that would cause the treatment plant to exceed the wastewater treatment requirements. Additionally, the Project will be required to follow all federal and State regulations pertaining to wastewater discharge, including the requirements established by the Santa Ana RWQCB under the National Pollutant Discharge Elimination System (NPDES) permit. The potential for the Project to exceed the treatment capacity of the IRWD facility is further addressed under Threshold 4.16-5. As previously indicated, IRWD issued a Conditional Water and Sewer Will Serve Letter (IRWD 2015c) and approved a Water Supply Verification (IRWD 2016b), which indicate that the system has sufficient capacity to service the Project; therefore, the existing treatment facilities would be able to process wastewater without exceeding the RWQCB's requirements.

Therefore, implementation of the Project would not result in exceedances of the applicable wastewater treatment requirements of the RWQCB, and, therefore, the impacts would be less than significant.

Impact Conclusion: *The Project proposes typical urban uses, and would be required to comply with all applicable wastewater discharge requirements, as enforced by the Santa Ana RWQCB. Therefore, the Project's impacts would be less than significant pursuant to Threshold 4.16-1.*

Threshold 4.16-2

Would the Project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental impacts?

Potable Water

The Project would require potable water service from the IRWD. As previously indicated, IRWD issued a Conditional Water and Sewer Will Serve Letter (IRWD 2015c) on December 17, 2015 and approved a Water Supply Verification on May 23, 2016 (Appendix M-2 and Appendix M-3, respectively). The Project's estimated potable water demand, based on IRWD demand assumptions for typical usage based on current code requirements, is provided in Table 4.16-3 below. The estimated average daily potable water demand for future uses within the Project site is approximately 115,200 gallons per day (gpd).

TABLE 4.16-3
ESTIMATED PROJECT AVERAGE DAY POTABLE WATER DEMAND

Land Use	Proposed Size	Average Day Demand (gpd)	Average Day Demand (gpm)	Maximum Day (gpm)	Peak Hour (gpm)
Planning Area 1 – High Density Residential	573 du	82,080	57	125	199
Planning Area 2 – High Density Residential	230 du	33,120	23	50	80
	Total	**115,200**	**80**	**175**	**279**

gpd: gallons per day; gpm: gallons per minute; du: dwelling units.
Source: Tait & Associates 2016

The proposed Project would result in an estimated potable water average day demand of approximately 80 gallons per minute (gpm) or a maximum day demand of 175 gpm. The peak hour demand is estimated at 279 gpm. The additional peak hour demand of 279 gpm could be accommodated with the existing and proposed IRWD potable water infrastructure, as indicated in the WSA prepared for the Project (IRWD 2015a).[2]

Water storage for the Project is divided into three categories: operational storage, fire flow storage, and emergency storage. The proposed Project would require an additional storage requirement of 0.74-million gallons (MG), which would be supplemented by the 9.27 MG surplus storage in the Lake Forest Zone 5 area.

To accommodate the water consumption and fire flow demands of the proposed Project, the Project's domestic water network would connect to the existing IRWD domestic water line in Irvine Boulevard at five locations along the southern/southeastern boundary as shown on Exhibit 3-10, Water and Sewer Infrastructure Plan, in Section 3.0, Project Description, which depicts the proposed Project's Conceptual Water and Sewer Infrastructure. The three points of connection for Planning Area 1 would extend from Irvine Boulevard onto the Project site through a series of 8-inch to 10-inch potable water lines. The two points of connection for Planning Area 2 would extend from Irvine Boulevard onto the Project site through either an 8-inch or a 10-inch water line. These improvements would be constructed as part of the Project and the physical impacts are addressed as part of this EIR. A public utility easement would be established for the IRWD domestic and fire water lines.

There is adequate capacity in the existing surrounding infrastructure and water storage availability to serve the potable water demands of the proposed Project, including fire flow requirements.

[2] Water supplies under development include the development of four wells at well sites where they have been previously drilled and previously produced groundwater. An additional three wells have been drilled but have not been used as production wells to date. Another site for an additional well and treatment facility has been acquired by IRWD.

Nonpotable Water

The Project would require nonpotable (recycled) water service from IRWD. The Project's estimated recycled water demand is provided in Table 4.16-4 below. The estimated average daily recycled water demand for future uses on the Project site is approximately 18,720 gpd.

TABLE 4.16-4
ESTIMATED PROJECT AVERAGE DAY RECYCLED WATER DEMAND

Land Use	Proposed Size (dwelling units)	Average Day Demand (gpd)	Average Day Demand (gpm)	Maximum Day (gpm)	Peak Hour (gpm)
Planning Area 1 – High Density Residential	573 du	12,960	9	23	47
Planning Area 2 – High Density Residential	230 du	5,760	4	11	22
Total	**803 du**	**18,720**	**13**	**34**	**69**

gpd: gallons per day; gpm: gallons per minute; du: dwelling units.
Source: Tait & Associates 2016.

Based on IRWD's irrigation water demand for residential developments, the proposed Project would result in an estimated recycled water demand of approximately 13 gpm on average or a maximum day demand of 34 gpm. The peak hour demand is estimated at 69 gpm. The recycled water demand of the proposed Project could be accommodated with the existing and proposed IRWD infrastructure, as indicated in the WSA prepared for the Project (IRWD 2015a). To accommodate the recycled water consumption demands of the proposed Project, there would be two points of connection from the existing recycled water line in Irvine Boulevard to Planning Area 1 and one connection point for Planning Area 2. The recycled water lines extending onto the Project site would range from 2 inches to 4 inches in size depending on the area being served. These improvements would be constructed as part of the Project and the physical impacts are addressed as part of this EIR. The proposed Project's conceptual recycled water infrastructure is shown on Exhibit 3-10, Water and Sewer Infrastructure, in Section 3.0, Project Description. A public utility easement would be established for the IRWD recycled water lines. In addition, to minimize the demand on potable water during construction, nonpotable water would be used for dust control measures (see Development Requirement [DR] UTIL-1). On April 15, 2015, IRWD issued an Assessment of Water Supply Report (IRWD 2015a) for the Project indicating that they have sufficient water resources to provide potable and nonpotable water for the Project and its other outstanding obligations. IRWD approved a Water Supply Verification (IRWD 2016b) which confirmed the availability of water supply for the Project. Therefore, there is adequate capacity in the existing surrounding infrastructure to serve the Project's recycled water demands.

Wastewater

The IRWD would provide wastewater service to the proposed Project, as identified in its December 17, 2015 Conditional Water and Sewer Will Serve Letter (IWRD 2015c). The Project's estimated wastewater demand is provided in Table 4.16-5 below. The estimated

average daily wastewater generated for future uses on the Project site is approximately 104,390 gpd.

TABLE 4.16-5
ESTIMATED WASTEWATER GENERATION

Land Use	Proposed Size	Average Day Generated (gpd)	Average Day Generated (cfs)	Peak Hour (cfs)
Planning Area 1 – High Density Residential	573 du	74,490	0.115	0.138
Planning Area 1 – High Density Residential	230 du	29,900	0.046	0.055
	Total	**104,390**	**0.162**	**0.193**

gpd: gallons per day; cfs: cubic feet per second; du: dwelling units.
Totals may not add up due to rounding.
Source: Tait & Associates 2016.

The proposed Project would result in an estimated wastewater generation of 104,390 gpd on average and an average day generation of 0.162 cubic feet per second (cfs). The peak hour wastewater generated is estimated at 0.193 cfs. The proposed Project's conceptual sewer infrastructure is shown on Exhibit 3-10, Water and Sewer Infrastructure, in Section 3.0, Project Description.

The IRWD has identified existing system deficiencies with or without the Project in Reach B sewer main and in the Alton Trunk Sewer Main and is planning to construct phased improvements to their existing sewer main that may include installation of a replacement sewer line with a larger pipe diameter and/or the construction of parallel lines and some potential diversion to other IRWD sewer mains. The existing system deficiencies are tied to existing entitled development projects and the proposed improvements are part of IRWD's Sub-Area Master Plan program improvements. Therefore, these improvements will be implemented with or without the proposed Project.

Wastewater flows from Planning Area 1 are distributed to IRWD's Reach B sewer main. Flow from Planning Area 1 would be directed to an IRWD wastewater sewer line in Merit Street along the eastern edge of Portola High School which was constructed in conjunction with the City of Irvine's street improvements. The Project will install up to approximately 2,500 linear feet of 8-inch sewer line in Irvine Boulevard and in Merit Street. The new 8-inch sewer line would be extended as part of the Project's off-site sewer improvements to connect to the Project's three 8-inch sewer outlet discharge points serving Planning Area 1 (see Exhibit 3-10 in Section 3.0, Project Description). The new 8-inch sewer main would then be extended approximately 1,700 linear feet to the northeast in Irvine Boulevard until reaching the most easterly sewer line that serves the northeast portion of Planning Area 1.

Wastewater flows from Planning Area 2 would be distributed to IRWD's Alton Trunk Sewer main. Wastewater flows from Planning Area 2 would connect to an existing 8-inch sewer main located in Irvine Boulevard that currently terminates at the intersection of Irvine Boulevard and Allred Centre. As part of the Planning Area 2 off-site improvements an 8-inch sewer line

would be extended in Irvine Boulevard approximately 500 linear feet from the Allred Centre intersection to the sewer line that will provided sewer service to Planning Area 2.

Wastewater discharges from the Project would end up at the MWRP where it would be treated for reuse as nonpotable recycled water. Per Water Code Section 1210, IRWD is required to supply its own reclaimed nonpotable water from wastewater collected and treated by the two existing water reclamation plants (Michelson and Los Alisos). As indicated in the WSA issued by IRWD for the Project (IRWD 2015a), the MWRP had a capacity of 18 mgd. However, per IRWD (IRWD 2016c), the MWRP expanded its treatment capacity and the permitted capacity increased from 18 mgd to 28 mgd. Based on IRWD demands for nonpotable water in the year 2035, which is estimated to vary from approximately 25.9 mgd for a normal year supply and demand condition up to 29.7 mgd for an estimated maximum dry supply and demand condition (as identified in the Project's WSA), the recently completed MWRP capacity expansion along with the current primary treatment capacity at the LAWRP (a combined total of 33.5 mgd) would be able to accommodate all wastewater discharges to satisfy IRWD's estimated demands for delivery of nonpotable water to its customers.

On April 15, 2015, IRWD issued an Assessment of Water Supply Report (IRWD 2015a) for the Project indicating that they have sufficient water resources to provide potable and nonpotable water for the Project and its other outstanding obligations. IRWD approved a Water Supply Verification (IRWD 2016b), which confirmed the availability of water supply for the Project. Also, as indicated in IRWD's December 17, 2015 Conditional Water and Sewer Will Serve Letter (IRWD 2015c), IRWD would provide sewer service to the Project conditioned upon the County providing for the construction of additional sewer trunk lines and local sewer collection facilities on the Project site and necessary in-tract sewer mains. These required Project's improvements would be constructed in conjunction with the development of the Project and would include new improvements within the Project's roadways and development areas and within the adjacent off-site public streets. Since the off-site improvements would be in the road right-of-way, impacts would be limited to short-term construction impacts (e.g., travel delays due to temporary lane closure, construction noise, and air emissions), which have been discussed in their respective sections of this EIR. Therefore, the environmental impacts have been fully evaluated in this EIR as part of the evaluation of the Project. These improvements are part of the backbone infrastructure, as shown in Exhibit 3-10, Water and Sewer Infrastructure in Section 3.0, Project Description, and would provide the necessary facilities for the collection of wastewater from the Project. Wastewater flows from the proposed Project would be accommodated and the potential impacts would be considered less than significant.

Impact Conclusion: *The Project would require water (potable and nonpotable) and wastewater service from the IRWD. A Conditional Water and Sewer Will Serve Letter has been issued by IRWD (IRWD 2015c) indicating IRWD has sufficient capacity and will provide required water and wastewater services based on the identified Project. IRWD approved a Water Supply Verification on May 23, 2016 (IRWD 2016b), which confirmed the availability of water supply for the Project.*

Existing deficiencies in IRWD Sewer Reach B and the Alton Trunk Sewer wastewater drainage areas, identified by IRWD, are considered capital improvements to be provided by IRWD to service its customers in the Great Park Neighborhoods and the expansion of the Musick Jail. IRWD has

committed to provide the necessary improvements required to provide service to the Project. The improvements to Reach B and the Alton Trunk Sewer will be implemented by IRWD independent of whether the Project proceeds, are part of the District's Capital Improvement Program and the potential for environmental impacts would be addressed by IRWD pursuant to CEQA prior to these improvements being constructed. The off-site Non-capital improvements to IRWD sewer lines to serve the Project are addressed in this EIR, and no further environmental impacts are anticipated. The Project would not require the construction or expansion of new water or wastewater treatment facilities or expansion of existing treatment facilities.

Based on the IRWD demands for nonpotable water in the year 2035, which are estimated to vary from approximately 25.9 mgd for a normal year supply and demand condition up to 29.7 mgd for an estimated maximum dry supply and demand condition, primary treatment capacity of 33.5 mgd at the MWRP and the LAWRP combined would be able to accommodate all wastewater discharges to satisfy IRWD's estimated demands for delivery of nonpotable water to its customers. The Project would not require the construction or expansion of new water or wastewater treatment facilities or expansion of existing treatment facilities. The Project would be required to construct sewer lines and local sewer collection facilities; however, the impacts associated with the construction of the local facilities have been addressed as part of the Project and no further environmental impacts are anticipated. Based on the Water Supply Verification issued for the Project (IRWD 2016b), wastewater flows from the proposed Project would be accommodated and impacts would be less than significant pursuant to Threshold 4.16-2.

Threshold 4.16-3

Would the Project require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which would cause significant environmental impacts?

The Project would require the construction of new storm drain systems, including private storm drain lines on-site and connection to existing storm drain lines off-site in Irvine Boulevard to provide adequate drainage for the Project site. The conceptual drainage infrastructure is shown in Exhibit 3-9, Drainage Infrastructure, in Section 3.0, Project Description, of this EIR. As discussed in Section 4.9, Hydrology and Water Quality, of this EIR, new storm drain facilities required of the proposed Project would not result in significant impacts or require mitigation measures. The development requirements identified in Section 4.9 would be applicable to the proposed Project. Project impacts would be less than significant.

Impact Conclusion: *As discussed in Section 4.9, Hydrology and Water Quality, construction of new storm drain facilities associated with the proposed Project would result in a less than significant impact, pursuant to Threshold 4.16-3. Development requirements identified in Section 4.9 would be applicable to the proposed Project.*

Threshold 4.16-4

Would the Project have sufficient water supplies available to serve the Project from existing entitlements and resources, or are new or expanded entitlements needed?

A WSA for the Project has been prepared in compliance with SB 610 and SB 221 to identify adequate water supplies to serve the Project. Due to the number of contracts, statutes, and other documents comprising IRWD's written proof of entitlement to its water supplies, in lieu of attachment of such items to the WSA, they are identified by title and summarized in Section 2(b) of the WSA. Copies of the items summarized are available for review at the County and can also be obtained from the IRWD.

The IRWD does not allocate particular supplies to any project but identifies total supplies for its service area. Because of IRWD's aggregation of demand and supplies, each assessment completed by IRWD is expected to be generally similar to the more recent assessment, with changes noted to take into account changes, if any, in demands and supplies, and any updated and corrected information obtained by the IRWD. Previously assessed projects' water demands will be included in the baseline for the WSA. A newly assessed project's water demand will have been included in the previous WSAs for other projects (as part of IRWD's full buildout demand), to the extent any land use planning or other water demand information for the project was available to IRWD.

A description of the methodology for the assessment is presented in the WSA included in Appendix M-1. As described therein, water demands are reviewed for the following three development projections (to 2035) for the annual demand, peak-flow (maximum day) basis, and three climate conditions (base [normal], single-dry, and multiple-dry year):

- **Existing and committed demand (without the Project) ("Baseline").** This provides a baseline condition as of the date of the assessment, consisting of demand from existing development, plus demand from development that has both approved zoning and (if required) an adopted WSA.
- **Existing and committed demand, plus the Project ("With Project").** This projection adds the Project water demands to the baseline demands.
- **Full WRMP buildout ("Full Buildout").** In addition to the Project, this projection adds potential demands for all presently undeveloped areas of IRWD based on current General Plan information, modified by more specific information available to the IRWD, as more fully described in Chapter 2 of the WRMP.

Project development would result in both short-term and long-term increases in water demand. Short-term demand for water may occur during excavation, grading, and construction activities on the Project site. Water demand for soil watering (fugitive dust control), clean-up, masonry, painting, and other activities would be temporary and would cease at Project buildout. Overall, construction activities require minimal water as compared to water consumption associated with long-term operations of the proposed Project and are not expected to have any adverse impacts on the existing water system or available water supplies. Therefore, sufficient water supplies are available for short-term construction activities, and impacts are considered less than significant.

The WSA indicates that currently available water supplies of potable water are adequate to meet projected annual demands for both baseline and with-project demand projections under the normal and both dry-year conditions through the year 2025 (IRWD 2015a). As shown in Tables 4.16-6 and 4.16-7, below, which are summarized from the WSA, IRWD has sufficient capacity for both potable and nonpotable water to accommodate the Project through 2035, assuming completion of water supplies that are under development.[3] It should be noted that IRWD supplies remain essentially constant between normal, single-dry, and multiple-dry years due to the fact that groundwater and MWD-imported water account for all of IRWD's potable water supply, and reclaimed water, groundwater, and imported water comprise most of IRWD's nonpotable water supply. Groundwater production typically remains constant or increases 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. For imported water, MWD's 2015 RUWMP shows that MWD can maintain reliable supplies under the conditions that have existed in past dry periods through 2040. Reclaimed water production also remains constant as sewage flows remain virtually unaffected by dry years. Only a small portion of IRWD's nonpotable supply, native water captured in Irvine Lake, is reduced in single-dry and multiple-dry years.

TABLE 4.16-6
IRVINE RANCH WATER DISTRICT BUILDOUT SUPPLY AND DEMAND FOR POTABLE WATER (ACRE-FEET PER YEAR)

	2015	2020	2025	2030	2035
Normal Year					
Supplies (Current and Under Development)					
Maximum Supply Capability [a,b]	92,217	101,427	110,311	110,311	110,311
Demand					
Baseline Demand	63,693	70,384	77,528	81,331	83,510
Demand with Project	63,693	70,446	77,683	81,486	83,665
WRMP Buildout Demand [c]	63,693	70,446	77,683	81,486	83,665
Reserve Supply with Project	*28,525*	*30,981*	*32,628*	*28,825*	*26,645*
Single-Dry Year					

[3] Water supplies under development include the development of four wells at well sites where they have been previously drilled and previously produced groundwater. An additional three wells have been drilled but have not been used as production wells to date. Another site for an additional well and treatment facility has been acquired by IRWD.

TABLE 4.16-6
IRVINE RANCH WATER DISTRICT BUILDOUT SUPPLY AND DEMAND FOR POTABLE WATER (ACRE-FEET PER YEAR)

	2015	2020	2025	2030	2035
Supplies (Current and Under Development)					
Maximum Supply Capability [a,b]	92,217	101,427	110,311	110,311	110,311
Demand					
Baseline Demand	68,151	75,311	82,955	87,024	89,356
Demand with Project	68,151	75,378	83,121	87,190	89,522
WRMP Buildout Demand [c]	68,151	75,378	83,121	87,190	89,522
Reserve Supply with Project	*24,066*	*26,050*	*27,190*	*23,121*	*20,789*
Multiple-Dry Year					
Supplies (Current and Under Development)					
Maximum Supply Capability [a,b]	92,217	101,427	110,311	110,311	110,311
Demand					
Baseline Demand	68,151	75,311	82,955	87,024	89,356
Demand with Project	68,151	75,378	83,121	87,190	89,522
Buildout Demand [c]	68,151	75,378	83,121	87,190	89,522
Reserve Supply with Project	*24,066*	*26,050*	*27,190*	*23,121*	*20,789*

WRMP: Water Resources Master Plan.

Numbers may not add due to rounding.

[a] Includes current potable supplies and supplies under development. For Metropolitan Water District of Southern California (MWD)-imported supplies, Irvine Ranch Water District (IRWD) conservatively calculates how the State Water Project (SWP) could affect MWD supplies and calculates in a 16 percent reduction off average connected capacity as a margin of safety.

[b] A discussion of supplies under development, water rights, and water service contracts is provided in the Water Supply Assessment (WSA) (refer to Appendix M-1).

[c] Full Water Resources Master Plan (WRMP) buildout, including the Project.

Source: IRWD 2015a.

TABLE 4.16-7
IRVINE RANCH WATER DISTRICT BUILDOUT SUPPLY AND DEMAND FOR NONPOTABLE WATER (ACRE-FEET PER YEAR)

	2015	2020	2025	2030	2035
Normal Year					
Supplies (Current and Under Development)					
Maximum Supply Capability [a,b]	42,997	50,097	50,097	50,097	50,097
Demand					
Baseline Demand	28,265	29,829	30,744	30,353	29,959
Demand with Project	28,265	29,842	30,778	30,387	29,993
WRMP Buildout Demand [c]	28,265	29,842	30,778	30,353	29,993
Reserve Supply with Project	*14,731*	*20,255*	*19,319*	*19,711*	*20,104*
Single-Dry Year					
Supplies (Current and Under Development)					
Maximum Supply Capability [a,b]	40,997	51,097	50,097	50,097	50,097
Demand					
Baseline Demand	30,244	31,917	32,897	32,478	32,056
Demand with Project	30,244	31,931	32,933	32,514	32,092
WRMP Buildout Demand [c]	30,244	31,931	32,933	32,478	32,092
Reserve Supply with Project	*10,753*	*19,166*	*17,164*	*17,583*	*18,004*
Multiple-Dry Year					
Supplies (Current and Under Development)					
Maximum Supply Capability [a,b]	40,997	51,097	50,097	50,097	50,097
Demand					
Baseline Demand	30,244	31,917	32,897	32,478	32,056
Demand with Project	30,244	31,931	32,933	32,514	32,092
WRMP Buildout Demand [c]	30,244	31,931	32,933	32,478	32,092
Reserve Supply with Project	*10,753*	*19,166*	*17,164*	*17,583*	*18,004*

WRMP: Water Resources Master Plan.

Numbers may not add due to rounding.

[a] Includes current nonpotable supplies and supplies under development. For Metropolitan Water District of Southern California (MWD)-imported supplies, Irvine Ranch Water District (IRWD) conservatively calculates how the State Water Project (SWP) could affect MWD supplies and calculates in a 16 percent reduction off average connected capacity as a margin of safety.

[b] A discussion of supplies under development, water rights, and water service contracts is provided in the Water Supply Assessment (WSA) (refer to Appendix M-1). In general, supplies under development may require preparation and completion of environmental documents, regulatory approvals, and/or contracts prior to full construction and implementation.

[c] Full Water Resources Master Plan (WRMP) buildout, including the Project.

Source: IRWD 2015a.

Temporary Metropolitan Water District of Southern California Allocation

Because of the potential for water diversion from the Sacramento/San Joaquin Delta, which would result in reduced MWD water supplies to IRWD, the WSA provides an evaluation of restricted MWD water supply for the years 2015 through 2035. The WSA states that "use of local supplies, storage, and other supply augmentation measures can mitigate shortages, and area assumed to be in use to the maximum extent possible during declared shortage levels" (IRWD 2015a).

As shown in Table 4.16-8, under a temporary MWD allocation, which is summarized from the WSA, IRWD has sufficient supply capacity to accommodate the Project through 2035, assuming completion of water supplies that are under development.

TABLE 4.16-8
IRVINE RANCH WATER DISTRICT BUILDOUT SUPPLY AND DEMAND FOR POTABLE WATER UNDER TEMPORARY METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA ALLOCATION CONDITIONS (ACRE-FEET PER YEAR)

	2015	2020	2025	2030	2035
Normal Year					
Supplies (Current and Under Development)					
Maximum Supply Capability [a,b]	79,288	87,119	97,557	99,191	99,868
Demand					
Baseline Demand	63,693	70,384	77,528	81,331	83,510
Demand with Project	63,693	70,446	77,683	81,486	83,665
WRMP Buildout Demand [c]	63,693	70,446	77,683	81,486	83,665
Reserve Supply with Project	*15,595*	*16,672*	*19,876*	*17,705*	*16,202*
Single-Dry Year					
Supplies (Current and Under Development)					
Maximum Supply Capability [a,b]	79,288	85,643	96,126	97,806	99,571
Demand					
Baseline Demand	68,151	75,311	82,955	87,024	89,356
Demand with Project	68,151	75,378	83,121	87,190	89,522
WRMP Buildout Demand [b]	68,151	75,378	83,121	87,190	89,522
Reserve Supply with Project	*11,137*	*10,265*	*13,006*	*10,616*	*10,049*
Multiple-Dry Year					
Supplies (Current and Under Development)					
Maximum Supply Capability [a,b]	79,288	85,643	96,126	97,806	99,571

TABLE 4.16-8
IRVINE RANCH WATER DISTRICT BUILDOUT SUPPLY AND DEMAND FOR POTABLE WATER UNDER TEMPORARY METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA ALLOCATION CONDITIONS (ACRE-FEET PER YEAR)

	2015	2020	2025	2030	2035
Demand					
Baseline Demand	68,151	75,311	82,955	87,024	89,356
Demand with Project	68,151	75,378	83,121	87,190	89,522
WRMP Buildout Demand [c]	68,151	75,378	83,121	87,190	89,522
Reserve Supply with Project	*11,137*	*10,265*	*13,006*	*10,616*	*10,049*

WRMP: Water Resources Master Plan.

Numbers may not add due to rounding.

[a] Includes current nonpotable supplies and supplies under development.

[b] A discussion of supplies under development, water rights, and water service contracts is provided in the Water Supply Assessment (WSA) (refer to Appendix M-1).

[c] Full Water Resources Master Plan (WRMP) buildout, including the Project.

Source: IRWD 2015a.

Water Supply Contingency Planning

IRWD considers a variety of factors when assessing its ability to meet water needs in the IRWD service area. IRWD's assessment of supply availability contains several margins of safety or buffers:

- "Reserve" water supplies (excess of supplies over demands) will be available to serve as a buffer against inaccuracies in demand projections, future changes in land use, or alterations in supply availability.
- Conservative estimates of annual potable and nonpotable imported supplies have been made based on connected delivery capacity; additional supplies are expected to be available from these sources based on legal entitlements, historical uses, and information provided by MWD. In addition to MWD's existing regional supply assessments, this WSA has considered MWD's recent actions on the San Joaquin Delta, which would result in the potential for water diversion from the Sacramento/San Joaquin Delta, thereby resulting in reduced MWD water supplies to IRWD.
- Information provided by MWD, as the imported water supplier, concerning the adequacy of its regional supplies, demonstrates MWD's inclusion of reserves in its regional supply assessments. In addition to MWD's existing regional supply assessments, this assessment has considered information concerning recent actions on the San Joaquin Delta, which would result in the potential for water diversion from the Sacramento/San Joaquin Delta, thereby resulting in reduced MWD water supplies to IRWD.
- Although groundwater supply amounts shown in this WSA assume production levels within applicable basin production percentages (described in the WSA), production of

groundwater can exceed applicable basin production percentages on a short-term basis, providing additional reliability during dry years or emergencies.

Catastrophic Supply Interruption Planning

MWD has developed "Emergency Storage Requirements" (2010 RUWMP) to safeguard the region from catastrophic loss of water supply. MWD has made substantial investments in emergency storage and has based its planning on a 100 percent reduction in its supplies for a period of six months. The emergency plan outlines that under such a catastrophe, non-firm service deliveries would be suspended, and firm supplies would be restricted by a mandatory cutback of 25 percent from normal year demand deliveries. In addition, MWD discusses the long-term Delta plan in its 2010 RUWMP. IRWD has also addressed supply interruption planning in its WRMP and UWMP (IRWD 2015a).

Water Supply Conclusion Summary

On April 15, 2015, the IRWD Board of Directors approved the WSA for the Project. The WSA concludes that development of the Project would result in an increase in water demand, despite compliance with State law regarding water conservation measures (including pertinent provisions of Title 24 of the *California Government Code* regarding the use of water-efficient appliances) and the incorporation of various water conservation features.

Notwithstanding this increase in water demand, the WSA found that a sufficient water supply is currently available to meet projected annual demands for both the Baseline and With Project demand projections under the normal, single-dry, and multiple-dry year conditions through the year 2025 (IRWD 2015a).[4] However, at full buildout (year 2035), meeting normal, single-dry, and multiple-dry year conditions would also require water supplies that are under development.

The WSA indicates that there is sufficient water supply (current and under development supplies) to serve the Project, since the total water supplies available to the IRWD during normal, single-dry, and multiple-dry years within a 20-year projection would meet demands from the Project and existing and future planned uses within its service area. In addition, IRWD approved a Water Supply Verification (IRWD 2016b) on May 23, 2016, which confirmed the availability of water supply for the Project.

Impact Conclusion: *The Project would require water supplies from IRWD. The WSA shows that the IRWD has available water supplies (current and under development supplies) to meet the water demands of the project for the next 20 years (through 2035), including demands during normal, single-dry, and multiple-dry years. The IRWD has concurred with the findings of the WSA that available water supplies (potable and nonpotable) would be adequate to serve the Project. IRWD also approved a Water Supply Verification (IRWD 2016b) on May 23, 2016, which confirmed the availability of water*

[4] Currently available supplies include those that are presently operational and those that will be operational within the next several years. Supplies expected to be operational include those that have completed or substantially completed the environmental and regulatory review process as well as having necessary contracts (if any) in place to move forward (IRWD 2015a).

supply for the Project. Therefore, impacts would be less than significant and no mitigation is required, pursuant to Threshold 4.16-4.

Threshold 4.16-5

Would the Project result in a determination by the wastewater treatment provider, which serves or may serve the Project that it has inadequate capacity to serve the Project's projected demand in addition to the provider's existing commitments?

As discussed above in Threshold 4.16-2, based on IRWD demands for nonpotable water in the year 2035, which is estimated to vary from approximately 25.9 mgd for a normal year supply and demand condition up to 29.7 mgd for an estimated maximum dry supply and demand condition (as identified in the Project's WSA), the recently completed MWRP capacity expansion along with the current primary treatment capacity at the LAWRP (a combined total of 33.5 mgd) would be able to accommodate all wastewater discharges to satisfy IRWD's estimated demands for delivery of nonpotable water to its customers. In addition, the County has received a Conditional Water and Sewer Will Serve Letter (December 17, 2015), which indicates that IRWD would provide sewer service to the Project conditioned upon the County providing the construction of additional sewer trunk lines and local sewer collection facilities and necessary in-tract sewer mains. In addition, the Project would use future improvements identified by IRWD, and IRWD has committed to providing service to the Project. Therefore, in light of the commitment from IRWD, the 2016 SAMP, and with implementation of DR UTIL-1, the potential impacts related to wastewater treatment capacity would be less than significant.

Impact Conclusion: *IRWD would provide wastewater treatment service to the Project. Based on IRWD demands for nonpotable water in the year 2035, which is estimated to vary from approximately 25.9 mgd for a normal year supply and demand condition up to 29.7 mgd for an estimated maximum dry supply and demand condition (as identified in the Project's WSA), the recently completed MWRP capacity expansion along with the current primary treatment capacity at the LAWRP (a combined total of 33.5 mgd) would be able to accommodate all wastewater discharges to satisfy IRWD's estimated demands for delivery of nonpotable water to its customers. IRWD has provided a Conditional Water and Sewer Will Service Letter (December 17, 2015), which indicates that IRWD would provide sewer service to the Project conditioned upon the County providing the construction of additional sewer trunk lines and local sewer collection facilities and necessary in-tract sewer mains. In addition, the Project would use future improvements identified by IRWD as part of its Capital Improvement Program. IRWD would have available wastewater treatment capacity to treat wastewater flows from the project. In addition, with IRWD's commitment and implementation of DR UTIL-1, wastewater flows from the proposed Project would be accommodated by IRWD and potential impacts related to wastewater treatment capacity would be less than significant, pursuant to Threshold 4.16-5.*

Threshold 4.16-6

Would the Project be served by a landfill with insufficient permitted capacity to accommodate the Project's solid waste disposal needs?

With implementation of the Project, there would be solid waste generated during construction and an increase in daily solid waste generation.

Solid Waste Generated during Construction

The on-site structures, paved surfaces, and landscape vegetation would be demolished/removed during construction of the proposed Project. Based on the U.S. Environmental Protection Agency's (USEPA's) new construction and demolition waste generation rate of 4.38 pounds per square foot (lbs/sf) for residential uses (USEPA 1998), construction of the proposed 803 residential units would generate 1,701 tons of solid waste over the construction period. Projects requiring any building, construction, or demolition permits would be required to comply with AB 939, SB 1016, and the CALGreen Code. Diversion through reuse, recycling, and/or composting of construction and demolition materials at County-approved facilities or by the Franchised Waste Hauler can achieve compliance. To meet these demands, DR UTIL-3 provides that the Project will comply with the County of Orange C&D Program that requires a 50 percent diversion of all C&D wastes. In compliance with the County's C&D Program, asphalt from the demolition of on-site roadway would be recycled and included as part of the 50 percent diversion requirement of all C&D wastes. The FRB Landfill has a remaining capacity of 185.1 million cy and an anticipated closure date in the year 2053; it, therefore, could accommodate the short-term disposal of construction and demolition wastes from the Project (Arnau 2015b). Impacts would be temporary and less than significant; no mitigation is required.

Solid Waste Generated during Operation

Estimated long-term solid waste generation associated with the Project is presented in Table 4.16-9 below.

TABLE 4.16-9
ESTIMATED SOLID WASTE GENERATION

Land Use	Size	Waste Generation Factor*	Waste Generation (lbs/day)
Residential	803 units	12.23 lbs./household/day	9,821
Total Waste Generation During Operation			**9,821**

lbs: pounds; CalRecycle: California Department of Resources Recycling and Recovery.
* Based on waste generation factors from CalRecycle 2011.

As shown in Table 4.16-9, the Project is estimated to generate approximately 9,821 pounds of solid waste per day, prior to required waste diversion requirements. This represents substantially less than one percent of the permitted daily capacity of the FRB Landfill. Further, according to OC Waste & Recycling, the Orange County landfill system would have the capacity

to serve the Project (Arnau 2015a). Therefore, the Project would be served by a landfill with available capacity to accept the anticipated solid waste volume, and impacts would be less than significant. No mitigation is required.

Impact Conclusion: *There is sufficient solid waste disposal capacity in the existing landfills to meet the Project's solid waste disposal needs. Therefore, Project impacts to landfill capacity would be less than significant, pursuant to Threshold 4.16-6.*

Threshold 4.16-7

Would the Project comply with federal, state, and local statutes and regulations related to solid waste?

The waste generation factors presented in Table 4.16-9 are below the 50 percent disposal rate targets sets for the County by CalRecycle (6.8 pounds per day per capita and 16.7 pounds per day per employee), in compliance with AB 939 and SB 1016 (CalRecycle 2015a). The Project's ability to meet these targets can be attributed to waste diversion programs that are operated throughout the County as previously discussed. These programs would continue to be implemented. As of 2014, there were 38 programs in place in unincorporated Orange County to divert solid waste from landfills. These include programs for composting, household hazardous waste disposal, recycling, source reduction, and special waste materials such as construction and demolition debris (CalRecycle 2015b).

As discussed above, OC Waste & Recycling is responsible for complying with State and County solid waste regulations, including, but not limited to, AB 939, SB 1016, and the CALGreen Code (*California Public Resources Code,* Sections 40000 et seq. and Section 41780). To comply with AB 939, SB 1016, and the CALGreen Code, the County of Orange implements a C&D Program that requires a 50 percent diversion of all C&D wastes. The proposed Project would generate construction waste and would be required to comply with the County's C&D Program. The Project's long-term solid waste would be required to comply with AB 939, SB 1016, and AB 341. As per DR UTIL-2, compliance with the applicable C&D program and solid waste diversion requirements is required. Therefore, the proposed Project would not impact OC Waste & Recycling's continued compliance with all applicable solid waste regulations. The proposed Project would not conflict with statutes and regulations related to solid waste; no impact would result and no mitigation is required.

Impact Conclusion: *The proposed Project would comply with applicable solid waste statutes and regulations, including waste diversion programs. DR UTIL-2 would be implemented with the proposed Project. Impacts to solid waste statutes and regulations would be less than significant, pursuant to Threshold 4.16-7.*

4.16.6 CUMULATIVE IMPACTS

Water Supply

The geographic scope for cumulative water supply analysis is IRWD's service area. The IRWD water supply and facilities planning is consistent with the General Plans of the land use jurisdictions that overlie the IRWD's service area. A WSA is prepared in conjunction with the land use approval process associated with a project and is required for any project that is subject to CEQA and meets certain criteria. The WSA includes a description of water supplies (currently available and under development) and an assessment of demands assumes full buildout (i.e., full WRMP buildout). Water supplies under development includes several wells, the Baker Water Treatment Plant, and additional reclaimed water that would provide an additional 33,661 af of water annually. IRWD is also evaluating the development of additional supplies that are not included in either currently available or under-development supplies. Prudent water supply and financial planning dictates that development of supplies be phased over time consistent with growth in demand (IRWD 2015a). In addition to the Project, this development projection adds potential demand for all presently undeveloped areas of IRWD based on General Plan information and modified by more specific information that is available to IRWD. Consequently, the IRWD does not anticipate any problems supplying water to any current or future development in the IRWD service area. Thus, cumulative impacts are considered less than significant.

Potable and Nonpotable Water Facilities

As discussed under Threshold 4.16-2, the existing water and nonpotable utility infrastructure that has been installed to serve development of the Project site, in conjunction with facilities that would be installed to connect to existing facilities, would be sufficient to serve the proposed Project. Additionally, connections to existing utility infrastructure within Irvine Boulevard would occur immediately adjacent to the Project site, and no physical environmental impacts beyond those addressed in this Draft EIR would occur. The recycled water demand of the proposed Project could be accommodated with the existing and proposed IRWD infrastructure, as indicated in the WSA (IRWD 2015a). Through IRWD's planning efforts, including preparing SAMPs, the IRWD considers cumulative development projects in its planning. As a result, IRWD plans and implements potable and nonpotable water infrastructure as necessary to accommodate planned growth in its service area. The recently completed MWRP capacity expansion along with the current primary treatment capacity at the LAWRP (a combined total of 33.5 mgd) would be able to accommodate all wastewater discharges to satisfy IRWD's estimated demands for delivery of nonpotable water to its customers. Therefore, the proposed Project would not have a cumulative impact related to provision of water or nonpotable water facilities.

Wastewater

As discussed under Thresholds 4.16-2 and 4.16-5, IRWD would provide water and wastewater service to the Project. IRWD has provided a Conditional Water and Sewer Will Service Letter (IRWD 2015c), which indicates that IRWD would provide sewer service to the Project conditioned upon the County providing the construction of additional sewer trunk lines and local sewer collection facilities and necessary in-tract sewer mains and off-site connections to

existing nearby sewer mains. In addition, the Project would use future improvements identified by IRWD. Through IRWD's planning efforts, including preparing SAMPs, the IRWD considers cumulative development projects in its planning. As a result, IRWD plans and implements wastewater treatment capacity and infrastructure as necessary to accommodate planned growth in its service area. As previously discussed, the recently completed MWRP capacity expansion along with the current primary treatment capacity at the LAWRP (a combined total of 33.5 mgd) would be able to accommodate all wastewater discharges to satisfy IRWD's estimated demands for delivery of nonpotable water to its customers. Therefore, the proposed Project's impacts with respect to wastewater would not be cumulatively considerable.

Solid Waste Disposal

The proposed Project, in combination with other projects in the County, would increase demand for landfills and solid waste services in Orange County. However, the Orange County Landfill System is required to have available disposal capacity for a projected period of 15 years. As shown in Table 4.16-2, which is based on correspondence with OC Waste & Recycling, the Orange County Landfill System has capacity in excess of 30 years at the FRB and Prima Deshecha landfills. Although the Olinda Alpha Landfill currently has capacity until 2021, OC Waste & Recycling has indicated that additional capacity would become available in the future, which would extend the life of the landfill operation beyond the closure date. OC Waste & Recycling has confirmed that it can accommodate the solid waste generated by the proposed Project as well as that generated by cumulative development (Arnau 2015a). Therefore, the proposed Project's impacts with respect to solid waste would not be cumulatively considerable.

4.16.7 MITIGATION PROGRAM

Development Requirements

The development requirements, identified below, would be applicable to the proposed Project and would help to avoid or minimize solid waste impact.

Water and Wastewater

DR UTIL-1 Prior to issuance of a grading permit, the County or its designee shall provide evidence acceptable to the Manager of Building & Safety, or designee, that the South Coast Air Quality Management District (SCAQMD)-approved Dust Control Plan utilizes recycled water and not potable water for dust abatement.

Solid Waste

DR UTIL-2 The County or its designee shall comply with the minimum solid waste diversion requirements of Assembly Bill (AB) 939, Senate Bill (SB) 1610, and SB 341 for solid waste generated during demolition, construction, and operation. Construction and demolition solid waste diversion compliance shall be done through the implementation of the OC Waste & Recycling's Construction & Demolition Program or comparable measures to the satisfaction of the Manager of Building & Safety, or designee. Pursuant to the Orange County Code of Ordinances, Title 4, Division 3, Article 2 (Solid Waste Management),

Section 4-3-67 Franchise Required for Solid Waste Collection Services, waste diversion and recycling would be the responsibility of the designated franchise waste hauler under contract to the County.

Mitigation Measures

No applicable mitigation measures have been identified for water, wastewater, and solid waste.

4.16.8 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Water (Potable)

Project impacts on potable water would be less than significant and mitigation is not required.

Water (Nonpotable)

Project impacts on nonpotable water would be less than significant and mitigation is not required.

Wastewater

Wastewater generated by the Project would be accommodated and impacts to wastewater would be less than significant.

Solid Waste

Project impacts to solid waste would be less than significant prior to the implementation of DR UTIL-2. Implementation of DR UTIL-2 would further reduce any potential impact on solid waste resources.

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5.0 ALTERNATIVES

5.1 INTRODUCTION

Sections 15126.6(a)–15126.6(b) of the State of California Environmental Quality Act (CEQA) Guidelines (14 *California Code of Regulations* [CCR]) provides guidance on the range of alternatives to a proposed project that must be evaluated. The State CEQA Guidelines state the following:

> (a) Alternatives to the Proposed Project. An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. 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. The Lead Agency is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives. There is no ironclad rule governing the nature or scope of the alternatives to be discussed other than the rule of reason.
>
> (b) Purpose. Because an EIR must identify ways to mitigate or avoid the significant effects that a project may have on the environment (Public Resources Code Section 21002.1), the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly.

Pursuant to the State CEQA Guidelines, a range of alternatives to the proposed Project is considered and evaluated in this Environmental Impact Report (EIR). These alternatives were developed in the course of Project planning and environmental review. The discussion in this section provides:

1. A description of alternatives considered;
2. An analysis of whether the alternatives meet most of the objectives of the Project (as presented in Section 1.5 and 3.3 of this EIR and restated below); and
3. An analysis comparing the alternatives under consideration and the proposed Project. The focus of this analysis is to determine if alternatives are capable of eliminating or reducing the significant environmental effects of the Project to a less than significant level.

5.2 CRITERIA FOR SELECTING ALTERNATIVES

Several criteria were used to select alternatives to the proposed Project. These criteria include the alternative's ability to achieve the Project Objectives; feasibility; and ability to eliminate or reduce significant impacts. Each of these are described below.

- Ability to Achieve Project Objectives

The ability of an alternative to meet most of a project's objectives is an important component when evaluating alternatives. When an alternative is selected, not only are the environmental impacts considered but so is the alternative's ability to meet a project's intended objectives. Section 15126.6(f) of the State CEQA Guidelines (14 CCR) states the following:

> The range of alternatives required in an EIR is governed by a 'rule of reason' that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the EIR need examine in detail only the ones that the lead agency determines could feasibly attain most of the basic objectives of the project.

The following objectives have been identified for the Project:

1. Build a project that is compatible with the surrounding existing and planned land uses in the area.
2. Create a development that would fully maximize mutual benefits from proximity to the area's employment opportunities and recreational amenities.
3. Maximize the potential for use of this County real estate asset to stimulate economic commerce in the City.
4. Promote efficient use of land through construction of a medium to high density residential development.
5. Take advantage of the ability to develop the Project site without the requirement for the extension of major infrastructure to support the development.
6. Revitalize the previously disturbed and presently underutilized Project site.
7. Develop the Project in a manner that will materially improve the jobs-housing balance of the area.
8. Use an existing County real estate to provide the County with a new source of revenue to support County operations and services.
9. Develop a project to provide attractive housing opportunities for young professionals to help curtail the trend of young professionals leaving the Orange County area.
10. Incorporate housing at a minimum density of 11 dwelling units/acre consistent with State of California guidance regarding the minimum density for facilitating the creation of affordable housing.

11. Provide a project with a range of density, bedroom, and unit types to facilitate the development of up to one percent of the units as transitional housing for the region's diverse population of homeless or those at risk of becoming homeless.
12. Develop a mixed-income project that includes ten percent affordable housing on site in several different product types to help meet the diverse needs of the region's population.

5.2.1 FEASIBILITY

When developing alternatives for evaluation in an EIR, the feasibility of implementing the alternative must be considered. If a range of alternatives is developed but, due to regulatory restrictions, cannot be implemented, the analysis would not meet the CEQA intent to provide a reasonable range of feasible alternatives. Section 15126.6(f)(1) of the State CEQA Guidelines (14 CCR) states the following:

> 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 the site is already owned by the proponent). No one of these factors establishes a fixed limit on the scope of reasonable alternatives (*Citizens of Goleta Valley v. Board of Supervisors* [1990] 52 Cal.3d 553; see *Save Our Residential Environment v. City of West Hollywood* [1992] 9 Cal.App.4th 1745, 1753, fn. 1).

It has been recognized that, for purposes of CEQA, "feasibility" encompasses "desirability" to the extent that the latter is based on a reasonable balancing of the relevant economic, environmental, social, and technological factors (*California Native Plant Society v. City of Santa Cruz* [2009] 177 Cal.App.4th 957, 1001). This balancing is harmonized with CEQA's fundamental recognition that policy considerations may render alternatives impractical or undesirable (Ibid; see also *California Public Resources Code,* Section 21081; 14 CCR 15126.6[c] and 15364).

5.2.2 ELIMINATION/REDUCTION OF SIGNIFICANT IMPACTS

Section 15126.6(b) of the State CEQA Guidelines states that "[b]ecause an EIR must identify ways to mitigate or avoid the significant effects that a project may have on the environment (Public Resources Code Section 21002.1), the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly".

The proposed Project, evaluated in Sections 4.1 through 4.16 of this EIR, results in a range of impacts. The Alternatives evaluated in this section have been developed in an effort to reduce and/or eliminate one or more significant impacts associated with the proposed Project. The Project would result in potentially significant impacts in the following categories: Aesthetics (light and glare), Agricultural Resources, Air Quality, Biological Resources, Cultural Resources,

Geology and Soils, Greenhouse Gas Emissions, Hazards and Hazardous Materials, Hydrology and Water Quality, Land Use and Planning, Noise, Population and Housing, Public Services, Recreation, Transportation/Traffic, and Utilities and Service Systems. As described in this EIR, through mitigation measures or compliance with existing laws or provisions of the Development Plan (development requirements), most of the potentially significant impacts are reduced to a less than significant level. The Project will result in significant and unavoidable impacts with respect to certain issues in the Agricultural Resources, Air Quality, Land Use and Planning, Population and Housing, and Transportation/Traffic areas.

5.2.3 ALTERNATIVE SITE

Section 15126.6(f)(2) of the State CEQA Guidelines sets forth the following criteria for determining whether to identify an alternative site because "An EIR need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative" (14 CCR 15126.6[f][3]). Section 15126.6(f)(2) of the State CEQA Guidelines (14 CCR) states the following:

> (A) Key question. 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 be considered for inclusion in the EIR.
>
> (B) None feasible. If the lead agency concludes that no feasible alternative locations exist, it must disclose the reasons for this conclusion, and should include the reasons in the EIR. For example, in some cases there may be no feasible alternative locations for a geothermal plant or mining project which must be in proximity to natural resources at a given location.
>
> (C) Limited new analysis required. Where a previous document has sufficiently analyzed a range of reasonable alternative locations and environmental impacts for projects with the same basic purpose, the lead agency should review the previous document. The EIR may rely on the previous document to help it assess the feasibility of potential project alternatives to the extent the circumstances remain substantially the same as they relate to the alternative (*Citizens of Goleta Valley v. Board of Supervisors* [1990] 52 Cal.3d 553, 573).

Development of the Project on an alternative site was not carried forward for detailed consideration due to the lack of available alternate sites and the inability to meet many of the objectives established for the proposed Project. The Project site is owned or controlled by the County of Orange and located in the City of Irvine. The Project site is 44.16 acres, including the 11.84-acre Wildlife Movement Corridor, and does not require substantial extension of new public services to serve the proposed development. Key features of the Project site include its previously disturbed nature, proximity to services and resources (i.e., employment centers and recreational amenities), and the lack of on-site sensitive biological resources. The Project site is located approximately 1.7 miles northeast of the Irvine Station, which includes an Amtrak/Metrolink Station and bus facilities, and while Irvine Station is not within walking distance, it can easily be accessed through Alton and Barranca Parkways and bus transit is

available. The Project site is also located in proximity to existing and planned uses of the same nature as proposed by the Project. The County owns no other feasible alternative sites that could accommodate a development like the Project and is not aware of any other feasible locations that would avoid or substantially lessen the Project's potentially significant impacts. The County cannot reasonably acquire, control, or have access to another site with the features described above that could also accommodate the proposed Project while still eliminating or substantially lessening the Project's potentially significant impacts or potentially resulting in new or different significant impacts. The general area that would be conducive to such type of development is either developed or planned to be developed in the near future. Therefore, due to lack of viable and comparable sites in the general area that would allow for development of the Project in a manner that would avoid or substantially lessen the Project's potentially significant impacts, development of the Project on an alternative site has been eliminated from consideration.

5.3 ALTERNATIVES FOR ANALYSIS

In accordance with Section 15126.6(a) of the State CEQA Guidelines, the discussion in this section of the EIR focuses on a reasonable range of alternatives. Other than the No Project/No Development Alternative, which is required by CEQA, each alternative must be capable of avoiding or substantially lessening potentially significant effects of the Project. Qualifying alternatives can be considered even if the alternatives would impede to some degree the attainment of the Project objectives, or would be more costly.

The following alternatives are analyzed in this EIR:

- **Alternative 1 – No Project/No Development Alternative.** This alternative assumes the existing site would continue the current R&S Soils use for green waste and container nursery operations or other agricultural-related land uses allowed under existing regulations.
- **Alternative 2 – Single-Family Homes Alternative.** This alternative assumes development of single-family units to the north and south of the Wildlife Movement Corridor.
- **Alternative 3 – Mixed-Use Alternative.** This alternative assumes that the County would develop the portion of the Project site south of the Wildlife Movement Corridor with office buildings, similar to the land uses existing to the south of the Project site. A reduced number of multi-family housing units would be constructed north of the Wildlife Movement Corridor.
- **Alternative 4 – Age-Qualified/Multi-Family Alternative.** This alternative assumes that the County would develop Planning Area 1 as an age-qualified (over 55 years old) with a mix of different type of residents (i.e., villas, independent living, and assisted living). Planning Area 2 would be multi-family units (non-age-qualified). It is anticipated that the total number of units developed would be slightly less than the proposed Project.

In accordance with Section 15126.6(a) of the State CEQA Guidelines, this EIR provides a comparison of the environmental effects and their merits and/or disadvantages of each alternative in relation to the proposed Project, as well as each alternative's ability to achieve

the Project Objectives. To facilitate the readers' understanding, Table 5-1 provides a matrix that compares each alternative's ability to meet the Project Objectives. The level of environmental impact and ability to meet Project Objectives is considered in identifying the environmentally superior alternative, which is discussed in Section 5.5.

The Project site's existing environmental setting would be the same for the proposed Project and all alternatives. Additionally, unless specifically identified, it is assumed that the Mitigation Program identified for the Project would also be applicable for the alternatives. For transportation and traffic, the alternatives would not result in impacts at all the same intersections and mainline facilities as the proposed Project; therefore, implementation of mitigation would not be required at all the same locations. What would be applicable is the mitigation approach. For example, for those locations where the mitigation identified for the Project would be participation in the North Irvine Traffic Mitigation (NITM) Program, this same approach would also be applicable to all the alternatives for their corresponding impacts. For the Caltrans locations, significant impacts are identified because there is no mechanism by which the Project can contribute its fair-share towards the necessary improvements. This would also be applicable to all the alternatives.

TABLE 5-1
COMPARISON OF ALTERNATIVES ABILITY TO MEET THE PROJECT OBJECTIVES

Project Objective	Proposed Project	Alternatives			
		Alternative 1: No Project/No Development	Alternative 2: Single-Family Homes	Alternative 3: Mixed-Use	Alternative 4: Age-Qualified/ Multi-Family
1. Build a project that is compatible with the surrounding existing and planned land uses in the area.	●	○	●	●	●
2. Create a development that would fully maximize mutual benefits from proximity to the area's employment opportunities and recreational amenities.	●	○	◒	●	◒
3. Maximize the potential for use of this County real estate asset to stimulate economic commerce in the City.	●	○	◒	●	●
4. Promote efficient use of the land through construction of a medium to high density residential development.	●	○	○	◒	●
5. Take advantage of the ability to develop the Project site without the requirement for the extension of major infrastructure to support the development.	●	○	●	●	●
6. Revitalize the previously disturbed and presently underutilized Project site.	●	○	●	●	●
7. Develop the Project in a manner that will materially improve the jobs-housing balance of the area.	●	○	●	○	●
8. Use an existing County real estate asset to provide the County with a new source of revenue to support County operations and services.	●	○	●	●	●
9. Develop a project to provide attractive housing opportunities for young professionals to help curtail the trend of young professionals leaving the Orange County area.	●	○	○	●	◒
10. Incorporate housing at a minimum density of 11 dwelling units/acre consistent with State of California guidance regarding the minimum density for facilitating the creation of affordable housing.	●	○	○	●	●
11. Provide a project with a range of density, bedroom, and unit types to facilitate the integration of up to 1 percent of the units as transitional housing for the region's diverse population of homeless or those at risk of becoming homeless.	●	○	○	●	●
12. Develop a mixed-income project that includes ten percent affordable housing on site in several different product types to help meet the diverse needs of the region's population.	●	○	○	●	●

Proposed Project: Development of 803 medium- to high-density, multi-family residential units and open space and recreation uses.

Alternative 1 – No Project/No Development Alternative: No new development; leasing of the site (through an encroachment permit) may continue.

Alternative 2 – Single-Family Homes Alternative: Development of 121 units in Planning Area 1 and 77 units in Planning Area 2 for a total of 198 single-family residential units overall.

Alternative 3 – Mixed-Use Alternative: Development of 573 medium- to high-density, multi-family units in Planning Area 1 and 225,000 square feet of commercial uses in Planning Area 2.

Alternative 4 – Age-Qualified/Multi-Family Alternative: Development of 35 senior villas, 345 independent living units, a 90-bed assisted living facility, and 1.6 acres of parks in Planning Area 1 and 230 apartments and 1.24 acres of parks in Planning Area 2.

Legend:
● = Fully Implements
◒ = Partially Implements
○ = Does Not Implement

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5.3.1 ALTERNATIVE 1 – NO PROJECT/NO DEVELOPMENT ALTERNATIVE

Section 15126.6(e) of the State CEQA Guidelines requires that an EIR evaluate a "No Project" alternative to allow decision makers to compare the impacts of approving a proposed project with the impacts of not approving that project. Section 15126.6(e)(3) of the State CEQA Guidelines describes the two general types of no project alternative: (1) when the project is the revision of an existing land use, regulatory policy, or ongoing operation, the no project alternative would be the continuation of that plan and (2) when the project is other than a land use/regulatory plan (e.g., a specific development on an identifiable property), the no project alternative is the circumstance under which that project is not processed (i.e., no development). This Alternative assumes the site would continue to remain in its existing state without demolition or permanent active uses on site.

Under the No Project/No Development Alternative, the County would not recommend changes to the City General Plan and Zoning Ordinance nor would the County adopt or implement the Development Plan. None of the uses identified in the Development Plan included as part of the proposed Project would occur. No infrastructure improvements would be constructed, and the site would remain in its existing condition, as depicted on Exhibit 2-1, Aerial Photograph of the Site, in Section 2.0, Introduction, Project History, and Existing Setting, of this EIR.

Impact Evaluation

Aesthetics

The No Project/No Development Alternative would not result in any construction activities or new development on the site. In the absence of construction activities and new development, no changes to the visual environment would occur and none of the potential aesthetic impacts associated with the Project would occur. Additionally, as there would be no new development on the Project site, no additional sources of light and glare would be created that would potentially impact the surrounding uses. However, in the absence of the proposed Project, the site would remain in its existing, disturbed condition. Assuming the existing R&S Soils operations continue, portions of the Project site would be used for vehicle storage, a container nursery, and green waste (composting) operations, while much of the surrounding area redevelops as part of the Great Park Neighborhoods and the OCGP. Therefore, the aesthetics impacts of this alternative are greater than the proposed Project.

Agricultural Resources

The No Project/No Development Alternative would not result in the permanent conversion of Prime Farmland and Unique Farmland to non-agricultural use because there is no Important Farmland designated on the site. Additionally, although the City's zoning and General Plan designations do not apply for reasons described elsewhere in this EIR, for information purposes, it bears noting that continuation of the existing use of the Project site would not conflict with the City's 1.1, Exclusive Agriculture designation. Therefore, the agricultural resources impacts of this alternative would be the same as those of the proposed Project.

Air Quality

The No Project/No Development Alternative would not involve any construction activities (including grading and excavation) or new development on the Project site. In the absence of construction activities and new traffic generation, this alternative would not result in any additional air quality emissions. This alternative, unlike the Project, is consistent with the existing SCAQMD AQMP's growth assumptions. Therefore, this alternative would avoid the significant, unavoidable impact associated with the Project.

Like the Project, the No Project/No Development Alternative would not exceed applicable SCAQMD thresholds for construction-related and long-term operational emissions. Nonetheless, the overall air quality impacts of this alternative would be less than those of the proposed Project; however, the Project impacts would be less than significant.

Biological Resources

Under the No Project/No Development Alternative, the site would remain in its existing disturbed condition presumably with the continuation of the Project site being utilized for green waste or other types of allowable operations. This alternative would not result in any new direct or indirect impacts to special status species (i.e., burrowing owl, costal California gnatcatcher, and least Bell's vireo), as the site would remain in its current condition and would not be further developed. Similar to the Project, no impacts related to riparian habitat or wetlands would occur. No new direct or indirect impacts would occur to the Wildlife Movement Corridor or movement of any wildlife. Therefore, potential biological resources impacts identified for the proposed Project would be avoided by this alternative and thus less than those of the Project. However, with implementation of the identified mitigation measures and development requirements, the potential biological resources impacts would be less than significant with the proposed Project.

Cultural Resources

In the absence of any construction activities on the site, this Alternative would not result in the potential for impacts to unknown archaeological or paleontological resources and human remains that may be encountered during grading activities. As such, the potential for impacts to cultural resources for the No Project/No Development Alternative would be less than with the proposed Project. However, the Project impacts would be less than significant with implementation of the mitigation measures.

Geology and Soils

The No Project/No Development Alternative would not involve any construction activities (including grading and excavation) or new development on the site. Therefore, potential geology and soils impacts identified for the proposed Project without mitigation would not occur under the No Project/No Development Alternative. However, the Project impacts would be less than significant with implementation of development requirements.

Greenhouse Gas Emissions

The No Project/No Development Alternative would not involve any construction activities (including grading and excavation) or new development on the site. In the absence of construction activities and operation of the new residential uses (including new traffic generation), this alternative would not generate new greenhouse gas (GHG) emissions. Thus, the No Project/No Development Alternative would have less GHG emissions compared to the Project's significant and unavoidable GHG impacts.

Hazards and Hazardous Materials

The No Project/No Development Alternative would not involve the use, transport, disposal, or emission of hazardous materials associated with the proposed Project. As no construction would be involved with this alternative, no impacts related to hazardous soil would occur. Additionally, as the site would remain in its current condition, no impacts related to the groundwater trichloroethylene (TCE) plume at Installation Restoration Program (IRP) Site 2 would result with this alternative. Unlike the Project, this alternative would not expose people or structures to fire hazards associated with the Very High Fire Hazard Severity Zone (VHFHSZ) designation adjacent to the Project site. The overall hazards and hazardous materials impacts associated with this alternative are considered to be less than those of the proposed Project; however, Project impacts are less than significant with implementation of the identified mitigation measures and development requirements.

Hydrology and Water Quality

Under No Project/No Development Alternative, the existing hydrology patterns and hydrologic characteristics of the site would remain. Compared to the proposed Project, there would be less impervious surfaces. However, with implementation of the development requirements in Section 4.9, Hydrology and Water Quality, the proposed Project would maintain the existing drainage patterns and would not increase off-site storm water volume discharges. Therefore, the hydrology patterns and hydrologic characteristics would be the same for the proposed Project and the No Project/No Development Alternative. Both the proposed Project and the No Project/No Development Alternative would have a less than significant impact related to drainage and storm drain infrastructure.

Although the proposed Project would increase the amount of impervious surface on the site, implementation of the development requirements would reduce the amount of sediments and plant material carried by storm water runoff to downstream receiving water bodies and the Wildlife Movement Corridor compared to existing conditions. Potential water quality impacts resulting from the Project would be less than significant with implementation of the development requirements, including Best Management Practices (BMPs) identified in Section 4.9, Hydrology and Water Quality. The No Project/No Development Alternative would not change the amount of existing pervious surfaces on the site; however, since this alternative provides no control for the runoff content transported downstream via storm water, the impact to downstream water bodies would be greater compared to the proposed Project. Overall, the hydrology and water quality impacts under the No Project/No Development Alternative would be greater than the proposed Project.

Land Use and Planning

Under the No Project/No Development Alternative, there would be no change in the existing or planned conditions on the site. The site would remain in its current condition and undeveloped, and the County would not recommend changes to the City General Plan and Zoning Ordinance and would not adopt the Development Plan to authorize multi-family residential uses on the site. While the No Project/No Development Alternative does not involve any changes to the applicable land use plans, it would not further the applicable goals of providing housing in a jobs-rich area. Unlike the Project, this alternative would avoid the short-term significant impact associated with inconsistency with the regional planning programs. Overall, the land use impacts under the No Project/No Development Alternative would be less than the proposed Project.

Noise

The No Project/No Development Alternative would not involve any new grading or construction activities. Therefore, noise associated with these construction activities would not occur under this alternative. In addition, the increase in noise resulting from Project-related traffic would not occur, and new residents would not be exposed to traffic noise from surrounding roadways. Although all noise impacts associated with implementation of the proposed Project can be mitigated to a level considered less than significant, the noise impacts associated with this alternative would be less than with the proposed Project.

Population and Housing

Under the No Project/No Development Alternative, no new development would occur within the site, and no new population and housing would result. Therefore, the growth-related effects of this alternative would be less than the proposed Project, as this alternative would avoid the significant impact associated with direct population growth in the area beyond the levels assumed in the regional growth projections. However, the proposed Project would result in a better jobs-housing balance in a jobs-rich area by providing additional housing opportunities for the employees in the area. Overall, even though this alternative would not provide housing opportunities in a jobs-rich area, it would avoid the Project's significant impact related to direct population growth not currently contemplated in the OCP-2014. Therefore, the population and housing impacts of this alternative would be less compared to the proposed Project

Public Services

Under the No Project/No Development Alternative, the demands for public services and facilities at the site would remain at existing levels. Because there would be no new development, increased demands on public services would not occur and the impact of the No Project/No Development Alternative relative to public services and facilities would be less than the proposed Project. However, the proposed Project's impacts are considered less than significant with implementation of the identified development requirements, whereas the No Project/No Development Alternative would not require development requirements.

Recreation

The No Project/No Development Alternative would not result in an increased demand for public or private recreational facilities compared to existing conditions since there would not be an increase in population. Although the recreational facilities/parks proposed to be constructed as part of the Project would not occur, the impact of this alternative relative to recreational resources would be less than the proposed Project due to no additional demand on existing parks. However, with implementation of the identified development requirement, the proposed Project impacts are less than significant.

Transportation/Traffic

The proposed Project would generate a total of 4,963 average daily trips (ADT), including 361 during the AM peak hour and 361 during the PM peak hour. These trips would not occur under the No Project/No Development Alternative.

Roadway segments, intersections, freeway ramps, and freeway mainline segments that would operate at deficient levels of service under the "No Project" condition identified in Section 4.15, Transportation/Traffic would also operate deficiently under the No Project/No Development Alternative. However, this Alternative would not add any new trips. Therefore, the No Project/No Development Alternative would avoid the intersection impacts in the City of Irvine and/or the Caltrans freeway ramp intersection and mainline segment impacts that would occur with the proposed Project under the following scenarios: Existing Plus Project; Interim Year 2017; Long Term Year 2035; General Plan Buildout Post-2035; Year 2035 with Pending Projects; and Post-2035 with Pending Projects. The Project would have significant and unavoidable traffic impacts. Therefore, the No Project/No Development Alternative would have less impacts related to traffic and circulation compared to the proposed Project.

Utilities and Service Systems

The No Project/No Development Alternative would not result in an increased demand for utilities and service systems, as there would be no new development under this alternative. Therefore, the demands for utilities and service systems would remain at the existing levels. Although impacts with the proposed Project are less than significant, the impact of the No Project/No Development Alternative relative to utilities and service systems would be less than the proposed Project.

Conclusions

Would Alternative 1 Avoid or Substantially Lessen the Significant Impacts, Compared to the Project?

The No Project/No Development Alternative would avoid significant impacts associated with Air Quality, GHG Emissions, Land Use and Planning, Population and Housing, and Recreation (short-term), Transportation/Traffic, which would occur with implementation of the proposed Project. Because no development would occur under the No Project/No Development Alternative, there would also be fewer impacts for the following environmental topics: Biological Resources, Cultural Resources, Geology and Soils, Hazardous and Hazardous

Materials, Noise, Public Services, Recreation, and Utilities and Service Systems. The Project's impacts for these topics are less than significant. The No Project/No Development Alternative would maintain the disturbed nature of the site, which may be perceived as having greater aesthetic and hydrology/water quality impacts than the proposed Project.

Would Alternative 1 Result in Attainment of Project Objectives, Compared to the Project?

By leaving the site in its current condition, the No Project/No Development Alternative would not attain any of the Project Objectives identified above in Section 5.2.1.

5.3.2 ALTERNATIVE 2 – SINGLE-FAMILY HOMES ALTERNATIVE

This alternative proposes development of two- to three-story, single-family residential units on the site. A total of 198 dwelling units are anticipated for this alternative, with 121 units on 19.38 net acres in Planning Area 1 and 77 units on 9.53 net acres in Planning Area 2.

Parking would be provided in a combination of garage and uncovered parking spaces for a total of 600 spaces, with 366 spaces in Planning Area 1 and 234 spaces in Planning Area 1.

This alternative, as proposed, would include 2.60 and 0.81 acre of parks in Planning Areas 1 and 2, respectively, for a total of 3.41 acres. The proposed parks and recreation areas would have active and passive program elements.

The uses are depicted on Exhibit 5-1, Alternative 2, Single-Family – Conceptual Site Plan. Please note that all access points and related traffic controls are conceptual and subject to change based final design of the development.

Anticipated actions required for implementing Alternative 2 would include the following:

- At the County's discretion, a recommendation to the City regarding an appropriate General Plan Amendment and zoning code Amendment pursuant to the Pre-Annexation Agreement
- Runoff Management Plan(s)
- Water Quality Management Plan(s)
- Level I, II, III Reviews[1]
- Grading Permits
- Building Permits
- Encroachment Permits

[1] If in conjunction with approval of the Development Plan, direction is given to allow single-family development, the Development Plan would need to incorporate development standards and guidelines for this land use. This would identify when Level I, II, and III reviews would apply.

PROJECT SUMMARY

Total Area:	32.32 AC
Total Units:	198 DU
Density:	6.13 DU/AC
Park Area:	3.41 AC
Planning Area 1:	
Gross Area:	21.98 AC
Total Units:	121 DU
Density:	5.5 DU/AC
Park Area:	2.60 AC
Parking Required:	363 (3 spaces/DU)
Parking Provided:	242 Garages
	124 Uncovered
TOTAL:	366 TOTAL (3 spaces/DU)
Planning Area 2:	
Area:	10.34 AC
Units:	77 DU
Density:	7.5 DU/AC
Park Area:	0.81 AC
Parking Required:	231 (3 spaces/DU)
Parking Provided:	154 Garages
	80 Uncovered
TOTAL:	234 (3 spaces/DU)

Source: West Alton Parcel Development Plan, 2016

Alternative 2, Single-Family - Conceptual Site Plan

Exhibit 5-1

West Alton Parcel Development Plan EIR

Map Not to Scale

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- Acquisition and dedication of rights of entry, easements, and right-of-way for off-site improvements
- Real property and license agreements such as ground leases and easements

Impact Evaluation

Aesthetics

Development under Alternative 2 would result in aesthetics impacts similar to those of the proposed Project in that both Alternative 2 and the Project would result in a transition of the site from disturbed, under developed land to urban uses. The site would be developed with new single-family homes, parks and open space. Short-term construction and infrastructure improvements would have similar impacts to the proposed Project, as the construction footprint would be the same. Alternative 2 construction activities would present views of graded areas, dirt and debris stockpiles, construction equipment, delivery and haul trucks, construction crews, building materials, staging areas, trailer offices, and building activities that would be visible to people near the construction sites or with direct views of the site. Similar to the proposed Project, the change in visual character due to construction activities would not be considered significant because of the relatively short-term duration of the construction activities and the disturbed nature of the existing site. Subsequent to the completion of construction activities, Alternative 2 would include 198 single family units. Although the Alternative 2 footprint would be similar to that of the proposed Project, this alternative would have a substantially reduced density. The single-family units would have the same general height as the walk-up apartments of the proposed Project, but a reduced height when compared to some of the Project's multi-family type units (e.g. Mid-Rise Attached Housing Type). Therefore, upon completion of construction, the aesthetic impacts of Alternative 2 would be similar to the proposed Project's because it would not substantially degrade the visual quality of the Project site. Similar to the Project, at completion, the change in visual character would be an improvement over the existing condition of the site.

Similar to the proposed Project, future development under Alternative 2 would lead to the introduction of new light sources in the form of streetlights, exterior security lighting, lower-scale pedestrian fixtures, accent and decorative lighting, signage lighting, pavement lighting, and parking lot lighting. However, this alternative would have lower density and lower maximum building heights, which would result in reduced light and glare impacts to the surrounding uses. Development Requirement (DR) AES-1 and DR AES-2 would also apply to the Alternative 2 development. Impacts related to new sources of light and glare would be reduced compared to the proposed Project, but like the Project would be less than significant.

Agricultural Resources

Alternative 2 would involve the development of single-family homes, as opposed to the multi-family development under the proposed Project. Development under this alternative would have the same general footprint as the Project. As with the proposed Project, there would be no impact on Important Farmland because none is designated on the Project site nor would there be any other significant adverse impact on agricultural resources.

Air Quality

Development under Alternative 2 would provide single-family homes as opposed to the multi-family homes proposed under the Project. The short-term construction and long-term operational pollutant emissions that would occur with development of Alternative 2 are not anticipated in the current AQMP. Therefore, the significant and unavoidable impacts associated with consistency with the AQMP that would occur with the proposed Project would still occur with Alternative 2, and MM LU-1 would apply.

Alternative 2 would generate 1,550 ADT compared to 4,963 ADT for the proposed Project. Thus, long-term mobile pollutant emissions would be substantially reduced. The Alternative 2 population, number of dwelling units, and building square footage would also be much less than the proposed Project, resulting in reduced criteria emissions from consumer products and energy use. Like the proposed Project, Alternative 2's long-term criteria pollutant emissions would be less than the SCAQMD CEQA thresholds and both direct and cumulative impacts would be less than significant. DRs AQ-1 through AQ-4 would also be applicable to this alternative.

Maximum daily unmitigated construction pollutant emissions would be similar to or less than the proposed Project. Like the Project, the construction pollution impacts of Alternative 2 would be less than significant. Maximum daily emissions during mass grading would be similar because overall site preparation and terrain development would be similar. Maximum daily emissions during vertical construction would be less than for the proposed Project because single family homes would not require the use of cranes, welders, concrete pumps, etc. that would be used for building multi-story, multi-family buildings. Exposure of sensitive receptors to pollutants and odor impacts would be similar to the proposed Project and less than significant with Alternative 2. Overall, potential air quality impacts associated with this alternative would be substantially reduced compared to the Project.

Biological Resources

Under Alternative 2, the development footprint and the physical impact area would be similar to that of the proposed Project. As with the proposed Project, Alternative 2 would directly impact marginally suitable habitat for special status species. However, with the implementation of a pre-construction burrowing owl survey, direct impacts would be considered less than significant. As with the proposed Project, the light and glare generated by Alternative 2 would have the potential to indirectly impact species using open space adjacent to the Project boundary. Implementation of development requirements for potential impacts to sensitive species would reduce the impacts to a less than significant level. As with the proposed Project, Alternative 2 would implement development requirements to reduce impacts on active nests of migratory birds and/or raptors to less than significant levels.

Similar to the proposed Project, Alternative 2 would not directly impact riparian habitat or wetlands. As with the proposed Project, Alternative 2 would implement BMPs to ensure that indirect impacts on federally protected wetlands and other waters would be less than significant.

As noted above, Alternative 2 would implement development requirements, including light shielding/screening and building setbacks, to minimize indirect impacts to the Wildlife

Movement Corridor. Therefore, impacts would be less than significant. Overall, impacts related to biological resources would be similar to the proposed Project.

Cultural Resources

Under Alternative 2, the development footprint and the physical impact area would be similar to the proposed Project. Therefore, potential impacts to unknown archaeological resources, paleontological resources, and human remains would be the same as the proposed Project. With implementation of the identified MM CULT-1 through MM CULT-3, the potential impacts would be less than significant. No significant and unavoidable impacts would result. Overall, impacts related to cultural resources would be similar to the proposed Project.

Geology and Soils

Alternative 2 would have a similar development footprint as the proposed Project, although the type and intensity of development would be different. In terms of geology and soils, the potential impacts would be similar to the proposed Project. The site is not included in an Alquist-Priolo Earthquake Fault Zone and there are no known active or potentially active faults traversing the site. Impacts associated with surface fault rupture would be less than significant. The site is in a seismically active area that would likely experience strong ground shaking during the life of any development. However, with conformance to existing regulations and development requirements, impacts associated with seismic shaking and seismic ground failure (i.e., liquefaction, seismically induced settlement, and lateral spreading) would be less than significant. Similarly, due to site conditions, impacts associated with landslides, subsidence, or collapse would be less than significant. No significant and unavoidable impacts would result.

Additionally, similar to the proposed Project, grading activities would increase the potential for soil erosion and loss of top soil. With the incorporation of construction BMPs and implementation of other development requirements, the potential impacts on soil erosion and loss of topsoil under Alternative 2 would be less than significant. No significant and unavoidable impacts would result.

Moreover, based on the Preliminary Geotechnical Investigation, a low to medium expansion potential is assumed for the site (Leighton and Associates, Inc. 2014). Consistent with DR GEO-1, more detailed evaluation of near-surface soils would be conducted during the subsequent permitting and appropriate design measures would be recommended. Impacts associated with expansive soils would be similar compared to the proposed Project. No significant and unavoidable impacts would result. Overall, impacts related to geology and soils would be similar to the proposed Project.

Greenhouse Gas Emissions

Alternative 2 would generate 1,550 ADT compared to 4,963 ADT for the proposed Project and the square footage of the buildings would be substantially less than the proposed Project. All categories of GHG emissions (i.e., mobile, energy, water, solid waste, and construction) for this alternative would be substantially reduced compared to the proposed Project. GHG emissions for Alternative 2 are estimated at 2,400 metric tons of carbon dioxide equivalent per year ($MTCO_2e$/year) whereas the proposed Project's estimated GHG emissions are 7,166

$MTCO_2e$/year. However, the GHG emissions per unit are much higher for Alternative 2 compared to the Project.

As discussed in Section 4.7, Greenhouse Gas Emissions, of this EIR, a measure of GHG emissions impacts, called the "efficiency" method compares the GHG emissions to the number of persons associated with the generation of those emissions (residents plus employees), known as the service population (SP). The SCAQMD has recommended efficiency thresholds for evaluating significant impact for years 2020 and 2035.

Based on the efficiency thresholds an interpolated value was developed for 2022, which is the projected buildout for the Project. For the buildout analysis, 4.56 $MTCO_2e$/year per service population project-level threshold was established for the Project. The Alternative 2 SP would be 636 residents. It is estimated that the GHG emissions per SP under Alternative 2 would be approximately 3.77 $MTCO_2e$/year/SP, which would be below the SCAQMD's project-level efficiency threshold. For comparison, the alternative's GHG emissions per SP are less than the Project's calculated 4.48 MTCO2e/year/SP. As discussed in Section 4.7, the SCAQMD established a 2035 efficiency threshold to reduce GHG emissions to 40 percent below the 1990 levels specified in AB 32. That level of reduction is consistent with the newly signed SB 32, although SB 32 establishes a target year of 2030. As the State has not yet adopted the formal regulations and plans to achieve the reductions contemplated by SB 32, this EIR evaluates the Project and this alternative against the efficiency target developed by SCAQMD as of the 2030 compliance date established by SB 32. Consistent with the SCAQMD methodology, the 2030 efficiency threshold used in this EIR is 3.0 MTCO2e/year per service population.

In 2030, similar to the proposed Project, there would be a slight reduction in GHG emissions associated with Alternative 2 because improvements such as increase reliance on renewable energy, and cleaner vehicles. However, as with the proposed Project, this incremental reduction would not be sufficient to offset the reduction in the efficiency threshold for 2030 necessary to achieve GHG emissions of 40 percent below 1990 levels. Therefore, similar to the proposed Project, Alternative 2 would have a significant and unavoidable impact associated with the generation of GHG emissions.

Similar to the proposed Project, Alternative 2 would be in a location that would encourage walking, bicycling, and transit use and would be consistent with State and Southern California Association of Governments (SCAG) goals and policies for reducing GHG emissions and therefore would not conflict with those policies. Compliance with the applicable Title 24 Energy Efficiency Standards and the California Green Building Standards (CALGreen) Code (DRs GHG-1 and GHG-2) would be applicable to this alternative. Provision of renewable energy generation for the entire alternative equivalent to 1.25 kilowatts (kW) per dwelling unit (DR GHG-3) and appliances with 2016 Energy Star or equivalent ratings (DR GHG-4) would be applicable to this alternative.

Alternative 2 would have a lower GHG service population metric compared to the Project and would generate substantially reduced total GHG emissions compared to the Project. However, similar to the proposed Project, Alternative 2's mitigated GHG emissions would exceed the SCAQMD-recommended project-level threshold; therefore, and given the lack of regulatory guidance on the specific methods the State will utilize to achieve SB 32 compliance, this EIR conservatively concludes that the Alternative 2 may conflict with an applicable plan, policy or

regulation adopted for the purpose of reducing the emissions of GHG. This would be a significant and unavoidable impact and similar to the proposed Project.

Hazards and Hazardous Materials

Alternative 2 would have a similar development footprint as the proposed Project, although the type and intensity of development would be different. Therefore, similar to the proposed Project, the existing environmental conditions that may present significant hazards due to reasonably foreseeable upset or accident conditions are potential impacts for the alternative due to former agricultural use of the Project site and those associated with IRP Site 2. However, based on the County supplemental investigation and like the Project, impacts of this alternative would also be less than significant without mitigation.

As with the proposed Project, Alternative 2 would be located on a portion of the former MCAS El Toro Superfund site, which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. Though not anticipated, hazardous materials impacts to soil may be present at the site as a result of former MCAS El Toro operations. Should soils impacted by hazardous material be found, implementation of development requirements would reduce potential impacts to a less than significant level. As with the proposed Project, impacts due to VOCs and methane in soil gas are less than significant without mitigation and implementation of a mitigation measure would reduce impacts to the groundwater monitoring well(s) associated with the groundwater TCE plume at IRP Site 2 to a less than significant level.

The site is located adjacent to a Very High Fire Hazard Severity Zone. With implementation of the approved Fuel Modification Plan, similar to the proposed Project, implementation of this alternative would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires. This impact is less than significant and no mitigation is required. Overall, impacts related to hazards and hazardous materials would be similar to the proposed Project.

Hydrology and Water Quality

This alternative, would introduce less impervious surface than the Project. However, similar to the proposed Project, with implementation of the development requirements in Section 4.9, Hydrology and Water Quality, Alternative 2 would maintain the existing drainage patterns and would not increase off-site storm water volume discharges. Therefore, the impacts related to drainage and storm drain infrastructure would be the same for both the proposed Project and Alternative 2; and impacts would be less than significant.

Although the proposed Project would have a greater amount of impervious surface compared to Alternative 2, with the implementation of the development requirements the amount of sediments and plant material carried by storm water runoff to downstream receiving water bodies and the Wildlife Movement Corridor would be comparable. Therefore, potential water quality impacts resulting from the proposed Project and Alternative 2 would be the same and less than significant with implementation of the development requirements, including Best Management Practices (BMPs) identified in Section 4.9, Hydrology and Water Quality.

Land Use and Planning

Like the proposed Project, this alternative is not subject to the land use plan and policies of the City of Irvine or County General Plan or Zoning Code. As with the proposed Project, the planned uses and intensity included in Alternative 2 would be inconsistent with those envisioned within the existing City of Irvine General Plan and Zoning Ordinance. The site is designated in the City of Irvine General Plan as Orange County Great Park and the City's Zoning Map identifies the site as 1.1, Exclusive Agriculture, and 1.4, Preservation. Similar to the proposed Project, for Alternative 2, the County may recommend changes to the City General Plan and Zoning Ordinance consistent with the alternative's proposed uses. In accordance with the Pre-Annexation Agreement, the Irvine City Council would then consider the requested amendments to the City General Plan and Zoning Ordinance.

Similar to the Project, this alternative would be consistent with the intent of the goals and strategies of SCAG's RTP/SCS. Like the Project, the population contemplated by this alternative is not included in the current RTP/SCS (see Tables 4.10-2 and 4.10-3 in Section 4.10, Land Use and Planning). MM LU-1 would be applicable to this alternative as it relates to the alternative's consistency with regional planning programs. Similar to the Project, this alternative's impact associated with consistency with the regional planning program would be significant and unavoidable as the County does not control the adoption or timing of the RTP/SCS.

Although not required by CEQA or otherwise, in the interest of informed decision making, Section 4.10 analyzes the proposed Project for consistency with Irvine General Plan and Zoning Ordinance (see Table 4.10-1). The analysis for Alternative 2 is generally the same as the comparison completed for the Project. Similar to the proposed Project, the types of uses proposed under this alternative are compatible with the surrounding existing and planned uses, especially Districts 5 and 7 of the Great Park Neighborhoods, to the west across Irvine Boulevard and adjacent and to the northwest portion of the site, respectively. Overall, impacts related to land use and planning would be similar to the proposed Project. Like the Project, except for the RTP/SCS, land use and planning impacts of Alternative 2 would be less than significant.

Noise

Alternative 2 would generate 1,550 ADT compared to 4,963 ADT for the proposed Project, and the square footage of buildings would be substantially less than the proposed Project. Construction noise levels would be similar to the proposed Project, but would be shorter in duration. Project-generated direct and cumulative traffic noise level increases at on and off-site receptors would be less with Alternative 2. Similar to the proposed Project, the alternative's impacts in this regard would be less than significant. Similar to the proposed Project, all noise and vibration impacts would be less than significant. DR NOI-1, DR NOI-2, and MMs NOI-1, NOI-2, NOI-3, and NOI-4 would also be applicable to this alternative. Overall, Alternative 2 would also have a less than significant noise impact and less noise impacts compared to the proposed Project.

Population and Housing

Alternative 2 proposes new single-family residences, consisting of a total of 198 dwelling units. Using the generation factors included in the County Local Park Code (Orange County Codified

Ordinances [OCCO] Section 7-9-522), using a population generation factor of 3.21 persons per dwelling unit, Alternative 2 would generate approximately 636 new residents. Although this population is significantly less compared to the Project's 1,598 residents, similar to the Project, the growth contemplated by Alternative 2 would not have been considered for the site when the OCP-2014 dataset was developed. Therefore, similar to the Project, this population growth has not been incorporated into the long-range planning programs and would have direct growth-inducing impacts. Therefore, similar to the Project, this alternative's impacts would be significant and unavoidable as modifications to the regional planning projections are outside the County's control.

Similar to the Project, this alternative would not result in indirect growth-inducing impacts, because this alternative would not size or extend infrastructure and other improvements that would encourage development levels beyond what is already planning elsewhere in the City and County. Additionally, similar to the Project but to a substantially lesser degree, this alternative would improve the existing jobs/housing ratio in a jobs-rich area by introducing 198 dwelling units and no employment-generating uses. Overall, population and housing impacts of this alternative would be similar to the proposed Project.

Public Services

Alternative 2 would have a similar physical footprint as the proposed Project while generating approximately 948 fewer new residents. Similar to the proposed Project, Alternative 2 would generate the typical range of service calls for residential developments, including structural fires and emergency medical and rescue services. The proposed Project impacts to fire protection are considered less than significant with implementation of the identified development requirements, which would also apply to Alternative 2. Thus, Alternative 2 would also result in a less than significant impact. Further, no new or physically altered fire facilities that would result in substantial adverse physical impacts would be required of the proposed Project or with Alternative 2.

Similar to the proposed Project, Alternative 2 would generate the typical range of police protection service calls for residential developments. Neither the proposed Project nor Alternative 2 would require new or physically altered governmental facilities. Therefore, similar to the Project, Alternative 2 would have a less than significant impact on police protection services.

Alternative 2 would generate approximately 105 students in the Irvine Unified School District, which is approximately 83 fewer than the proposed Project. As with the proposed Project, Alternative 2 would be required to comply with the *California Government Code* (payment of State-mandated school fees). As with the Project, there would be sufficient capacity to accommodate the additional students generated by Alternative 2. Because of agreements with other developments (Portola Springs and Heritage Fields), students from these developments have priority enrollment at the planned schools. Therefore, it is possible that additional portable classrooms maybe required to accommodate students from the Project and Alternative 2. Those portable classrooms would be added within the existing developed portion of the school site and physical impacts on the environment are expected to be less than significant. Similar to the proposed Projects, impacts of Alternative 2 would be less than significant with payment of school fees.

Based on communication with the Orange County Public Library (OCPL), the County has not established a service standard for libraries. Therefore, both the Project and Alternative would not, in and of itself, trigger the construction of new or expanded library facilities, and the impact is less than significant. Overall, Alternative 2's impacts to public services would be substantially less than the proposed Project and less than significant.

Recreation

Alternative 2 would introduce a total of 636 permanent residents to the area. Similar to the proposed Project, this alternative would increase demand for recreational facilities and amenities in the area. Similar to the proposed Project, in accordance with DR REC-1, development of this alternative would be required to provide parkland in accordance with the West Alton Development Plan (0.008 acre of parkland per dwelling unit), which equates to approximately 1.6 acres of parkland; this is less than the 4.02 acres contemplated by the proposed Project. This alternative proposes a total of 3.41 acres of parkland, which is in excess of the parkland requirement for this alternative.

Unlike the Project, this alternative would not result in a shortage of parkland even if development in Planning Area 1 occurs prior to issuance of Finding of Suitability to Transfer (FOST) and construction of the proposed park within the LIFOC area, as there is sufficient parkland proposed without the park in LIFOC area. Therefore, this alternative would not result in a deterioration of the parkland in the area, and impacts would be less than significant. Overall, this alternative would have less recreation impacts compared to the proposed Project.

Transportation/Traffic

Alternative 2, Single-Family Homes Alternative, would result in substantially reduced number of total average daily trips compared to the proposed Project. In comparison to the proposed Project's 4,963 ADT, this alternative would generate a total of 1,550 ADT.

The same methodology and scenarios evaluated for the proposed Project were used to analyze and identify potential transportation/traffic impacts under Alternative 2. Traffic impacts of Alternative 2 have been identified for existing traffic conditions, Interim Year 2017, Long-Term Year 2035, and General Plan Buildout Post-2035 future traffic conditions.

The same roadway network as the proposed Project was analyzed for this alternative, and the same growth assumptions were utilized for the analysis. Table 5-2 identifies the number of locations that have direct and cumulative impacts with the proposed Project compared to Alternative 2 for each of the metrics used. The table is intended to provide a quick comparison of the number of locations; however, it should be noted that the locations of the impacts are not necessarily the same for the proposed Project and Alternative 2. This is followed by an overview for each timeframe.

TABLE 5-2
COMPARISON OF TRAFFIC IMPACT LOCATIONS FOR THE PROPOSED PROJECT AND ALTERNATIVE 2

Scenarios	Number of Impact Locations with the Proposed Project	Number of Impact Locations with Alternative 2
Existing Plus Project/Alternative		
Intersection Impacts with ICU Methodology	0	0
Intersection Impacts with HCM Methodology	1	0
Impacts on at Freeway Ramps	0	0
Impacts on Freeway Mainline Segments	6	6
Year 2017 Plus Project/Alternative		
Intersection Impacts with ICU Methodology	0	0
Intersection Impacts with HCM Methodology	3	3
Impacts on at Freeway Ramps	0	0
Impacts on Freeway Mainline Segments	0	0
Year 2035 Plus Project/Alternative		
Intersection Impacts with ICU Methodology	0	0
Intersection Impacts with HCM Methodology	8	8
Impacts on at Freeway Ramps	0	0
Impacts on Freeway Mainline Segments	0	0
Post-2035 Plus Project/Alternative		
Intersection Impacts with ICU Methodology	0	0
Intersection Impacts with HCM Methodology	8	5
Impacts on at Freeway Ramps	0	0
Impacts on Freeway Mainline Segments	1	1
Cumulative Impact Scenarios		
Year 2035 Plus Project/Alternative Plus Pending Projects		
Intersection Impacts with ICU Methodology	1	0
Intersection Impacts with HCM Methodology	5	3
Impacts on at Freeway Ramps	0	0
Impacts on Freeway Mainline Segments	0	1
Post-2035 Plus Project/Alternative Plus Pending Projects		
Intersection Impacts with ICU Methodology	0	0
Intersection Impacts with HCM Methodology	8	7
Impacts on at Freeway Ramps	0	0
Impacts on Freeway Mainline Segments	0	0

ICU: Intersection Capacity Utilization; HCM: Highway Capacity Manual
Source: Fehr & Peers 2015

Existing Plus Alternative 2 Analysis

Under Alternative 2 under the Existing Plus Alternative scenario, no freeway/highway intersection was found to exceed thresholds using the Highway Capacity Manual (HCM) methodology, unlike the Project where one impact would occur to Jeffrey Road and Walnut Avenue during AM and PM peak hours. Similar to the Project, no impacts would occur to

freeway ramps. Similar to the proposed Project, this alternative would impact six freeway/highway mainline segments: I-5 SB at Jeffrey Off-Ramp during PM peak hour; I-5 SB at Jeffrey to SR-133 NB during AM peak hour; I-5 SB at SR-133 SB to Alton during AM and PM peak hours; I-405 NB at Jeffrey Slip On-Ramp in the AM peak hour; I-405 SB at Sand Canyon Off-Ramp in the AM peak hour; and I-405 SB at SR-133 Off-Ramp in the AM peak hour. Mitigating the identified significant impact to the mainline freeway would require reconstruction of the freeways to add travel lanes. Since the freeways in the study area are interconnected systems, it would not be possible or effective to provide isolated spot improvements of one segment of the freeway where deficient operations are observed. Therefore, the impacts to the mainline freeway would remain significant and unavoidable under both the proposed Project and Alternative 2.

Year 2017 Plus Alternative 2 Analysis

Similar to the proposed Project, this alternative would not impact any intersections using the ICU methodology but, similar to the Project, would impact three freeway/highway intersections under the HCM methodology, including Jeffrey Road and I-5 northbound; Jeffrey Road and Walnut Avenue; and Sand Canyon Avenue and I-5 northbound. Additionally, similar to the Project, no impacts were identified at freeway/highway ramps and freeway/highway mainline segments. The required improvements for all impacts have been identified, which would mitigate the impacts to pre-Project (or Alternative 2) conditions. Consistent with the mitigation approach for the proposed Project, the Alternative 2 intersection impact locations outside the jurisdiction of the County of Orange would remain significant and unavoidable.

Year 2035 Plus Alternative 2 Analysis

Under this scenario, similar to the Project, this alternative would not impact any intersections under the ICU methodology but, similar to the Project, would impact eight freeway/highway intersections under the HCM methodology, including Jeffrey Road and Walnut Avenue; Jeffrey Road and I-405 northbound; Sand Canyon Avenue and I-5 northbound; Sand Canyon Avenue and I-5 southbound; SR-133 southbound and Irvine Boulevard; Fortune Drive and I-5 southbound and Enterprise Drive; Bake Parkway and I-5 southbound; and SR-133 northbound and Trabuco Road. Similar to the Project, no impacts were identified at freeway/highway ramps and freeway/highway mainline segments. The required improvements for all impacts have been identified, which would mitigate the impacts to pre-Project (or Alternative 2) conditions. Consistent with the mitigation approach for the proposed Project, the Alternative 2 impact locations outside the jurisdiction of the County of Orange would remain significant and unavoidable.

Post-2035 Plus Alternative 2 Analysis (General Plan Buildout)

Under this scenario, similar to the Project, this alternative would not impact any intersections under the ICU methodology. This alternative would impact five freeway/highway intersections under the HCM methodology compared to eight under the proposed Project. Similar to the Project, impacts would occur at Sand Canyon Avenue and I-5 northbound; and SR-133 northbound and Trabuco Road. However, this alternative would also result in impacts at Sand Canyon Avenue and I-405 southbound; Alton Parkway and I-5 northbound; and Bake Parkway and I-5 southbound. The required improvements for all impacts have been identified, which would mitigate the impacts to pre-Project (or Alternative 2) conditions. Consistent with the

mitigation approach for the proposed Project, the Alternative 2 intersection impact locations outside the jurisdiction of the County of Orange would remain significant and unavoidable.

Additionally, similar to the Project, this alternative would impact one freeway/highway mainline segment at I-405 southbound at SR-133 Off-Ramp. Mitigating the identified significant impact to this segment would require a complete reconstruction of the I-405 and SR-133 freeways/highways to add travel lanes and upgrade each of the deficient locations. Since the freeways in the study area are interconnected systems, it would not be possible, nor effective, to provide isolated spot improvements of one segment of the freeway where deficient operations are observed. As the impact facility is also outside the jurisdiction of the County of Orange, for both the proposed Project and Alternative 2, impacts to this location would remain significant and unavoidable.

Year 2035 Plus Alternative 2 Plus Pending Projects

Under this scenario, no impacts to intersections under the ICU methodology would occur for Alternative 2 compared to one impact under the proposed Project. This alternative would result in impacts at three freeway/highway intersections under the HCM methodology, compared to five under the proposed Project. Similar to the proposed Project impacts would occur at Jeffrey Road and I-405 northbound and SR-133 northbound and Trabuco Road. However, unlike the Project, a new impact would occur at Sand Canyon and I-5 northbound under this alternative. The required improvements for all impacts have been identified, which would mitigate the impacts to pre-Project (or Alternative 2) conditions. Consistent with the mitigation approach for the proposed Project, the intersection impact locations outside the jurisdiction of the County of Orange would remain significant and unavoidable.

Similar to the Project, no impacts would occur at freeway/highway ramps. Unlike the Project, this alternative would result in an impact at I-5 northbound at I405 Off-Ramp to Bake On-Ramp freeway mainline segment. Since the freeways in the study area are interconnected systems, it would not be possible, nor effective, to provide isolated spot improvements of one segment of the freeway where deficient operations are observed. As the impact facility is also outside the jurisdiction of the County of Orange, for both the proposed Project and Alternative 2, impacts to this location would remain significant and unavoidable. .

Post-2035 Plus Alternative 2 Plus Pending Projects

Under this scenario, similar to the Project, this alternative would not impact any intersections under the ICU methodology. Under this scenario, impacts would occur at seven freeway/highway intersections using the HCM methodology, compared to eight under the Project. Similar to the Project, impacts would occur at Jeffrey Road and Walnut Avenue; Sand Canyon Avenue and I-5 northbound; Sand Canyon Avenue and I-5 southbound; Portola Parkway and SR-241 southbound; Fortune Drive and I-5 southbound and Enterprise Drive; and Bake Parkway and I-5 southbound. Unlike the Project, this alternative would result in new impacts at SR-133 southbound and Irvine Boulevard and SR-133 northbound and Trabuco Road. The required improvements for all impacts have been identified, which would mitigate the impacts to pre-Project (or Alternative 2) conditions. Consistent with the mitigation approach for the proposed Project, the impact intersection locations outside the jurisdiction of the County of Orange would remain significant and unavoidable. While impact at Portola Parkway and SR-241 southbound can be mitigated to pre-Project (or Alternative 2) conditions

with the installation of a traffic signal, this intersection does not meet peak hour signal warrants. Therefore, this impact is deemed significant and unavoidable. Similar to the Project, this alternative would not result in impacts at freeway/highway ramps and freeway/highway mainline segments.

While traffic impacts for both the proposed Project and Alternative 2 would be less than significant in most areas, they would be significant and unavoidable in others. Overall, compared to the proposed Project, Alternative 2 traffic impacts are substantially reduced in some areas, the same in some areas, and greater at one freeway ramp (under the Year 2035 [cumulative] scenario).

Utilities and Service Systems

Alternative 2 would place demands on local and regional utilities and service systems; however, the demand would be reduced compared to the proposed Project demands due to the reduced density associated with Alternative 2. As the Irvine Ranch Water District (IRWD) approved a Water Supply Verification on May 23, 2016, confirming the availability of water for the proposed Project, water would also be available for the less intense Alternative 2. Similar to the proposed Project, Alternative 2 would not require the construction or expansion of new water or wastewater treatment facilities or expansion of existing treatment facilities. The proposed Project impacts to utilities and service systems are considered less than significant with implementation of the identified development requirements, which would also apply to Alternative 2 and would also result in a less than significant impact. The impacts related to water and wastewater demand for this alternative would be less than those under the proposed Project.

There is sufficient solid waste disposal capacity in the existing landfills to meet the proposed Project's solid waste disposal needs, and solid waste impacts are considered less than significant. Alternative 2 would generate fewer persons than the proposed Project and is expected to generate less solid waste than the proposed Project and a less than significant impact. Overall, the alternative's impacts to utilities and service systems would be less than the proposed Project and, like the Project, less than significant.

Conclusions

Would Alternative 2 Avoid or Substantially Lessen the Significant Impacts, as Compared to the Project?

As with the proposed Project, Alternative 2 would result in significant impacts associated with Air Quality, GHG emissions, Land Use and Planning, Population and Housing, and Transportation/Traffic. Since the impacts associated with Air Quality, Land Use and Planning, and Population and Housing are associated with consistency with planning programs, the level of impact would be the same as the proposed Project (i.e., both are at least temporarily inconsistent). The operational air quality emissions, GHG emissions, and the Transportation/Traffic impacts would be substantially reduced with Alternative 2 compared to the proposed Project. For instance, long-term mobile pollutant emissions would be substantially reduced compared to the proposed Project, as this alternative would result in approximately 69 percent fewer ADTs (1,550 ADTs compared to 4,963 ADTs) than the proposed Project. Additionally, due to reduced population and square footage of building area,

the alternative would have less long-term criteria pollutants. GHG emissions impacts under Alternative 2 would be less than the Project's impacts; however, like the Project, the GHG impacts of Alternative 2 are considered significant and unavoidable. This alternative would not result in a short-term significant and unavoidable impact related to shortage of parkland if development in Planning Area 1 occurs prior to issuance of FOST and construction of the proposed park within the LIFOC area, as this alternative would have sufficient parkland without the park in LIFOC area.

In terms of Transportation/Traffic impacts, this alternative would avoid impacts at Jeffrey Road and Walnut Avenue intersection under the Existing Plus Project conditions. Under the Year 2017, the Project and this alternative would impact the same three freeway/highway intersections under the HCM methodology. In the Year 2035, the Project and this alternative would impact the same eight freeway/highway intersections under the HCM methodology.

Under the Post-2035 Scenario, this alternative would result in impacts to five freeway/highway intersections under the HCM methodology compared to eight under the proposed Project. While impacts at Jeffrey Road and Walnut Avenue; Sand Canyon Avenue and I-5 southbound; SR-133 southbound and Irvine Boulevard; Portola Parkway and SR-241 southbound; Fortune Drive and I-5 southbound and Enterprise Drive; and SR-133 southbound and Trabuco Road would be avoided under this alternative, there would be new impacts at three intersections, Sand Canyon Avenue and I-405 southbound; Alton Parkway and I-5 northbound; and Bake Parkway and I-5 southbound. As with the proposed Project, this alternative would result in one freeway/highway mainline segment impact at I-405 southbound at SR-133 Off-Ramp.

Under the Year 2035 Plus Alternative 2 and Pending Projects scenario, this alternative would avoid the impact at the intersection of Jamboree Road northbound ramps and Warner Avenue under the ICU methodology, as well as three freeway/highway intersections under the HCM methodology, Jeffrey Road and Walnut Avenue; Sand Canyon and I-5 southbound; and SR-133 southbound and Irvine Boulevard.

Under the Post-2035 Plus Alternative 2 and Pending Projects scenario, while this alternative would avoid Project's impact at the freeway/highway intersection of Portola Parkway and SR-241 northbound and SR-133 northbound and Trabuco Road, it would result in a new impact at SR-133 southbound and Irvine Boulevard.

Because the intensity of the development under Alternative 2 is substantially reduced compared to the proposed Project, there would also be less or substantially less impacts for the following environmental topics: Air Quality, Noise, Public Services, Recreation, and Utilities and Service Systems. However, like the proposed Project, the alternative's impacts for these topics would be less than significant with imposition of mitigation measures and/or development requirements.

As Alternative 2 and the proposed Project would have the same development footprint, their impacts would be similar for the following environmental topics: Aesthetics, Agricultural Resources, Biological Resources, Cultural Resources, Geology and Soils, Hazards and Hazardous Materials, and Hydrology and Water Quality.

Would Alternative 2 Result in Attainment of Project Objectives, as Compared to the Project?

Alternative 2 resulting in 198 dwelling units would fully meet 5 of the 12 Project objectives and partially meet 2 Project objectives. The following objectives would be met by this alternative:

1. Build a project that is compatible with the surrounding existing and planned land uses in the area.
5. Take advantage of the ability to develop the Project site without the requirement for the extension of major infrastructure to support the development.
6. Revitalize the previously disturbed and presently underutilized Project site.
7. Develop the Project in a manner that will materially improve the jobs-housing balance of the area.
8. Use an existing County real estate asset to provide the County with new source of revenue to support County operations and services.

Alternative 2, similar to the Project, would be compatible with the surrounding existing and planned land uses as analyzed above, and future development under this alternative would not conflict with existing and planned land uses around the Project site. Existing and planned uses would either be compatible with the alternative's residential, open space, and parks uses and/or buffered by roadways and landscaping. Additionally, similar to the Project, this alternative would not be required to extend substantial infrastructure to support the development. The Project site has been previously disturbed and is currently undeveloped with temporary uses; similar to the Project, this alternative would revitalize the site by developing it with single-family residential uses, which would be an improvement over the existing condition. This alternative would also improve the jobs-housing balance by providing 198 residential units and no employment uses. The Project site is located in an area that is jobs rich. Similar to the Project, this alternative would result in a residential development that would help improve the jobs/housing balance in the area. However, given the relatively small number of units proposed, this alternative would not materially contribute to the improvement of the jobs/housing balance. Lastly, similar to the Project, Alternative 2 would provide the County a source of revenue to support the County's overall governmental functions by creating 198 single-family residential units.

The following objective would be partially met by Alternative 2:

2. Create a development that would fully maximizes mutual benefits from proximity to the area's employment opportunities and recreational amenities.
3. Maximize the potential for use of this County real estate asset to stimulate economic commerce in the City.

The Project site is located in an area surrounded by and/or in proximity to existing and planned employment opportunities and recreational amenities (i.e., OCGP, including the Cultural Terrace). Similar to the Project, although at a substantially lower density, units, and population, this alternative would result in residential units that would serve the existing and

future employees in the area, and in turn this alternative's future residents would partake of the existing and future employment opportunities and recreational amenities in the area. Additionally, similar to the Project, Alternative 2 would result in a new source of revenue for the County and stimulate the local economy by introducing a development and associated population in the area that would be using services and generating new tax revenue for the City, albeit at a substantially lower rate compared to the Project.

The following objectives would not be met by the Single-Family Alternative:

4. Promote efficient use of the land through construction of a medium to high density residential development.
9. Develop a project to provide attractive housing opportunities for young professionals to help curtail the trend of young professionals leaving the Orange County area.
10. Incorporate housing at a minimum density of 11 dwelling units/acre consistent with State of California guidance regarding the minimum density for facilitating the creation of affordable housing.
11. Provide a project with a range of density, bedroom, and unit types to facilitate the integration of up to one percent of the units as transitional housing for the region's diverse population of homeless or those at risk of becoming homeless.
12. Develop a mixed-income project that includes ten percent affordable housing on-site in several different product types to help meet the diverse needs of the region's population.

This alternative would result in development of 198 single-family dwelling units, a low density project that would not efficiently use land that is located in an area with existing infrastructure and services in close proximity to jobs and recreation. Additionally, this alternative would not result in the type of residential development (i.e., higher density, more urban, residential projects with amenities) that younger professionals are seeking, and as such Alternative 2 is unlikely to help curtail the young professionals leaving the Orange County area. Furthermore, Alternative 2 would not incorporate housing at a density of at least 11 dwelling units/acre, consistent with the minimum density the State identifies for facilitating the creation of affordable housing. As a single family development, this Alternative would also not accommodate the range of density, bedroom, and unit types that would facilitate the integration of one percent of the units as transitional housing units that would meet the needs of the region's diverse homeless and potentially homeless populations. Lastly, this alternative would result in 198 single-family units and would not introduce a mixed-income housing development with several different product types that would help serve the region's diverse population of households requiring affordable housing.

5.3.3 ALTERNATIVE 3 – MIXED-USE ALTERNATIVE

This alternative proposes development of a mix of uses on the site. This alternative would consist of 573 residential units, including wrap and walk-up apartments, on 19.4 acres in Planning Area 1 and 225,000 square feet of commercial development on 10.34 acres in Planning Area 2.

Planning Area 1 could be developed with a variety of different multi-family product types including, without limitation, three-story walk-up apartments and five-story wrap units. Parking would likely be provided in a combination of a parking structure and uncovered parking spaces with approximately 1,217 parking spaces for the apartments. This planning area would also include approximately 3.48 acres of parks.

Planning Area 2 would include multiple commercial office buildings, an associated parking structure, and uncovered open parking spaces. Approximately 915 parking spaces would be provided and the buildings would likely be a maximum of 3 stories.

The conceptual plan for this alternative is depicted on Exhibit 5-2, Alternative 3, Mixed-Use – Conceptual Site Plan. Please note that all access points and related traffic controls are conceptual and subject to change based on the findings of the traffic analysis.

Anticipated actions required for the implementation of Alternative 3 would include the following:

- At the County's discretion, a recommendation to the City regarding an appropriate General Plan Amendment and zoning code Amendment pursuant to the Pre-Annexation Agreement
- Runoff Management Plan(s)
- Water Quality Management Plan(s)
- Level I, II, III Reviews[2]
- Grading Permits
- Building Permits
- Encroachment Permits
- Acquisition and dedication of rights of entry, easements, and right-of-way for off-site improvements
- Real property and license agreements such as ground leases and easements

Impact Evaluation

Aesthetics

The proposed development under Alternative 3 would change the visual quality of the entire site, similar to the proposed Project. Alternative 3 would introduce a mixed-use development with comparable number of multi-family uses in Planning Area 1, but commercial uses in Planning Area 2. Short-term construction and infrastructure improvements would occur within the same general footprint as the proposed Project. The long-term changes to the visual setting would be similar compared to the Project. The total dwelling units in Planning Area 1 would be the same as the Project. Overall the Project would have slightly greater square footage of

[2] If in conjunction with approval of the Development Plan, direction is given to incorporate a mix of uses, the Development Plan would need to incorporate development standards and guidelines for commercial use. This would identify when Level I, II, and III reviews would apply.

PROJECT SUMMARY

Total Area:	32.32 AC
Planning Area 1:	
Total Area:	21.98 AC
Total Units:	573 DU
Density:	26.1 DU/AC
Park Area:	3.48 AC
Parking:	1217 Spaces (2.1/DU)
Planning Area 2:	
Area:	10.34 AC
Commercial:	+/- 225,000 sf
Parking:	545 Parking Garage
	370 Open
TOTAL:	915 (+/- 4.1 spaces/1,000sf)

Source: West Alton Parcel Development Plan, 2016

Alternative 3, Mixed-Use – Conceptual Site Plan

Exhibit 5-2

West Alton Parcel Development Plan EIR

Map Not to Scale

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habitable buildings; however, due to the parking structure in Planning Area 2, the overall square footage of buildings would be similar. Similar to the Project, this alternative would be compatible with surrounding existing and planned land uses. Therefore, like the Project, visual impacts of this alternative would be less than significant.

Development under Alternative 3 would introduce new sources of light and glare that would increase lighting levels on the entire site, similar to the proposed Project. Light and glare impacts in Planning Area 1 would be similar to the Project, as the nature and intensity of the developments are similar. Light and glare in Planning Area 2 under Alternative 3 would have increased impacts due to increased number of open parking spaces. Setbacks and landscaping would prevent light and glare spillover and a change in the lighting levels that could have a significant and adverse effect on views in the area. Impacts related to new sources of light and glare would be greater compared to the proposed Project; however, with both the proposed Project and Alternative 3 impacts would be less than significant with implementation of the applicable DRs AES-1 and AES-2.

Agricultural Resources

Alternative 3 would involve the development of a mix of uses, as opposed to the exclusively multi-family development as part of the proposed Project. Development under this alternative would have the same general footprint as the Project; Similar to the proposed Project there would be no impacts on Important Farmland, nor would there be any other significant adverse impact on agricultural resources.

Air Quality

Development under Alternative 3 would provide mixed uses as opposed to the all-residential multi-family homes proposed under the proposed Project. The short-term construction and long-term operational pollutant emissions that would occur with development of Alternative 3 are not anticipated in the current AQMP. Therefore, the significant and unavoidable impacts associated with consistency with the AQMP that would occur with the proposed Project would still occur with Alternative 3 and MM LU-1 would apply.

Alternative 3 would generate 6,084 ADT compared to 4,963 ADT for the proposed Project. Thus, long-term mobile pollutant emissions would be greater than those calculated for the proposed Project. However, like the proposed Project, it is estimated that total long-term criteria pollutant emissions would be less than the SCAQMD CEQA thresholds, and the cumulative impacts would be less than significant similar to the proposed Project. DRs AQ-1 through AQ-5 would also be applicable to this alternative.

Alternative 3 would have a similar development footprint and square footage of buildings as the proposed Project. Therefore, maximum daily construction emissions would be similar to the proposed Project and less than significant. Similar to the proposed Project, exposure of sensitive receptors to pollutants and odor impacts would be less than significant with Alternative 3. Overall, although both Alternative 3 and the proposed Project would have less than significant air quality impacts, the air quality impacts associated with this alternative would be greater than those of the Project.

Biological Resources

Under Alternative 3, the development footprint and the physical impact area would be generally the same as the proposed Project. This alternative, similar to the proposed Project, would have the potential to impact active nests of migratory birds and/or raptors; however, with implementation of DRs BIO-1 through BIO-4, DRs AES-1 and AES-2, DR HAZ-4, and MM BIO-1 from the proposed Project, the impacts would also be less than significant. Additionally, similar to the proposed Project, this alternative would not directly impact any riparian habitat or other sensitive natural communities identified in local or regional plans, policies, and regulations; however, riparian or other special status vegetation within the Wildlife Movement Corridor could potentially be indirectly impacted. With implementation of DRs HWQ-4 through HWQ-7 from the proposed Project, which entail treatment of storm water runoff, impacts on riparian habitat would be considered beneficial and would be less than significant.

Alternative 3 would not directly impact any waters under the jurisdiction of the U.S. Army Corps of Engineers (USACE), the Regional Water Quality Control Board (RWQCB), or the California Department of Fish and Wildlife (CDFW), similar to the proposed Project. There may be potential for construction and operation to indirectly impact jurisdictional waters located within the Wildlife Movement Corridor. Similar to the Project, any potential indirect impacts on jurisdictional waters would be less than significant with implementation of DRs HWQ-4 through HWQ-7.

As previously discussed, similar to the proposed Project, this alternative would not directly impact a wildlife corridor. Similar to the Project, any potential indirect impacts to the Wildlife Movement Corridor would be minimized through implementation of DRs AES-1 and AES-2 (which require light shielding and screening) and DR HAZ-4 (which provides requirements for building setbacks); therefore, impacts to wildlife corridors would be less than significant. In addition, similar to the proposed Project, Alternative 3 would not conflict with applicable local ordinances or the provisions of the Central/Coastal Natural Community Conservation Plan (NCCP)/Habitat Conservation Plan (HCP). Therefore, there would be no impact.

As with the proposed Project, with implementation of the applicable development requirements and mitigation measures, no significant and unavoidable biological resources impacts would result with Alternative 3. Overall, this alternative would have similar biological resource impacts to the Project.

Cultural Resources

Under Alternative 3, the development footprint and the physical impact area would be similar to the proposed Project. Therefore, potential impacts to unknown archaeological resources, paleontological resources, and human remains would be the same as with the proposed Project. With implementation of the identified MM CULT-1 through MM CULT-3, the potential impacts would be less than significant. No significant and unavoidable impacts would result. Overall, impacts related to cultural resources would be similar to the proposed Project.

Geology and Soils

This alternative would have the same general development footprint as the proposed Project. In terms of geology and soils, the potential impacts would be similar to the proposed Project. The site is not included in an Alquist-Priolo Earthquake Fault Zone and there are no known active or potentially active faults traversing the site. Impacts associated with surface fault rupture would be less than significant. The site is in a seismically active area that would likely experience strong ground shaking during the life of any development. However, with conformance to existing regulations and development requirements, impacts associated with seismic shaking and seismic ground failure (i.e., liquefaction, seismically induced settlement, and lateral spreading) would be similar to the Project and less than significant. Similarly, due to site conditions, impacts associated with landslides, subsidence, or collapse would be less than significant. No significant and unavoidable impacts would result.

Additionally, similar to the proposed Project, grading activities would increase the potential for soil erosion and loss of top soil. With the incorporation of construction BMPs and implementation of development requirements, the potential impacts on soil erosion and loss of topsoil under Alternative 3 would be similar to the Project and less than significant. No significant and unavoidable impacts would result.

Moreover, based on the Preliminary Geotechnical Investigation, a low to medium expansion potential exists on the site (Leighton and Associates, Inc. 2014). Consistent with DR GEO-1, more detailed evaluation of near-surface soils would be conducted and appropriate design measures would be recommended. Impacts associated with expansive soils would be similar compared to the proposed Project. No significant and unavoidable impacts would result. Overall, impacts related to geology and soils would be similar to the proposed Project.

Greenhouse Gas Emissions

Alternative 3 would generate 6,084 ADT compared to 4,963 ADT for the proposed Project and the building area would be similar to the proposed Project. GHG emissions for Alternative 3 are estimated at approximately 8,100 $MTCO_2e$/year and would be greater than the proposed Project's calculated GHG emissions of 7,166 $MTCO_2e$/year. When applying the efficiency threshold, the service population includes the number of persons associated with the generation of those emissions. Since this alternative includes an employment component, the service population would include both residents and the significant employee counts.

Based on those values, a 2022 4.56 $MTCO_2e$/year/SP project-level threshold was analyzed for the Project based on the contemplated build out timeline. The Alternative 3 SP would be 1,140 residents plus 818 employees for a total SP of 1,958. This is compared to the SP of 1,598 for the Project. It is estimated that the GHG emissions per service population under Alternative 3 would be approximately 4.14 $MTCO_2e$/year/SP, which would be less than the project-level thresholds. Alternative 3's GHG service population based emissions are substantially reduced compared to the Project as its emission per service population level is lower than the Project's calculated 4.48 $MTCO_2e$/year/SP GHG efficiency.

As discussed in Section 4.7, the SCAQMD established a 2035 efficiency threshold to reduce GHG emissions to 40 percent below the 1990 levels specified in AB 32. That level of reduction is consistent with the newly signed SB 32, although SB 32 establishes a target year of 2030. As the State has not yet adopted the formal regulations and plans to achieve the reductions contemplated by SB 32, this EIR evaluates the Project and this alternative against the efficiency target developed by SCAQMD as of the 2030 compliance date established by SB 32. Consistent with the SCAQMD methodology, the 2030 efficiency threshold used in this EIR is 3.0 MTCO2e/year per service population.

In 2030, similar to the proposed Project, there would be a slight reduction in GHG emissions associated with Alternative 3 because of improvements such as increase reliance on renewable energy, and cleaner vehicles. However, as with the proposed Project, this incremental reduction would not be sufficient to offset the reduction in the efficiency threshold for 2030 necessary to achieve GHG emissions of 40 percent below 1990 levels. Therefore, similar to the proposed Project, Alternative 3 would have a significant and unavoidable impact associated with the generation of GHG emissions.

Similar to the proposed Project, Alternative 3 would be in a location that would encourage walking, bicycling, and transit use and would be consistent with State and SCAG goals and policies for reducing GHG emissions and therefore not conflict with those policies. Additionally, Alternative 3's mixed-use composition would be an incentive for persons to live and work on the same site, thus reducing vehicle trips and mobile GHG emissions. Compliance with the applicable Title 24 Energy Efficiency Standards and CALGreen Code (DRs GHG-1 and GHG-2) would be applicable to this alternative. Provision of renewable energy generation for the entire alternative equivalent to 1.25 kilowatts (kW) per dwelling unit (DR GHG-3) and appliances with 2016 Energy Star or equivalent ratings (DR GHG-4) would be applicable to this alternative.

Alternative 3 would have a lower GHG service population metric compared to the Project. However, similar to the proposed Project, Alternative 3's mitigated GHG emissions would exceed the SCAQMD-recommended project-level threshold; therefore, and given the lack of regulatory guidance on the specific methods the State will utilize to achieve SB 32 compliance, this EIR conservatively concludes that the Alternative 3 may conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHG. This would be a significant and unavoidable impact and similar to the proposed Project.

Hazards and Hazardous Materials

Alternative 3 proposes a development consisting of a mix of uses with similar intensity compared to that of the proposed Project; however, the development footprint of this alternative would be similar to that of the proposed Project. Impacts related to hazardous materials under Alternative 3 would be similar to the proposed Project. Therefore, similar to the proposed Project, the only existing environmental conditions that may present significant hazards due to reasonably foreseeable upset or accident conditions are potential impacts due to former agricultural use of the Project site and those associated with IRP Site 2. However, based on the County supplemental investigation and similar to the Project, impacts would be less than significant without mitigation.

As with the proposed Project, Alternative 3 would be located on a portion of the former MCAS El Toro Superfund site, which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. Though not anticipated, hazardous materials impacts to soil may be present at the Project site as a result of former MCAS El Toro operations. Should soils impacted by hazardous material be found on the Project site, implementation of development requirements would reduce potential impacts to a less than significant level. As with the proposed Project, impacts due to VOCs and methane in soil gas are less than significant without mitigation and implementation of a mitigation measure would reduce impacts to the groundwater monitoring well(s) associated with the groundwater TCE plume at IRP Site 2 to a less than significant level.

The Project site is located adjacent to a Very High Fire Hazard Severity Zone. With implementation of the approved Fuel Modification Plan, implementation of the proposed Project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires. Similar to the Project, this alternative's impact is less than significant and no mitigation is required. Overall, impacts related to hazards and hazardous materials would be similar to the proposed Project.

Hydrology and Water Quality

This alternative, would introduce greater amounts of impervious surface than the Project. However, similar to the proposed Project, with implementation of the development requirements in Section 4.9, Hydrology and Water Quality, Alternative 3 would maintain the existing drainage patterns and would not increase off-site storm water volume discharges. Therefore, the impacts related to drainage and storm drain infrastructure would be similar for both the proposed Project and Alternative 3; and impacts would be less than significant.

Although the proposed Project would have a less impervious surface compared to Alternative 3, with the implementation of the development requirements the amount of sediments and plant material carried by storm water runoff to downstream receiving water bodies and the Wildlife Movement Corridor would be comparable. Therefore, potential water quality impacts resulting from the proposed Project and Alternative 3 would be the same and less than significant with implementation of the development requirements, including Best Management Practices (BMPs) identified in Section 4.9, Hydrology and Water Quality.

Land Use and Planning

Like the proposed Project, this alternative is not subject to the land use plan and policies of the Irvine or County General Plan or Zoning Code. As with the proposed Project, the planned uses and intensity included in Alternative 3 would not be the same as those envisioned within the existing City of Irvine General Plan and Zoning Ordinance. The Project site is designated in the City of Irvine General Plan as Orange County Great Park and the City's Zoning Map identifies the site as 1.1, Exclusive Agriculture, and 1.4, Preservation. Similar to the proposed Project, the County may recommend changes to the City General Plan and Zoning Ordinance consistent with Alternative 3's proposed uses. In accordance with the Pre-Annexation Agreement, the Irvine City Council would then consider the requested amendments to the City General Plan and Zoning Ordinance.

Similar to the proposed Project, this alternative would not conflict with the policies and regulations of RTP/SCS and goals and strategies; however, development of the site was not included in the RTP/SCS growth projections. Therefore, similar to the proposed Project, this alternative would be inconsistent with the growth assumptions in the RTP/SCS. With implementation of MM LU-1, as part of the next updates, similar to the Project, the regional planning programs could be modified to reflect the growth associated with the alternative, and any potential land use planning inconsistency impact would be reduced to less than significant. Until these planning programs are amended, under the proposed Project and Alternative 3, this impact has been identified in the interim as significant and unavoidable for regional planning programs as revisions to those programs are not within the jurisdiction or control of the County.

Similar to the proposed Project, the types of uses proposed under Alternative 3 are compatible with the surrounding existing and planned uses (i.e., residential, recreational, and commercial). Impacts due to this alternative would be less than significant and no mitigation is required. Overall, this alternative's impacts related to land use and planning would be similar to the proposed Project. Like the Project, except for the RTP/SCS, land use and planning impacts of Alternative 3 would be less than significant.

Noise

Alternative 3 would generate 6,084 ADT compared to 4,963 ADT for the proposed Project, and the building area would be similar to the proposed Project. Construction noise levels would be similar to the proposed Project in both magnitude and duration and would be less than significant. Project-generated direct and cumulative traffic related noise level increases at on and off-site receptors would be greater for this alternative than those of the proposed Project. However, similar to the Project, traffic related noise impacts would be less than significant. Similar to the Project, all noise and vibration impacts would be less than significant. DR NOI-1, DR NOI-2, and MMs NOI-1, NOI-2, NOI-3, NOI-4, and NOI-5 would also be applicable to this alternative. Overall, although still less than significant, Alternative 3 would have a nominal increase in noise impacts compared to the proposed Project.

Population and Housing

Alternative 3 would introduce similar uses as the proposed Project in Planning Area 1; however, Planning Area 2 would introduce commercial uses under this alternative instead of residential. This alternative would introduce a total residential population of 1,140 persons, which is less than the Project population of 1,598 persons. This alternative would also result in the introduction of 818 jobs compared to zero for the Project. Although the residential population is reduced compared to the Project, this alternative would also directly contribute to population growth in the area. Additionally, similar to the Project, this growth would not have been considered when the OCP-2014 dataset was developed. Therefore, similar to the Project, this alternative's impacts would be significant and unavoidable as modifications to the regional planning projections are outside the County's control.

Similar to the Project, this alternative would not result in indirect growth-inducing impacts, because this alternative would not size or extend infrastructure and other improvements that would encourage development levels beyond what is already planning elsewhere in the City and County.

Though Alternative 3 would add housing to a jobs-rich area, it would not as effectively reduce the jobs/housing imbalance because it would also add a total of 818 jobs to the area. As a result of the commercial component, this alternative would contribute to the jobs/housing imbalance in the area. The proposed Project would result in a better jobs-housing balance in a jobs-rich area by providing solely increased residential opportunities. Overall, this alternative would have a greater population and housing impact compared to the Project.

Public Services

Alternative 3 would have a similar physical footprint as the proposed Project. This alternative would generate approximately 458 fewer new residents but result in 818 new jobs in the area. Similar to the proposed Project, Alternative 3 would generate the typical range of service calls for residential developments, including structural fires and emergency medical and rescue services. This alternative also includes commercial use, which would result in service calls associated with businesses (e.g., theft, robbery). The proposed Project impacts to fire protection are considered less than significant with implementation of DR FIRE-1 through DR FIRE-4 which would also apply to Alternative 3. Neither the Project nor Alternative 3 would require new or physically altered fire facilities that would result in substantial adverse physical impacts.

Although Alternative 3 would reduce the number of new residents compared to the proposed Project, this alternative introduces 225,000 square feet of commercial uses. Neither the proposed Project nor Alternative 3 would require new or physically altered governmental facilities. Therefore, similar to the proposed Project, Alternative 3 would have a less than significant impact on police protection services.

Alternative 3 would generate approximately 149 students in the Irvine Unified School District, which is approximately 59 fewer than the proposed Project. As with the proposed Project, Alternative 3 would be required to comply with the *California Government Code* (payment of State-mandated school fees). As with the Project, there would be sufficient capacity to accommodate the additional students generated by Alternative 3. Because of agreements with other developments (Portola Springs and Heritage Fields), students from these developments have priority enrollment at the planned schools. Therefore, it is possible that additional portable classrooms maybe required to accommodate students from the Project and Alternative 3. Those portable classrooms would be added within the existing developed portion of the school site and physical impacts on the environment are expected to be less than significant. Similar to the proposed Project, impact of Alternative 3 would be less than significant with payment of school fees.

Based on communication with the Orange County Public Library (OCPL), the County has not established a service standard for libraries. Therefore, both the Project and Alternative 3 would not, in and of itself, trigger the construction of new or expanded library facilities, and the impact is less than significant. Overall Alternative 3's impacts to public services would be substantially reduced compared to the proposed Project and less than significant.

Recreation

Alternative 3 would introduce a total of 1,140 permanent residents to the area. Similar to the proposed Project, this alternative would increase demand for recreational facilities and amenities in the area. Similar to the proposed Project, in accordance with DR REC-1, development of this alternative would be required to provide parkland in accordance with the West Alton Development Plan (0.005 acre of parkland per dwelling unit), which equates to approximately 2.9 acres of parkland; this is less than 4.02 acres contemplated by the proposed Project. This alternative proposes a total of 3.48 acres of parkland in Planning Area 1, which is in excess of the parkland requirement for this alternative. However, as with the proposed Project, a shortage of parkland may result if development in Planning Area 1 occurs prior to issuance of Finding of Suitability to Transfer (FOST) and construction of the proposed park within the LIFOC area. Moreover, in the event of an interim shortfall of parkland, there would be no assurances that the Project would not result in a deterioration of the parkland in the area. As stated, this would be a significant and unavoidable impact.

Similar to the proposed Project, DR REC-1 would be applicable to development under Alternative 3, as this alternative would provide parkland consistent with the provisions of the Development Plan. Overall, this alternative would have similar recreation impacts compared to the proposed Project.

Transportation/Traffic

Alternative 3, Mixed-Use Alternative, would result in greater traffic-related impacts compared to the proposed Project. In comparison with the proposed Project's 4,963 ADT, this alternative would generate a total of 6,084 ADT.

The same methodology used to evaluate the proposed Project was used to analyze and identify potential transportation/traffic impacts under Alternative 3. Traffic impacts of Alternative 3 have been identified for existing traffic conditions, Interim Year 2017, Long-Term Year 2035, and General Plan Buildout Post-2035 future traffic conditions.

Table 5-3 identifies the number of locations that have direct impacts with the proposed Project and with Alternative 3 for each of the metrics used. The table is intended to provide a quick comparison of the number of locations; however, it should be noted that the locations of the impacts are not necessarily the same for the proposed Project and Alternative 3. This is followed by an overview for each timeframe.

TABLE 5-3
COMPARISON OF TRAFFIC IMPACT LOCATIONS FOR THE PROPOSED PROJECT AND ALTERNATIVE 3

Scenarios	Number of Impact Locations with the Proposed Project	Number of Impact Locations with Alternative 3
Existing Plus Project/Alternative		
Intersection Impacts with ICU Methodology	0	0
Intersection Impacts with HCM Methodology	1	3
Impacts on at Freeway Ramps	0	0
Impacts on Freeway Mainline Segments	6	6
Year 2017 Plus Project/Alternative		
Intersection Impacts with ICU Methodology	0	0
Intersection Impacts with HCM Methodology	3	4
Impacts on at Freeway Ramps	0	0
Impacts on Freeway Mainline Segments	0	0
Year 2035 Plus Project/Alternative		
Intersection Impacts with ICU Methodology	0	0
Intersection Impacts with HCM Methodology	8	6
Impacts on at Freeway Ramps	0	0
Impacts on Freeway Mainline Segments	0	0
Post-2035 Plus Project/Alternative		
Intersection Impacts with ICU Methodology	0	0
Intersection Impacts with HCM Methodology	8	10
Impacts on at Freeway Ramps	0	1
Impacts on Freeway Mainline Segments	1	1
Cumulative Impact Scenarios		
Year 2035 Plus Project/Alternative Plus Pending Projects		
Intersection Impacts with ICU Methodology	1	0
Intersection Impacts with HCM Methodology	5	1
Impacts on at Freeway Ramps	0	0
Impacts on Freeway Mainline Segments	0	0
Post-2035 Plus Project/Alternative Plus Pending Projects		
Intersection Impacts with ICU Methodology	0	0
Intersection Impacts with HCM Methodology	8	6
Impacts on at Freeway Ramps	0	0
Impacts on Freeway Mainline Segments	0	0

ICU: Intersection Capacity Utilization; HCM: Highway Capacity Manual
Source: Fehr & Peers 2015

Existing Plus Alternative 3 Analysis

Under this scenario, similar to the Project, Alternative 3 would not impact any intersections under the ICU methodology. Unlike the Project, this alternative would impact three freeway/highway intersections under the HCM methodology, compared to one under the proposed Project. While the Project and this alternative would impact Jeffrey Road and Walnut

Avenue, this alternative would result in two new impacts at Sand Canyon Avenue and I-5 northbound and Sand Canyon Avenue and I-405 southbound. The required improvements for all impacts have been identified, which would mitigate the impacts to pre-Project conditions. Consistent with the mitigation approach for the proposed Project, these intersection locations are outside the jurisdiction of the County of Orange and the impacts would remain significant.

Similar to the Project, no impacts would occur at freeway ramps but impacts would occur at freeway/highway mainline segments. Both would impact six freeway/highway segments, including I-5 southbound at Jeffrey Road to SR-133 northbound; I-5 southbound at SR-133 southbound to Alton Parkway; I-405 northbound at Jeffrey Road Slip On-Ramp; I-405 southbound at Sand Canyon Off-Ramp during; and I-405 southbound at SR-133 Off-Ramp. This alternative would result in a new impact at I-5 southbound at Jeffrey Road Off-Ramp. Mitigating the identified significant impact to the mainline freeway would require reconstruction of the freeways to add travel lanes. Since the freeways in the study area are interconnected systems, it would not be possible or effective to provide isolated spot improvements of one segment of the freeway where deficient operations are observed. Therefore, the impacts to the mainline freeway would remain significant and unavoidable under both the proposed Project and Alternative 3.

Interim Year 2017 Plus Alternative 3 Analysis

Under this scenario, similar to the Project, Alternative 3 would not impact any intersections under the ICU methodology. Unlike the Project, this alternative would result in four impacts at freeway/highway intersection under the HCM methodology, compare to three under the proposed Project. Similar impacts would occur at Jeffrey Road and I-5 northbound; Jeffrey Road and Walnut Avenue; and Sand Canyon Avenue and I-5 northbound. This alternative would result in a new impact at Sand Canyon and I-405 southbound. The required improvements for all impacts have been identified, which would mitigate the impacts to pre-Project (or Alternative 3) conditions. Consistent with the mitigation approach for the proposed Project, the Alternative 3 intersection impact locations outside the jurisdiction of the County of Orange would remain significant.

Similar to the Project, no impacts were identified at freeway ramps and freeway/highway mainline segments.

Year 2035 Plus Alternative 3 Analysis

Under this scenario, similar to the Project, Alternative 3 would not impact any intersections under the ICU methodology. Similar to the proposed Project, this alternative would impact six freeway/highway intersections under the HCM methodology, compared to eight under the proposed Project. Similar to the Project, this alternative would impact Jeffrey Road and Walnut Avenue; Sand Canyon Avenue and I-5 northbound; SR-133 southbound and Irvine Boulevard; Fortune Drive and I-5 southbound and Enterprise Drive; Bake Parkway and I-5 southbound; and SR-133 northbound and Trabuco Road. The required improvements for all impacts have been identified, which would mitigate the impacts to pre-Project (or Alternative 3) conditions. Consistent with the mitigation approach for the proposed Project, the Alternative 3 impact locations outside the jurisdiction of the County of Orange would remain significant and unavoidable.

Similar to the Project, no impacts were identified at freeway ramps and freeway/highway mainline segments.

Post-2035 Plus Alternative 3 Analysis (General Plan Buildout)

Under this scenario, similar to the Project, Alternative 3 would not impact any intersections under the ICU methodology. This alternative would result in ten impacts at freeway/highway intersections under the HCM methodology, compared to eight under the proposed Project. Similar to the Project, this alternative would impact Jeffrey Road and Walnut Avenue; Sand Canyon Avenue and I-5 northbound; Sand Canyon Avenue and I-5 southbound; SR-133 southbound and Irvine Boulevard; Portola Parkway and SR-241 southbound; SR-133 southbound and Trabuco Road; and SR-133 northbound and Trabuco Road. Unlike the Project, this alternative would result in three new impacts at Portola Parkway and SR-241 northbound; Alton Parkway and I-5 northbound; and Bake Parkway and I-5 southbound. The required improvements for all impacts have been identified, which would mitigate the impacts to pre-Project (or Alternative 3) conditions. Consistent with the mitigation approach for the proposed Project, the Alternative 3 intersection impact locations outside the jurisdiction of the County of Orange would remain significant and unavoidable.

Unlike the Project, this alternative would result in an impact at SR-133 southbound On-Ramp at Trabuco Road, while none would occur under the Project. The required improvement for the impact has been identified, which would mitigate the impact to pre-Project conditions. Consistent with the mitigation approach for the proposed Project, this location is outside the jurisdiction of the County of Orange and would remain significant and unavoidable.

Similar to the Project, this alternative would result in an impact at I-405 southbound at SR-133 Off-Ramp mainline segment. Mitigating the identified significant impact to this segment would require a complete reconstruction of the I-405 and SR-133 freeways/highways to add travel lanes and upgrade each of the deficient locations. Since the freeways in the study area are interconnected systems, it would not be possible, nor effective, to provide isolated spot improvements of one segment of the freeway where deficient operations are observed. As the impact facility is also outside the jurisdiction of the County of Orange, for both the proposed Project and Alternative 3, impacts to this location would remain significant and unavoidable.

Year 2035 Plus Alternative 3 Plus Pending Projects

Under this scenario, no impacts to intersections under the ICU methodology would occur for Alternative 3 compared to one impact under the proposed Project. Alternative 3 would result in one impact at SR-133 northbound and Trabuco Road intersection using the HCM methodology, compared to five under the proposed Project. The required improvement at the impacted intersection above, can be mitigated to pre-Project (or Alternative 3) condition. Consistent with the mitigation approach for the proposed Project, the intersection impact location outside the jurisdiction of the County of Orange would remain significant and unavoidable.

Similar to the Project, no impacts would occur at freeway/highway ramps and freeway/highway mainline segments.

Post-2035 Plus Alternative 3 Plus Pending Projects

Under this scenario, similar to the Project, no impacts would occur at intersections using the ICU methodology. Under this scenario, impacts would occur at six freeway/highway intersections using the HCM methodology, compared to eight under the Project. Similar to the Project, impacts would occur at Jeffrey Road and Walnut Avenue; Sand Canyon Avenue and I-5 southbound; Portola Parkway and SR-241 southbound; Fortune Drive and I-5 southbound and Enterprise Drive; and Bake Parkway and I-5 southbound. Unlike the Project, a new impact would occur at SR-133 southbound and Trabuco Road during. The required improvements for all impacts have been identified, which would mitigate the impacts to pre-Project conditions. Consistent with the mitigation approach for the proposed Project, these intersection locations are outside the jurisdiction of the County of Orange, the impacts would remain significant. Additionally, while impact at Portola Parkway and SR-241 southbound can be mitigated to pre-Project (or Alternative 3) conditions with the installation of a traffic signal, this intersection does not meet peak hour signal warrants. Therefore, this impact is deemed significant and unavoidable.

Similar to the Project, no impacts would occur at freeway/highway ramps and freeway/highway mainline segments.

While traffic impacts for both the proposed Project and Alternative 3 would be less than significant in most areas, they would be significant and unavoidable in others. Overall, compared to the proposed Project, Alternative 3 traffic impacts are greater for intersections impacts using HCM methodology (i.e., two more intersections under Existing Plus Project; one more under the Year 2017 Plus Project; and two more under Post-2035 Plus Project). However, under the cumulative scenarios of 2035 and Post-2035, Alternative 3 would result in substantially reduced intersection impacts using HCM methodology.

Utilities and Service Systems

Similar to the proposed Project, Alternative 3 would place demands on local and regional utilities and service systems. Although Alternative 3 includes commercial uses, this alternative proposes a reduction in residential units. Therefore, the demand would be reduced compared to the proposed Project demands due to the reduced density associated with this alternative. As the IRWD approved a Water Supply Verification on May 23, 2016, confirming the availability of water for the proposed Project, water would also be available for the less intense Alternative 3. Similar to the proposed Project, Alternative 3 would not require the construction or expansion of new water or wastewater treatment facilities or expansion of existing treatment facilities. The proposed Project's impacts to utilities and service systems are considered less than significant with implementation of the identified development requirements, which would also apply to Alternative 3 and would result in a less than significant impact. The impacts related to water and wastewater supplies for this alternative would be less compared to the proposed Project.

Although Alternative 3 would generate fewer residents than the proposed Project, it includes commercial uses which would generate more solid waste than residential uses. Therefore, this alternative would generate more solid waste than the proposed Project. However, there is sufficient solid waste disposal capacity in the existing landfills to meet the proposed Project's

solid waste disposal needs, and solid waste impacts are considered less than significant. Overall, the solid waste impacts of this alternative would be greater than the proposed Project.

Conclusions

Would Alternative 3 Avoid or Substantially Lessen the Significant Impacts, as Compared to the Project?

The same significant impacts identified for the proposed Project would also apply to Alternative 2. This alternative, similar to the proposed Project, would result insignificant, unavoidable impacts for Air Quality, GHG Emissions, Land Use and Planning, Population and Housing, Recreation (short-term), and Transportation/Traffic. Since the impacts associated with the Air Quality, Land Use and Planning, and Population and Housing are associated with consistency with planning programs, the level of impact would be the same as the proposed Project.

The operational air quality emissions would be increased with Alternative 3 compared to the proposed Project, but still less than significant, similar to the Project. For instance, long-term mobile pollutant emissions would be increased compared to the proposed Project, as this alternative would result in 18 percent more ADTs (6,084 ADTs compared to 4,963 ADTs) than the proposed Project. GHG emissions impacts under Alternative 3 would be substantially reduced on a service population basis compared to the Project's impacts, and, like the Project, would be significant and unavoidable.

In terms of Transportation/Traffic impacts, Under the Existing Plus Project scenario, this alternative would result in two new impacts at freeway/highway intersections under the HCM methodology, at Sand Canyon and I-5 northbound and Sand Canyon and I-405 southbound. Also, under this scenario, while the alternative would avoid impact at one freeway/highway mainline segment at I-5 northbound at Alton Slip On-Ramp at SR-133 northbound Off-Ramp, it would result in one new freeway/highway mainline segment I-5 southbound at Jeffrey Off-Ramp.

Under the Year 2017, the alternative would result in one new freeway/highway intersection under the HCM methodology at Sand Canyon and I-405 southbound. Under the Year 2035 scenario, this alternative would avoid impact at two freeway/highway intersection under the HCM methodology at Jeffrey Road and I405 northbound and Sand Canyon Avenue and I-5 southbound. Under the Post-2035 scenario, while avoiding impacts at Fortune Drive and I-5 southbound and Enterprise Drive, this alternative would result in three new impacts at Portola Parkway and SR-241 northbound; Alton Parkway and I-5 northbound; and Bake Parkway and I-5 southbound. Also, under the same scenario, this alternative would result in one freeway/highway ramp impact at SR-133 southbound On-Ramp at Trabuco Road.

Under the Year 2035 Plus Alternative 3 and Pending Projects scenario, the alternative would only impact one freeway/highway intersection under the HCM methodology at SR-133 northbound and Trabuco Road. None of the impacts identified under the Project would occur under this alternative. Under Post-2035 Plus Alternative 3 and Pending Projects scenario, the alternative would avoid impacts at Sand Canyon Avenue and I-5 northbound; Portola Parkway and SR-241 northbound; and SR-133 northbound and Trabuco Road previously identified under the Project.

Because the number of residential units under Alternative 3 is reduced compared to the proposed Project, and even with the addition of the commercial square footage, there would also be less impacts for the following environmental topics: Public Services, Recreation, and the water and wastewater components of the Utilities and Service Systems. Alternative 3's impacts would be greater with respect to solid waste. The alternative's impacts for these topics would be less than significant with imposition of mitigation measures and/or development requirements.

As Alternative 3 and the proposed Project would have the same general development footprint, their impacts would be similar for the following environmental topics: Aesthetics, Agricultural Resources, Biological Resources, Cultural Resources, Geology and Soils, Hazards and Hazardous Materials, Hydrology and Water Quality, and Noise.

Would Alternative 3 Result in Attainment of Project Objectives, as Compared to the Project?

Alternative 3 resulting in 573 dwelling units and 225,000 square feet of commercial uses would meet most of the Project objectives (10 of the 12) and partially meet 1 objective (4).

The following objectives would be met by this alternative:

1. Build a project that is compatible with the surrounding existing and planned land uses in the area.
2. Create a development that would fully maximizes mutual benefits from proximity to the area's employment opportunities and recreational amenities.
3. Maximize the potential for use of this County real estate asset to stimulate economic commerce in the City.
5. Take advantage of the ability to develop the Project site without the requirement for the extension of major infrastructure to support the development.
6. Revitalize the previously disturbed and presently underutilized Project site.
8. Use an existing County real estate asset to provide the County with new source of revenue to support County operations and services.
9. Develop a project to provide attractive housing opportunities for young professionals to help curtail the trend of young professionals leaving the Orange County area.
10. Incorporate housing at a minimum density of 11 dwelling units/acre consistent with State of California guidance regarding the minimum density for facilitating the creation of affordable housing.
11. Provide a project with a range of density, bedroom, and unit types to facilitate the integration of up to one percent of the units as transitional housing for the region's diverse population of homeless or those at risk of becoming homeless
12. Develop a mixed-income project that includes ten percent affordable housing on-site in several different product types to help meet the diverse needs of the region's population.

Alternative 3, similar to the Project, would be compatible with the surrounding existing and planned land uses as analyzed above. Future development under this alternative would not conflict with existing and planned land uses around the Project site. Existing and planned uses would either be compatible with the alternative's residential, parks, and commercial uses and/or buffered by roadways and landscaping. Additionally, the site is located in an area surrounded by and/or in proximity to existing and planned employment opportunities and recreational amenities (i.e., OCGP, including the Cultural Terrace). This alternative would result in mixed uses, including residential, that would attract the existing and future employees in the area. Like the Project, this alternative's future residents would partake of the existing and future employment opportunities and recreational amenities in the area. Also, similar to the Project Alternative 3 would result in a new source of revenue for the County and stimulate the local economy by introducing a development and associated population in the area that would be using services and generating new revenue for the City. Additionally, similar to the Project, this alternative would not be required to extend significant infrastructure to support the development. Moreover, the Project site has been previously disturbed and is currently underdeveloped with temporary uses; this alternative would revitalize the site by developing it with mixed uses, which would be an improvement over the existing condition. Additionally, similar to the Project, Alternative 3 would provide the County a long-term revenue stream to support the County's overall governmental functions by creating 573 residential units and 225,000 square feet of commercial uses. Also, similar to the Project, this alternative would result in the type of residential development (i.e., high density with amenities) that would be attractive to young professional, and as a result would help curtail this group leaving the Orange County area. Alternative 3 would incorporate housing at density of at least 11 dwelling units per acre consistent with the minimum density the State identifies for facilitating the creation of affordable housing. Moreover, similar to the Project, this alternative would provide a range of density, bedroom, and unit types to facilitate the integration of one-percent of the units as transitional housing that would meet the needs of the region's diverse homeless and potentially homeless populations. Lastly, this alternative would develop a mixed-income project with several different product types that would help serve the region's diverse population of households requiring affordable housing.

The following objective would be partially met by this Alternative 3:

4. Promote efficient use of the land through construction of a medium to high density residential development.

As this alternative is a mixed-use development, and although it would result in development of 573 residential units in Planning Area 1, it would not provide the intensity of residential development contemplated by this goal across the entire site. Therefore, this alternative would only partially meet the objective. Additionally, the Project site is located in an area that is jobs rich. While this alternative would result in development of 573 residential units, it would also generate 818 jobs. Thus, this alternative would not materially improve the jobs/housing balance of the area.

5.3.4 ALTERNATIVE 4 – AGE-QUALIFIED/MULTI-FAMILY ALTERNATIVE

This alternative proposes development of an age-qualified (over 55 years old) and multi-family development on the site. In Planning Area 1, this alternative would consist of 470 residential units, which would include 35 senior villas, 345 independent living units, and a 90-bed assisted living facility on 19.6 net acres. In Planning Area 2, there would be a total of 230 multi-family walk-up apartments on 8.81 net acres.

Parking would be provided in a combination of garage, parking structure and uncovered parking spaces for a total of 613 parking spaces in Planning Area 1 and 436 spaces in Planning Area 2. This alternative would include 2.38 acres of parks in Planning Area 1, and 1.53 acres of parks in Planning Area 2.

The uses are depicted on Exhibit 5-3, Alternative 4, Age-Qualified/Multi-Family – Conceptual Site Plan. Please note that all access point and related traffic controls are conceptual and subject to change based on the findings of the traffic analysis.

Anticipated actions required for the implementation of Alternative 4 would include:

- At the County's discretion, a recommendation to the City regarding an appropriate General Plan Amendment and zoning code Amendment pursuant to the Pre-Annexation Agreement
- Runoff Management Plan(s)
- Water Quality Management Plan(s)
- Level I, II, III Reviews
- Grading Permits
- Building Permits
- Encroachment Permits
- Acquisition and dedication of rights of entry, easements, and right-of-way for off-site improvements
- Real property and license agreements such as ground leases and easements

Impact Evaluation

Aesthetics

Similar to the proposed Project, development under Alternative 4 would change the visual quality of the entire site. Alternative 4 would introduce age-qualified and multi-family residential uses and would have a similar development footprint as the proposed Project, with similar density in Planning Area 2 and reduced density in Planning Area 1. Short-term construction and infrastructure improvements would have similar impacts compared to the proposed Project, as the entire site would be developed. Under Alternative 4, long-term visual impacts would be similar to the proposed Project although the height of some of the

PROJECT SUMMARY

Total Area:	32.32 AC
Total Units:	701 DU
Density:	21.7 DU/AC
Park Area:	3.91 AC

Planning Area 1: Senior

Gross Area:	21.98 AC
Total Units:	380 DU & 90 beds
Density:	21.4 DU/AC
Park Area:	2.38 AC

Product:

Villas	
Villas 2BA	17 du
Villas 3BA	18 du
Assisted Living/Skilled Nursing	
Single	30 beds
Double	60 beds
Independent Living (5-Story Wrap)	
1BA	115 du
2BA	115 du
2BA+den	115 du
Total:	380 du & 90 beds

	Villas (2/du)	AL/SN(1/4beds)	IL(1.5/du)
Parking Required:	70	23	518
Parking Provided:			
Garage	53	396 (4.5 Level Structure)	
Uncovered	18	23	123

Planning Area 2: Multi-Family

Area:	10.34 AC
Units:	230 DU
Density:	22.2 DU/AC
Park Area:	1.53 AC
Parking Required:	436 (1.89 spaces/DU)
Parking Provided:	168 Driveways
	84 Uncovered
	184 Garages
TOTAL:	436 (1.89 spaces/DU)

Source: West Alton Parcel Development Plan, 2016

Alternative 4, Age-Qualified/Multi-Family - Conceptual Site Plan

Exhibit 5-3

West Alton Parcel Development Plan EIR

Map Not to Scale

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Alternative 4 buildings could be lower than those proposed by the Project. Similar to the proposed Project, Alternative 4 would improve the visual quality of the site and would be compatible with surrounding existing and planned land uses. Therefore, visual impacts of this alternative would also be less than significant.

Proposed development under Alternative 4 would introduce new sources of light and glare that would increase lighting levels on the entire site similar to the proposed Project. However, compared to the proposed Project, the intensity of potential light and glare would be slightly reduced in Planning Area 1 but would be similar in Planning Area 2, as this alternative would have the same density as the Project in Planning Area 2. The proposed setbacks and landscaping would help prevent light and glare spillover and a change in the lighting levels that would have a significant and adverse effect on views in the area. Impacts related to new sources of light and glare would be slightly reduced compared to the proposed Project and less than significant with implementation of DRs AES-1 and AES-2. Overall, aesthetics impacts would be similar to the Project.

Agricultural Resources

Alternative 4 would involve the development of age-qualified and multi-family residential units, as opposed to the multi-family development under the proposed Project. Development under this alternative would have the same general footprint as the Project. Therefore, like the Project, this alternative would not have any impacts on Important Farmland nor would there be any other significant adverse impact on agricultural resources.

Air Quality

Development under Alternative 4 would provide age-qualified and multi-family residential units. The short-term construction and long-term operational pollutant emissions that would occur with development of Alternative 4 are not anticipated in the current AQMP. Therefore, the significant and unavoidable impacts associated with consistency with the AQMP that would occur with the proposed Project would still occur with Alternative 4, and MM LU-1 would apply.

Alternative 4 would generate 3,359 ADT compared to 4,963 ADT for the proposed Project. Thus, long-term mobile pollutant emissions would be substantially reduced compared to the proposed Project. Similar to the Project, Alternative 4's long-term criteria pollutant emissions would be less than the SCAQMD CEQA thresholds and the cumulative impacts would be less than significant. DRs AQ-1 through AQ-5 would also be applicable to this alternative.

Alternative 4 would have a similar quantity of building area as the proposed Project. Therefore, maximum daily construction emissions would be similar to the proposed Project and would be less than significant. Similar to the proposed Project, construction emissions, exposure of sensitive receptors to pollutants, and odor impacts would be less than significant with Alternative 4. Overall, potentially significant air quality impacts associated with this alternative would be substantially reduced compared to the Project.

Biological Resources

Under Alternative 4, the development footprint would be similar to the proposed Project. This alternative, similar to the proposed Project, would have the potential to impact active nests of migratory birds and/or raptors; however, with implementation of DRs BIO-1 through BIO-4, DRs AES-1 and AES-2, DR HAZ-4, and MM BIO-1 for the proposed Project, the impacts would be less than significant. Additionally, similar to the proposed Project, this alternative would not directly impact any riparian habitat or other sensitive natural communities identified in local or regional plans, policies, and regulations; however, riparian or other special status vegetation within the Wildlife Movement Corridor could potentially be indirectly impacted. With implementation of DRs HWQ-4 through HWQ-7 for the proposed Project, which entail treatment of storm water runoff, impacts on riparian habitat would be considered beneficial and would be less than significant.

Alternative 4 would not directly impact any waters under the jurisdiction of the USACE, the RWQCB, or the CDFW, similar to the proposed Project. There may be potential for Project construction and operation to indirectly impact jurisdictional waters located within the Wildlife Movement Corridor. Any potential indirect impacts on jurisdictional waters would be less than significant with implementation of DRs HWQ-4 through HWQ-7.

As previously discussed, similar to the proposed Project, this alternative would not directly impact a wildlife corridor. Any potential indirect impacts to the Wildlife Movement Corridor would be minimized through implementation of DRs AES-1 and AES-2 (which require light shielding and screening) and DR HAZ-4 (which provides requirements for building setbacks); therefore, impacts to a wildlife corridor would be less than significant. In addition, similar to the proposed Project, Alternative 4 would not conflict with applicable local ordinances or the provisions of the Central Coastal NCCP/HCP. Therefore, there would be no impact.

With implementation of the applicable development requirements and mitigation measures, no significant and unavoidable biological resources impacts would result with Alternative 4. Overall, impacts related to biological resources would be similar to the proposed Project.

Cultural Resources

Under Alternative 4, the development footprint and the physical impact area would be similar to the proposed Project. Therefore, potential impacts to unknown archaeological resources, paleontological resources, and human remains would be the same as the proposed Project. With implementation of the identified MM CULT-1 through MM CULT-3, the potential impacts would be less than significant. No significant and unavoidable impacts would result. Overall, impacts related to cultural resources would be similar to the proposed Project.

Geology and Soils

This alternative would have a similar footprint compared to the proposed Project. In terms of geology and soils, the potential impacts would be similar to the proposed Project. The site is not included in an Alquist-Priolo Earthquake Fault Zone and there are no known active or potentially active faults traversing the site. Impacts associated with surface fault rupture would be less than significant. The site is in a seismically active area that would likely experience strong ground shaking during the life of any development. However, with conformance to

existing regulations and development requirements, impacts associated with seismic shaking and seismic ground failure (i.e., liquefaction, seismically induced settlement, and lateral spreading) would be less than significant. Similarly, due to the site conditions, impacts associated with landslides, subsidence, or collapse would be less than significant. No significant and unavoidable impacts would result.

Additionally, similar to the proposed Project, grading activities would increase the potential for soil erosion and loss of top soil. With the incorporation of construction BMPs and implementation of development requirements, the potential impacts on soil erosion and loss of topsoil under Alternative 4 would be less than significant. No significant and unavoidable impacts would result.

Moreover, based on the Preliminary Geotechnical Investigation, a medium expansion potential is assumed for the site (Leighton and Associates, Inc. 2014). Consistent with the DR GEO-1, more detailed evaluation of near-surface soils would be conducted and appropriate design measures recommended. Impacts associated with expansive soils would be similar compared to the proposed Project. No significant and unavoidable impacts would result. Overall, impacts related to geology and soils would be similar to the proposed Project.

Greenhouse Gas Emissions

Alternative 4 would generate 3,359 ADT compared to 4,963 ADT for the proposed Project, and the square footage of the buildings would be approximately the same as the proposed Project. Alternative 4 mobile GHG emissions would be substantially reduced compared to the proposed Project and other GHG emissions (i.e., energy, water, solid waste, and construction) would also be less than those of the proposed Project. GHG emissions for Alternative 4 are estimated at approximately 5,100 $MTCO_2e$/year and would be less than the proposed Project's calculated GHG emissions of 7,166 $MTCO_2e$/year.

Based on those values, a 2022 4.56 $MTCO_2e$/year/SP project-level threshold was analyzed for the Project based on the contemplated build out timeline. The Alternative 4 SP would be 1,304 residents plus 90 employees for a total SP of 1,394. This is compared to the SP of 1,598 for the Project. It is estimated that the GHG emissions per service population under Alternative 4 would be approximately 3.66 $MTCO_2e$/year/SP, which is substantially reduced compared to the Project's 4.48 $MTCO_2e$/year/SP GHG efficiency.

As discussed in Section 4.7, the SCAQMD established a 2035 efficiency threshold to reduce GHG emissions to 40 percent below the 1990 levels specified in AB 32. That level of reduction is consistent with the newly signed SB 32, although SB 32 establishes a target year of 2030. As the State has not yet adopted the formal regulations and plans to achieve the reductions contemplated by SB 32, this EIR evaluates the Project and this alternative against the efficiency target developed by SCAQMD as of the 2030 compliance date established by SB 32. Consistent with the SCAQMD methodology, the 2030 efficiency threshold used in this EIR is 3.0 MTCO2e/year per service population.

In 2030, similar to the proposed Project, there would be a slight reduction in GHG emissions associated with Alternative 4 because of improvements such as increase reliance on renewable energy, and cleaner vehicles. However, as with the proposed Project, this incremental reduction would not be sufficient to offset the reduction in the efficiency threshold for 2030

necessary to achieve GHG emissions of 40 percent below 1990 levels. Therefore, similar to the proposed Project, Alternative 4 would have a significant and unavoidable impact associated with the generation of GHG emissions.

Similar to the proposed Project, Alternative 4 would be in a location that would encourage walking, bicycling, and transit use and would be consistent with State and SCAG goals and policies for reducing GHG emissions and, therefore, would not conflict with those policies. Compliance with the applicable Title 24 Energy Efficiency Standards and CALGreen Code (DRs GHG-1 and GHG-2) would be applicable to this alternative. Provision of renewable energy generation for the entire alternative equivalent to 1.25 kilowatts (kW) per dwelling unit (DR GHG-3) and appliances with 2016 Energy Star or equivalent ratings (DR GHG-4) would be applicable to this alternative.

Alternative 4 would have a lower GHG service population metric compared to the Project. However, similar to the proposed Project, Alternative 4's mitigated GHG emissions would exceed the SCAQMD-recommended project-level threshold; therefore, and given the lack of regulatory guidance on the specific methods the State will utilize to achieve SB 32 compliance, this EIR conservatively concludes that the Alternative 4 may conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHG. This would be a significant and unavoidable impact and similar to the proposed Project.

Hazards and Hazardous Materials

Alternative 4 proposes similar uses to the proposed Project, but at a lower density. However, the footprint of this alternative would be similar to that of the proposed Project. Impacts related to hazardous materials under Alternative 4 would be similar to the proposed Project. Therefore, similar to the proposed Project, the only existing environmental conditions that may present significant hazards due to reasonably foreseeable upset or accident conditions are potential impacts due to former agricultural use of the Project site and those associated with IRP Site 2. However, based on the County supplemental investigation, impacts are less than significant without mitigation.

As with the proposed Project, Alternative 4 would be located on a portion of the former MCAS El Toro Superfund site, which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. Though not anticipated, hazardous materials impacts to soil may be present at the Project site as a result of former MCAS El Toro operations. Should soils impacted by hazardous material be found on the Project site, implementation of development requirements would reduce potential impacts to a less than significant level. As with the proposed Project, impacts due to VOCs and methane in soil gas are less than significant without mitigation and implementation of a mitigation measure would reduce impacts to the groundwater monitoring well(s) associated with the groundwater TCE plume at IRP Site 2 to a less than significant level.

The Project site is located adjacent to a Very High Fire Hazard Severity Zone. With implementation of the approved Fuel Modification Plan, implementation of the proposed Project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires. This impact is less than significant and no mitigation is required. Overall, impacts related to hazards and hazardous materials would be similar to the proposed Project.

Hydrology and Water Quality

This alternative, would introduce greater amounts of impervious surface than the Project. However, similar to the proposed Project, with implementation of the development requirements in Section 4.9, Hydrology and Water Quality, Alternative 4 would maintain the existing drainage patterns and would not increase off-site storm water volume discharges. Therefore, the impacts related to drainage and storm drain infrastructure would be the same for both the proposed Project and Alternative 4; and impacts would be less than significant.

Although the proposed Project would have a less impervious surface compared to Alternative 4, with the implementation of the development requirements the amount of sediments and plant material carried by storm water runoff to downstream receiving water bodies and the Wildlife Movement Corridor would be comparable. Therefore, potential water quality impacts resulting from the proposed Project and Alternative 4 would be less than significant with implementation of the development requirements, including Best Management Practices (BMPs) identified in Section 4.9, Hydrology and Water Quality.

Land Use and Planning

Like the proposed Project, this alternative is not subject to the land use plan and policies of the Irvine or County General Plan or Zoning Code. As with the proposed Project, the planned uses and intensity included in Alternative 4 would not be the same as those envisioned within the existing City of Irvine General Plan and Zoning Ordinance. The Project site is designated in the City of Irvine General Plan as Orange County Great Park and the City's Zoning Map identifies the site as 1.1, Exclusive Agriculture, and 1.4, Preservation. Similar to the proposed Project, the County could recommend changes to the City General Plan and Zoning Ordinance consistent with Alternative 4's proposed uses. In accordance with the Pre-Annexation Agreement, the Irvine City Council would then consider the requested amendments to the City General Plan and Zoning Ordinance.

Similar to the proposed Project, this alternative would not conflict with the policies and regulations of RTP/SCS goals and strategies. Although consistent with the RTP/SCS policies and goals, the Project is not included in the RTP/SCS growth projections, as information about the Project was not known at the time of the development of the RTP/SCS. With implementation of MM LU-1, as part of the next updates, the regional planning programs would be modified to reflect the growth associated with the Project and any potential land use planning inconsistency impact would be reduced to less than significant. Until these planning programs are amended, under the proposed Project and Alternative 4, has been identified as a significant, unavoidable impact in the interim for regional planning programs as revisions to those programs is not within the jurisdiction or control of the County.

Similar to the proposed Project, the types of uses proposed under Alternative 4 are as compatible with the surrounding existing and planned uses as the proposed Project, especially Districts 5 and 7 of the Great Park Neighborhoods, which are located to the west across Irvine Boulevard and adjacent and to the northwest portion of the site, respectively. Impacts would be less than significant and no mitigation is required. Overall, impacts related to land use and planning would be similar to the proposed Project and, except for the RTP/SCS impact, less than significant.

Noise

Alternative 4 would generate 3,359 ADT compared to 4,963 ADT for the proposed Project, and the building area would be similar to the proposed Project. Construction noise levels would be similar to the proposed Project in both magnitude and duration and would be less than significant. Direct and cumulative traffic noise level increases at on and off-site receptors would be less than those of the proposed Project, but the differences would be small; the impact would be less than significant. Similar to the proposed Project, all noise and vibration impacts would be less than significant. DR NOI-1, DR NOI-2, and MMs NOI-1, NOI-2, NOI-3, NOI-4, and NOI-5 would also be applicable to this alternative. Even though traffic noise would be slightly less than the proposed Project, overall, Alternative 4 would have incrementally less noise impacts as the proposed Project.

Population and Housing

Alternative 4 would introduce similar uses as the proposed Project in Planning Area 2, with similar density; however, Planning Area 1 would introduce age-qualified residential units at a lower density under this alternative. This alternative would introduce a total population of 1,304 people, which is less than the proposed Project population of 1,598. Although the population is less than the Project population, this alternative is projected to create approximately 90 jobs. Like the Project, the growth from Alternative 4 would not have been considered when the OCP-2014 dataset was developed. Therefore, similar to the Project, this population and job growth has not been incorporated into the long-range planning programs and would have direct growth-inducing impacts. This would be considered a significant, unavoidable impact as modifications to the regional planning projections are outside the County's control.

However, while the Project would have direct growth-inducing impact, it is an infill development. Backbone infrastructure would be provided to meet the needs of the Project, but would not be extended in such a way that would induce growth in the area. Major infrastructure, beyond the improvements serving the site, either exists for the existing development in the area, or would be provided for the planned development projects in the area.

Similar to the Project, this alternative would alter the relationship between jobs and housing at the subregional, County, City, and Project levels. Alternative 4 would add a total of 90 jobs to the area as a result of the assisted living and independent living components of the alternative, which would contribute to the jobs/housing imbalance in the area. Even though this alternative would also result in creation of jobs in a jobs-rich area, the overall population and housing impacts would be slightly reduced compared to the Project by introducing less population in the area.

Public Services

Alternative 4 would introduce a permanent residential population of 1,304 persons to the area compared to the Project's estimated population of 1,598 persons. There is the potential for an increased number of medical emergencies given the age of the population. This would potentially place greater demand on OCFA, which provides emergency medical services to the area. However, the incremental increase in emergency calls associated with the age-qualified

component of Alternative 4 would not be expected to be sufficient to require the construction of new governmental facilities, such as an additional fire station or police facilities. Based on the overall reduced density, the associated demand for libraries under Alternative 4 would be reduced compared to the proposed Project. This alternative proposes age-restricted residential units in Planning Area 1, which would not generate any students because of the demographics. The 230 multi-family units in Planning Area 2 would generate substantially fewer students than the proposed Project (a total of 60 students compared to 208 for the proposed Project). As with the proposed Project, Alternative 4 would be required to comply with the California Government Code (payment of State-mandated school fees) and impacts to schools would be less than significant. For the reasons discussed in Section 4.13, similar to the proposed Project this alternative may also require the provision of portable classroom facilities to accommodate the additional students; however, the provision of these facilities would not exceed student capacity guidelines for new schools pursuant to IUSD Board Policy 7112 and would not result in substantial adverse physical impacts. Impacts from the proposed Project and this alternative would be less than significant with adherence to development requirements. Overall, this alternative's potentially significant public services impacts would be substantially reduced compared to the Project.

Recreation

Alternative 4 would introduce a total of 1,304 permanent residents to the area. Similar to the proposed Project, Alternative 4 would increase demand for recreational facilities and amenities in the area. Similar to the proposed Project, in accordance with DR REC-1, development of this alternative would be required to provide parkland in accordance with the West Alton Development Plan (0.005 acres of parkland per dwelling unit), which equates to approximately 3.05 acres of parkland; this is less than the 4.02 acres contemplated by the proposed Project. This alternative proposes a total of 3.91 acres of parkland, which is in excess of the parkland requirement of 3.05 acres for this alternative. However, as with the proposed Project a shortage of parkland may result if development in Planning Area 1 occurs prior to issuance of Finding of Suitability to Transfer (FOST) and construction of the proposed park within the LIFOC area. Moreover, in the event of an interim shortfall of parkland, there would be no assurances that the Project would not result in a deterioration of the parkland in the area. As stated, this would be a significant and unavoidable impact.

Similar to the proposed Project, DR REC-1 would be applicable to development under Alternative 4, as this alternative would provide parkland consistent with the provisions of the Development Plan. Overall, this alternative would have similar recreation impacts compared to the proposed Project.

Transportation/Traffic

Alternative 4, Age-Qualified/Multi-Family Alternative, would result in fewer traffic-related impacts than the proposed Project. In comparison to the proposed Project's 4,963 ADT, this alternative would generate a total of 3,359 ADT.

The same methodology used for the evaluation of the proposed Project was used in analyzing and identifying potential transportation/traffic impacts under Alternative 4. Traffic impacts of Alternative 3 have been identified for existing traffic conditions, Interim Year 2017, Long-Term Year 2035, and General Plan Buildout Post-2035 future traffic conditions.

Table 5-4 identifies the number of locations that have direct impacts with the proposed Project and with Alternative 4 for each of the metrics used. The table is intended to provide a quick comparison of the number of locations; however, it should be noted that the locations of the impacts are not necessarily the same for the proposed Project and Alternative 4. This is followed by an overview for each timeframe.

TABLE 5-4
COMPARISON OF TRAFFIC IMPACT LOCATIONS FOR THE PROPOSED PROJECT AND ALTERNATIVE 4

Scenarios	Number of Impact Locations with the Proposed Project	Number of Impact Locations with Alternative 4
Existing Plus Project/Alternative		
Intersection Impacts with ICU Methodology	0	0
Intersection Impacts with HCM Methodology	1	0
Impacts on at Freeway Ramps	0	0
Impacts on Freeway Mainline Segments	6	6
Year 2017 Plus Project/Alternative		
Intersection Impacts with ICU Methodology	0	0
Intersection Impacts with HCM Methodology	3	2
Impacts on at Freeway Ramps	0	0
Impacts on Freeway Mainline Segments	0	0
Year 2035 Plus Project/Alternative		
Intersection Impacts with ICU Methodology	0	0
Intersection Impacts with HCM Methodology	8	6
Impacts on at Freeway Ramps	0	0
Impacts on Freeway Mainline Segments	0	0
Post-2035 Plus Project/Alternative		
Intersection Impacts with ICU Methodology	0	0
Intersection Impacts with HCM Methodology	8	6
Impacts on at Freeway Ramps	0	0
Impacts on Freeway Mainline Segments	1	1
Cumulative Impact Scenarios		
Year 2035 Plus Project/Alternative Plus Pending Projects		
Intersection Impacts with ICU Methodology	1	0
Intersection Impacts with HCM Methodology	5	2
Impacts on at Freeway Ramps	0	0
Impacts on Freeway Mainline Segments	0	0
Post-2035 Plus Project/Alternative Plus Pending Projects		
Intersection Impacts with ICU Methodology	0	0
Intersection Impacts with HCM Methodology	8	9
Impacts on at Freeway Ramps	0	0
Impacts on Freeway Mainline Segments	0	0

ICU: Intersection Capacity Utilization; HCM: Highway Capacity Manual
Source: Fehr & Peers 2015

Existing Plus Alternative 4 Analysis

Under this scenario, similar to the Project, Alternative 4 would not impact any intersections under the ICU methodology. Unlike the Project, this alternative would not impact any freeway/highway intersections under the HCM methodology, compared to one under the proposed Project. Similar to the Project, no impacts would occur to freeway ramps.

Similar to the proposed Project, this alternative would impact six freeway/highway mainline segments. Similar to the Project impacts would occur at I-5 SB at Jeffrey to SR-133 northbound; I-5 southbound at SR-133 southbound to Alton; I-405 northbound at Jeffrey Slip On-Ramp; I-405 southbound at Sand Canyon Off-Ramp; and I-405 southbound at SR-133 Off-Ramp. This alternative would result in a new impact at I-5 southbound at Jeffrey Off-Ramp. Mitigating the identified significant impact to the mainline freeway would require reconstruction of the freeways to add travel lanes. Since the freeways in the study area are interconnected systems, it would not be possible or effective to provide isolated spot improvements of one segment of the freeway where deficient operations are observed. Therefore, the impacts to the mainline freeway would remain significant and unavoidable under both the proposed Project and Alternative 4.

Year 2017 Plus Alternative 4 Analysis

Under this scenario, similar to the Project, Alternative 4 would not impact any intersections under the ICU methodology. This alternative would result in two impacts at freeway/highway intersections under the HCM methodology, compared to three under the proposed Project. Similar to the Project, this alternative would impact Jeffrey Road and Walnut Avenue and Sand Canyon Avenue and I-5 northbound intersections. The required improvements for all impacts have been identified, which would mitigate the impacts to pre-Project (or Alternative 4) conditions. Consistent with the mitigation approach for the proposed Project, the Alternative 4 intersection impact locations outside the jurisdiction of the County of Orange would remain significant and unavoidable.

Similar to the Project, no impacts were identified at freeway ramps and freeway/highway mainline segments.

Year 2035 Plus Alternative 4 Analysis

Under this scenario, similar to the Project, Alternative 4 would not impact any intersections under the ICU methodology. This alternative would result in six impacts at freeway/highway intersections under the HCM methodology, compared to eight under the proposed Project. Similar to the Project, impacts would occur at Jeffrey Road and Walnut Avenue; Sand Canyon Avenue and I-5 northbound; SR-133 southbound and Irvine Boulevard; Fortune Drive and I-5 southbound and Enterprise Drive; Bake Parkway and I-5 southbound; and SR-133 northbound and Trabuco Road. The required improvements for all impacts have been identified, which would mitigate the impacts to pre-Project (or Alternative 4) conditions. Consistent with the mitigation approach for the proposed Project, the Alternative 4 impact locations outside the jurisdiction of the County of Orange and would remain significant and unavoidable.

Similar to the Project, no impacts were identified at freeway ramps and freeway/highway mainline segments.

Post-2035 Plus Alternative 4 Analysis (General Plan Buildout)

Under this scenario, similar to the Project, Alternative 4 would not impact any intersections under the ICU methodology. This alternative would impact six freeway/highway intersections under the HCM methodology, compared to eight under the proposed Project. Similar to the Project, impacts would occur at Jeffrey Road and Walnut Avenue; Sand Canyon Avenue and I-5 northbound; Sand Canyon Avenue and I-5 southbound; Portola Parkway and SR-241 southbound; and SR-133 northbound and Trabuco Road. This alternative would result in a new impact at Bake Parkway and I-5 southbound. The required improvements for all impacts have been identified, which would mitigate the impacts to pre-Project (or Alternative 4) conditions. Consistent with the mitigation approach for the proposed Project, the Alternative 4 impact locations outside the jurisdiction of the County of Orange would remain significant and unavoidable.

Similar to the Project, no impacts were identified at freeway ramps but one impact was identified at freeway/highway mainline segment. Similar to the Project, this alternative would result in an impact at I-405 southbound at SR-133 Off-Ramp. Mitigating the identified significant impact to this segment would require a complete reconstruction of the I-405 and SR-133 freeways/highways to add travel lanes and upgrade each of the deficient locations. Since the freeways in the study area are interconnected systems, it would not be possible, nor effective, to provide isolated spot improvements of one segment of the freeway where deficient operations are observed. As the impact facility is also outside the jurisdiction of the County of Orange, for both the proposed Project and Alternative 4, impacts to this location would remain significant and unavoidable.

Year 2035 Plus Alternative 4 Plus Pending Projects

Under this scenario, no impact to any intersection under the ICU methodology would occur for Alternative 4 compared to one impact under the proposed Project. This alternative would result in impacts at two freeway/highway intersections under the HCM methodology, compared to five under the proposed Project. Similar to the proposed Project, an impact would occur at Jeffrey Road and Walnut Avenue. However, unlike the Project, a new impact would occur at Sand Canyon Avenue and I-5 northbound under this alternative. The required improvements for all impacts have been identified, which would mitigate the impacts to pre-Project (or Alternative 4) conditions. Consistent with the mitigation approach for the proposed Project, the intersection impact locations outside the jurisdiction of the County of Orange would remain significant and unavoidable.

Similar to the Project, no impacts would occur at freeway/highway ramps and freeway/highway mainline segments.

Post-2035 Plus Alternative 4 Plus Pending Projects

Under this scenario, similar to the Project, Alternative 4 would not impact any intersections under the ICU methodology. Under this scenario, impacts would occur at nine freeway/highway intersections using the HCM methodology, compared to eight under the Project. Similar to the Project, impacts would occur at Jeffrey Road and Walnut Avenue; Sand Canyon Avenue and I-5 northbound; Sand Canyon Avenue and I-5 southbound; Portola Parkway and SR-241 southbound; Fortune Drive and I-5 southbound and Enterprise Drive; and

Bake Parkway and I-5 southbound. This alternative would result in new impacts at Sand Canyon Avenue and I-405 southbound; SR-133 southbound and Irvine Boulevard; and SR-133 southbound and Trabuco Road. The required improvements for all impacts have been identified, which would mitigate the impacts to pre-Project (or Alternative 4) conditions. Consistent with the mitigation approach for the proposed Project, the impact intersection locations outside the jurisdiction of the County of Orange would remain significant and unavoidable. Additionally, while impact at Portola Parkway and SR-241 southbound during PM peak hour can be mitigated to pre-Project (or Alternative 4) conditions with the installation of a traffic signal, this intersection does not meet peak hour signal warrants. Therefore, this impact is deemed significant and unavoidable.

Similar to the Project, no impacts would occur at freeway/highway ramps and freeway/highway mainline segments.

While traffic impacts for both the proposed Project and Alternative 4 would be less than significant in most areas, they would be significant and unavoidable in others. Overall, compared to the proposed Project, Alternative 4 traffic impacts are substantially reduced in some areas and greater at one intersection using HCM methodology under the Post-2035 (cumulative) scenario.

Utilities and Service Systems

Alternative 4 would place demands on local and regional utilities and service systems; however, the demand would be substantially reduced compared to the proposed Project demands due to the reduced density associated with Alternative 4. As the IRWD approved a Water Supply Verification on May 23, 2016, confirming the availability of water for the proposed Project, water would also be available for the less intense Alternative 4. Similar to the proposed Project, development under Alternative 4 would not require the construction or expansion of new water or wastewater treatment facilities or expansion of existing treatment facilities. The proposed Project's impacts to utilities and service systems are considered less than significant with implementation of the identified development requirements, which would also apply to Alternative 4. The impacts related to water and wastewater supplies for this alternative would be less than the proposed Project.

There is sufficient solid waste disposal capacity in the existing landfills to meet the proposed Project's solid waste disposal needs, and solid waste impacts are considered less than significant. Alternative 4 would generate fewer persons than the proposed Project and is expected to generate less solid waste than the proposed Project.[3] The solid waste impacts of this alternative would be less than those of the proposed Project and the impacts of both the proposed Project and Alternative 4 would be less than significant.

[3] A separate solid waste generation factor for age-qualified households is not available. Therefore, conservatively, the same generation factor per household as the Project was used. For the commercial use, CalRecycle estimates, a 2.02 tons per year per employee, which equates to 11.07 lbs per day per employee.

Conclusions

Would Alternative 4 Avoid or Substantially Lessen the Significant Impacts, Compared to the Project?

Overall, Alternative 4, Age-Qualified/Multi-Family Alternative, would have less impacts compared to the proposed Project. This alternative, similar to the proposed Project, would result in Air Quality, GHG Emissions, Land Use and Planning, Population and Housing, Recreation (short-term), and Transportation/Traffic significant, unavoidable impacts. Since the impacts associated with the Air Quality, Land Use and Planning, and Population and Housing impacts are associated with consistency with planning programs, the level of impact would be the same as the proposed Project (i.e., both are at least temporarily inconsistent).

The operational air quality emissions and the Transportation/Traffic impacts would be reduced with Alternative 4 compared to the proposed Project. For instance, long-term mobile pollutant emissions would be substantially reduced compared to the proposed Project, as this alternative would result in 32 percent fewer ADTs (3,359 ADTs compared to 4,963 ADTs) than the proposed Project. Additionally, due to reduced population, the alternative would emit less long-term criteria pollutants. Similarly, the overall GHG emissions would be reduced with Alternative 4 compared to the Project and the alternative would have an improved efficiency level compared to the Project, but, like the Project, impacts would be significant and unavoidable.

In terms of Transportation/Traffic impacts, under the Existing Plus Project scenario, this alternative would avoid an impact at Jeffrey Road and Walnut Avenue intersection under the ICU methodology. Also, while this alternative would avoid impact at I-5 northbound at Alton Slip On-Ramp to SR-133 northbound Off-Ramp freeway/highway mainline segment, it would result in one new impact at I-5 southbound at Jeffrey Off-Ramp freeway/highway mainline segment. Under the Year 2017, this alternative would avoid the impact at Jeffrey Road and I-5 northbound intersection under the HCM methodology previously identified under the Project. Under the Year 2035 scenario, this alternative would result in impacts at Jeffrey Road and I-405 northbound and Sand Canyon Avenue and I-5 southbound freeway/highway intersections under the HCM methodology previously identified under the Project. Under the Post-2035 scenario, this alternative would avoid impacts at SR-133 southbound and Irvine Boulevard; Fortune Drive and I-5 southbound and Enterprise Drive; and SR-133 southbound and Trabuco Road freeway/highway intersections under the HCM methodology, previously identified under the Project; however, it would result in one new impact at Bake Parkway and I-5 southbound freeway/highway intersection.

Under the Year 2035 and Pending Projects, this alternative would avoid the impact previously identified under the Project at Jamboree Road northbound ramps and Warner Avenue intersection under the ICU methodology. Also, under these scenarios, this alternative would avoid impacts at Jeffrey Road and I-405 northbound; Sand Canyon and I-5 southbound; SR-133 southbound and Irvine Boulevard; and SR-133 northbound and Trabuco Road freeway/highway intersections under the HCM methodology previously identified under the Project; however, it would result in one new impact at Sand Canyon and I-5 northbound freeway/highway intersections. Under the Post-2035 and Pending Projects, this alternative would avoid impacts at Portola Parkway and SR-241 northbound and SR-133 northbound and

Trabuco Road freeway/highway intersections under the HCM methodology, previously identified under the Project; however, it would result in three new impacts at Sand Canyon Avenue and I-405 southbound; SR-133 southbound and Irvine Boulevard; and SR-133 southbound and Trabuco Road freeway/highway intersections.

Because the overall intensity of the development under Alternative 4 is reduced compared to the proposed Project, there would also be less impacts for the following environmental topics: Noise, Public Services, Recreation, and Utilities and Service Systems. The alternative's impacts for these topics would be less than significant with imposition of mitigation measures and/or development requirements.

As Alternative 4 and the proposed Project would have the same general development footprint and building bulk, their impacts would be similar for the following environmental topics: Aesthetics, Agricultural Resources, Biological Resources, Cultural Resources, Geology and Soils, Hazards and Hazardous Materials, and Hydrology and Water Quality.

Would Alternative 4 Result in Attainment of Project Objectives, Compared to the Project?

Alternative 4 will result in 470 senior units and 230 multi-family units that meet most of the Project objectives (10 of the 12) and partially meet 2 objectives (2 and 9).

The following objectives would be met by this alternative:

1. Build a project that is compatible with the surrounding existing and planned land uses in the area.
3. Maximize the potential for use of this County real estate asset to stimulate economic commerce in the City.
4. Promote efficient use of the land through construction of a medium to high density residential development.
5. Take advantage of the ability to develop the Project site without the requirement for the extension of major infrastructure to support the development.
6. Revitalize the previously disturbed and presently underutilized Project site.
7. Develop the Project in a manner that will materially improve the jobs-housing balance of the area
8. Use an existing County real estate asset to provide the County with new source of revenue to support County operations and services.
10. Incorporate housing at density range of at least 11 dwelling units/acre consistent with State of California guidance regarding the minimum density for facilitating the creation of affordable housing.
11. Provide a project with a range of density, bedroom, and unit types to facilitate the integration of up to one percent of the units as transitional housing for the region's diverse population of homeless or those at risk of becoming homeless.

12. Develop a mixed-income project that includes ten percent affordable housing on-site in several different product types to help meet the diverse needs of the region's population.

Alternative 4, similar to the Project, would be compatible with the surrounding existing and planned land uses as analyzed above. Existing and planned uses would either be compatible with the alternative's senior, multi-family residential, and parks uses and/or buffered by roadways and landscaping. Also, similar to the Project this alternative would result in a new source of revenue for the County and stimulate the local economy by introducing a development and associated population in the area that would be using services and generating new tax revenue for the City. Additionally, this alternative would result in development of medium- to high-density senior and multi-family residential units, which is an efficient use of the land. Furthermore, similar to the Project, this alternative would not be required to extend significant infrastructure to support the development. Also, the Project site has been previously disturbed and is currently undeveloped with temporary uses; similar to the Project, this alternative would revitalize the site by developing it with senior and multi-family uses, which would be an improvement over the existing condition. The alternative would provide residential units that would attract the existing and future employees in the area, and in turn this alternative's future residents would partake of the existing and future employment opportunities and recreational amenities in the area; thereby, helping to improve the jobs/housing balance in the area. Similar to the Project, Alternative 4 would also provide the County a long-term revenue stream to support the County's overall governmental functions by creating 700 residential units. Also, Alternative 4 would incorporate housing at a density of at least 11 dwelling units per acre consistent with the minimum density the State identifies as facilitating the creation of affordable housing. Moreover, similar to the Project, this alternative would provide a range of density, bedroom, and unit types to facilitate the integration of one percent of the units as transitional housing that meet the needs of the region's diverse homeless and potentially homeless populations. Lastly, this alternative would develop a mixed-income project with several different product type that would help serve the region's diverse population of households requiring affordable housing.

The following objectives would be partially met by this Alternative:

2. Create a development that would fully maximizes mutual benefits from proximity to the area's employment opportunities and recreational amenities.
9. Develop a project to provide attractive housing opportunities for young professionals to help curtail the trend of young professionals leaving the Orange County area.

The Project site is located in an area surrounded by and/or in proximity to existing and planned employment opportunities and recreational amenities (i.e., OCGP, including the Cultural Terrace); however, given the nature of this alternative, it would not fully benefit from proximity to the area's employment opportunities and recreational amenities. Lastly, given the age qualified nature of the majority of the Alternative 4 units, this alternative would provide units that would be attractive to young professionals only in Planning Area 2, thereby partially curtailing young professionals leaving the Orange County area.

5.4 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

CEQA requires the identification of an environmentally superior alternative. Section 15126.6(e)(2) of the State CEQA Guidelines states that, if the No Project Alternative is the environmentally superior alternative, then the EIR shall also identify an environmentally superior alternative among the other alternatives. Table 5-5 provides in summary format, a comparison of the level of impacts for each alternative to the proposed Project.

The No Project/No Development Alternative (Alternative 1) would have the least impact to the environment because it would not involve any construction or demolition activities, nor would it generate additional population. The No Project/No Development Alternative would have no significant and unavoidable impacts associated with air quality, land use and planning, population and housing, and transportation/traffic. The No Project/No Development Alternative would also not require the provision of additional public services and facilities and would not result in an increased demand for utilities or service systems. While this alternative would avoid the potentially significant impacts of the proposed Project, the beneficial impacts of the proposed Project associated with provision of additional housing, infrastructure improvements, and improvements to the existing visual character of the site would also not occur, and none of the Project Objectives would be met.

Consistent with the requirements of CEQA, the remaining three alternatives were compared to the proposed Project when recommending the environmentally superior alternative. When evaluating the proposed Project compared to Alternative 2, Single-Family Homes Alternative, Alternative 3, Mixed-Use Alternative, and Alternative 4, Age-Qualified/Multi-Family Alternative, all may result in at least some substantial reductions in potentially significant environmental impacts. However, in terms of the Project's significant and unavoidable impacts associated with Air Quality, GHG Emissions, Land Use and Planning, Population and Housing, and Transportation/Traffic, none of the alternatives would reduce any of the impacts of the Project to a level of less than significant.

The Project and all the development alternatives have the same footprint on the Project site. They all contemplate the full use of the land in Planning Areas 1 and 2 and protection of the Wildlife Movement Corridor. Therefore, the impacts on agricultural resources, biological resources, cultural resources, geology and soils, and hazardous materials would be the same because these issues are substantially tied to the area of physical impact. It should be noted for these issues, neither the Project nor the development alternatives have a significant unavoidable impact. Similarly, the Project and all the development alternatives have proposed installation of a combination of infiltration BMP's and bio-treatment BMPs that will be used within Planning Areas 1 and 2 to address storm water runoff management and treatment requirements. Therefore, the Project and all the development alternatives would not violate any water quality standards or waste discharge requirements. Installation of the BMPs would reduce the siltation that occurs with the existing Project site. This benefit would be associated with the Project and all the development alternatives.

The significant unavoidable impacts identified with air quality (plan consistency), land use and planning, population and housing, and recreation are also very similar when comparing the Project and all the development alternatives. As previously discussed, the air quality (plan consistency), land use and planning, population and housing all stem from the fact that the

anticipated growth associated with the Project or all the development alternatives are not included in the regional growth projections. Therefore, they are inconsistent with the regional planning programs, such as the RTP/SCS and AQMP, which are designed to reduce environmental impacts. Similarly, the Project and all the development alternatives are identified as having a potential short-term significant unavoidable recreation impact. This impact for the Project and the development alternatives is associated with the potential temporary shortage of parkland should the development within Planning Area 1 occur prior to construction of the proposed park within the LIFOC area. If this were to occur there could be short-term impacts on surrounding recreational facilities due to the increased population using other existing facilities. The distinction between the alternatives would be the number of people using these facilities. Alternative 2 with the lowest population and Alternative 4, which proposes the age-qualified development in Planning Area 1 would reasonably have slightly less impact than the Project or Alternative 3, which propose similar development in Planning Area 1.

A key factor that distinguishes the Project and development alternatives is associated with the number of vehicle trips generated. The vehicle trips not only result in transportation impacts, they are associated with the generation of air emissions, noise, and GHG emissions. The greater the number of trips, the greater the potential level of impacts in these topical areas. Alternative 2 would reduce the overall trip generation by 3,413 (69 percent) ADTs, resulting in reduced air quality, total GHG emissions, and noise impacts. The reduction in ADT is also reflected in the number of intersections and freeway mainline segments with direct impacts compared to the proposed Project. No intersections under the ICU methodology would be impacted by Alternative 2 and the Project. Fewer intersections under the HCM methodology would be impacted by Alternative 2 compared to the Project. No freeway ramps would be impacted, but the number of freeway/highway mainline segments impacted would be comparable between Alternative 2 and the Project. Comparatively, Alternative 4 would reduce the trip generation by 1,604 (32 percent) ADTs compared to the proposed Project's 4,963 ADTs. This reduction is also reflected in the number of intersections and freeway mainline segments with direct impacts compared to the Project. No intersections under the ICU methodology would be impacted by Alternative 4 and the Project. Fewer intersections under the HCM methodology would be impacted by Alternative 4 compared to the Project. No freeway ramps would be impacted, but the number of freeway/highway mainline segments impacted would be comparable between Alternative 4 and the Project. On the contrary, Alternative 3 would increase the overall trip generation by 1,121 (18 percent) ADTs. While no intersections under the ICU methodology would be impacted by this alternative, overall more intersections under HCM would be impacted by Alternative 3 compared to the Project. Alternative 3 would result in one impact at freeway ramp, but similar impacts would result at freeway mainline segments.

Based on the analysis of the environmental topics for the proposed Project in Sections 4.1 through Section 4.16 and the analysis of Alternatives 1 through Alternative 4 contained in this section of the EIR, Alternative 2, Single-Family Homes with a significant reduction in ADTs and an overall reduction in density and intensity would result in reduced environmental impacts compared to the Project and other alternatives. Based solely on the potential environmental impacts, Alternative 2 would have the greatest reduction in environmental impacts compared to the Project and would be deemed the environmentally superior alternative.

As discussed in Section 1.8, Areas of Controversy/Issues to be Resolved, the ability of the alternative to effectively meet the Project Objectives must also be evaluated. The Single-Family Alternative would only meet 4 of the 12 Project objectives and partially meet 4 of the 12 objectives. This alternative would not meet the remaining four Project alternatives. A detailed analysis of how this alternative would meet/partially meet Project objectives is included in the conclusions section for this alternative. A summary comparison of the ability of the Project and each of the alternatives to meet the Project objectives is provided in Table 5-1.

Table 5-5 provides a comparison of each alternative to the proposed Project for all thresholds.

TABLE 5-5
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS

Impact Category	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 Single-Family	Alternative 3 Mixed-Use	Alternative 4 Age-Qualified/Multi-Family
Aesthetics					
Threshold 4.1-1 Substantially degrade the existing visual character or quality of the site and its surroundings.	Less than significant impact – Change in visual character would be an improvement over the existing visual quality of the site. Project would comply with design guidelines and development standards of the Development Plan.	Greater than the proposed Project – This alternative would not improve the existing condition of the Project site.	Same as the proposed Project – Although this alternative would have a reduced density compared to the Project, upon completion of construction, the aesthetic impacts would be similar to the Project's because it would not substantially degrade the visual quality of the Project site. Also similar to the Project, it would improve existing condition of the Project site.	Same as the proposed Project – Overall the Project would have slightly greater square footage of habitable buildings; however, due to the parking structure in Planning Area 2, the overall square footage of buildings would be similar. Similar to the Project, this alternative would be compatible with surrounding existing and planned land uses. Also, it would improve existing condition of the Project site.	Same as the proposed Project – Under Alternative 4, long-term visual impacts would be similar to the proposed Project although the height of some of the Alternative 4 buildings could be lower than those proposed by the Project. Similar to the proposed Project, Alternative 4 would be compatible with surrounding existing and planned land uses. Also, it would improve existing condition of the Project site.
Threshold 4.1-2 Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area.	Less than significant impact with development requirements – New sources of light and glare would also comply with design guidelines and development standards of the Development Plan. Distance from light sensitive uses provided by setbacks, landscaping, and existing development would prevent substantial light and glare spillover. DRs AES-1 and AES-2 would apply.	Less than the proposed Project – No development proposed, and no light and glare impacts would occur.	Less than the proposed Project – Would result in development with lower density and lower building heights, which would result in reduced light and glare impacts to the surrounding areas. Project development requirements would apply to this alternative.	Greater than the proposed Project – Under this alternative, light and glare impacts in Planning Area 1 would be similar to the Project, as the nature and intensity of the developments are similar. Light and glare in Planning Area 2 would have increased impacts due to increased number of open parking spaces. Project development requirements would apply to this alternative.	Slightly reduced than the proposed Project – Under this alternative, the intensity of potential light and glare would be slightly reduced in Planning Area 1 but would be similar in Planning Area 2, as this alternative would have the same density as the Project in Planning Area 2. Project development requirements would apply to this alternative.

TABLE 5-5
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS

Impact Category	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 Single-Family	Alternative 3 Mixed-Use	Alternative 4 Age-Qualified/Multi-Family
Agricultural Resources					
Threshold 4.2-1 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.	No impact – The Project would not result in the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use, as none is designated on the Project site.	Same as the proposed Project – No development proposed.	Same as the proposed Project – Project would have a similar footprint and would not impact designated farmland.	Same as the proposed Project – Project would have a similar footprint and would not impact designated farmland.	Same as the proposed Project – Project would have a similar footprint and would not impact designated farmland.
Threshold 4.2-2 Conflict with existing zoning for agricultural use, or a Williamson Act contract.	No impact – Though development of the Project would be inconsistent with City of Irvine Zoning Ordinance; the zoning requirements do not apply to the Project. No portion of the site is covered by a Williamson Act contract.	Same as the proposed Project – No development proposed.	Same as the proposed Project – The alternative would be inconsistent with City of Irvine Zoning Ordinance; however, the zoning requirements do not apply. The alternative would have no impact on land covered by Williamson Act contract.	Same as the proposed Project – The alternative would be inconsistent with City of Irvine Zoning Ordinance; however, the zoning requirements do not apply. The alternative would have no impact on land covered by Williamson Act contract.	Same as the proposed Project – The alternative would be inconsistent with City of Irvine Zoning Ordinance; however, the zoning requirements do not apply. The alternative would have no impact on land covered by Williamson Act contract.
Threshold 4.2-3 Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of farmland to non-agricultural use.	Less than significant impact – Project would not involve other changes in the environmental that could result in the conversion of Farmland to non-agricultural use, because the surrounding area is either developed or slated for urban development or the agricultural areas are enrolled in the City's agricultural mitigation program (Agricultural Legacy Program).	Same as the proposed Project – No development proposed.	Same as the proposed Project – The alternative would not cause conversation of farmland to non-agricultural use, as the area surrounding the site is developed or slated for development.	Same as the proposed Project – The alternative would not cause conversation of farmland to non-agricultural use, as the area surrounding the site is developed or slated for development.	Same as the proposed Project – The alternative would not cause conversation of farmland to non-agricultural use, as the area surrounding the site is developed or slated for development.

TABLE 5-5
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS

Impact Category	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 Single-Family	Alternative 3 Mixed-Use	Alternative 4 Age-Qualified/Multi-Family
Air Quality					
Threshold 4.3-1 Conflict with or obstruct implementation of the applicable air quality plan.	Significant and unavoidable impact– Project and associated emissions are not included in regional air quality plans; Project would conflict with the current SCAQMD AQMP. MM LU-1 would apply, but incorporation of the updated growth projections into the OCUP dataset and the AQMP is not within the County's control.	Less than the proposed Project – No development proposed.	Same as the proposed Project – Short- and long-term pollutant emissions anticipated with this alternative are not in the current AQMP. Project mitigation measure would apply to this alternative.	Same as the proposed Project – Short- and long-term pollutant emissions anticipated with this alternative are not in the current AQMP. Project mitigation measure would apply to this alternative.	Same as the proposed Project – Short- and long-term pollutant emissions anticipated with this alternative are not in the current AQMP. Project mitigation measure would apply to this alternative.
Threshold 4.3-2 Violate any air quality standard or contribute substantially to an existing or projected air quality violation.	Construction: Less than significant impact with development requirements – Would not exceed SCAQMD CEQA significance threshold, but construction emissions would be further reduced with DRs AQ-1 through AQ-4. Operation: Less than significant with development requirements and mitigation measures– Mass operational emissions would not exceed SCAQMD CEQA	Less than the proposed Project – No development proposed.	Less than the proposed Project – ADT would be reduced compared to the proposed Project, so long-term mobile pollutant emissions would be reduced and would be less than the SCAQMD CEQA thresholds. Compared to the Project, this alternative would result in reduced criterial emissions from consumer products and energy use.	Greater than the proposed Project – ADT would be increased compared to the proposed Project, so emissions would be increased, but would still be less than the SCAQMD CEQA thresholds. Project development requirements and mitigation measures would apply to this alternative.	Less than the proposed Project – ADT would be reduced compared to the proposed Project, so long-term mobile pollutant emissions would be reduced and would be less than the SCAQMD CEQA thresholds. Project development requirements and mitigation measures would apply to this alternative.

TABLE 5-5
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS

Impact Category	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 Single-Family	Alternative 3 Mixed-Use	Alternative 4 Age-Qualified/Multi-Family
	thresholds. DR AQ-6 and MMs GHG-1 and GHG-2 would apply. Local CO emissions would not exceed applicable standards and would be less than significant.				
Threshold 4.3-3 Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).	Less than significant impact with development requirements and mitigation measures – Long-term operational and short-term construction emissions of nonattainment pollutants and precursors less than SCAQMD CEQA thresholds. DRs AQ-1 through AQ-5 and MMs GHG-1 and GHG-2 would apply and reduce vehicle travel.	Less than the proposed Project – No development proposed.	Similar to the proposed Project – Like the Project, long-term criterial pollutant emissions would not exceed thresholds and would be less than significant. Project development requirements and mitigation measures would apply to this alternative.	Greater than the proposed Project – Number of trips would increase, so the emissions would be increased, but would still be less than the SCAQMD CEQA thresholds, and the cumulative impacts would be less than significant similar to the Project. Project development requirements and mitigation measures would apply to this alternative.	Same as the proposed Project – Alternative 4's long-term criteria pollutant emissions would be less than the SCAQMD CEQA thresholds and the cumulative impacts would be less than significant. Project development requirements and mitigation measures would apply to this alternative.
Threshold 4.3-4 Expose sensitive receptors to substantial pollutant concentrations.	Less than significant impact – Exposure of sensitive receptors to criteria pollutants from on-site construction to CO at congested intersections or to off-site and future on-site receptors from TACs would not exceed thresholds.	Less than the proposed Project – No development proposed.	Same or less than the proposed Project – Like the Project, construction pollution impacts would be less than significant. Maximum daily emissions during mass grading would be similar, as overall site preparation would be similar. Maximum daily emissions during vertical	Same as the proposed Project – Similar quantity of building area; therefore, maximum daily construction emissions would be similar to the Project and less than significant.	Same as the proposed Project – Similar quantity of building area; therefore, maximum daily construction emissions would be similar to the Project and less than significant.

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Impact Category	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 Single-Family	Alternative 3 Mixed-Use	Alternative 4 Age-Qualified/Multi-Family
			construction would be less than the proposed Project.		
Biological Resources					
Threshold 4.4-1 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 Services.	Less than significant impact with development requirements and mitigation measures – Project would directly impact marginally suitable habitat for special status species. The Project has the potential to indirectly impact species using open space adjacent to the Project boundary. Potential impacts on coastal California gnatcatcher, least Bell's vireo, and active nests of migratory birds and/or raptors would be less than significant with implementation of development requirements. DRs BIO-1 - BIO-3, AES-1 and AES-2, HAZ-4, and MMs BIO-1 and BIO-2 would apply.	Less than the proposed Project – No development proposed.	Same as the proposed Project – Similar to the Project, this alternative would directly impact marginally suitable habitat for special status species and would indirectly impact species using open space adjacent to the Project boundary. Potential impacts on coastal California gnatcatcher, least Bell's vireo, and active nests of migratory birds and/or raptors would also be similar and less than significant with implementation of development requirements. Project development requirements and mitigation measures would apply to this alternative.	Same as the proposed Project – Similar to the Project, this alternative would directly impact marginally suitable habitat for special status species and would indirectly impact species using open space adjacent to the Project boundary. Potential impacts on coastal California gnatcatcher, least Bell's vireo, and active nests of migratory birds and/or raptors would also be similar and less than significant with implementation of development requirements. Project development requirements and mitigation measures would apply to this alternative.	Same as the proposed Project – Similar to the Project, this alternative would directly impact marginally suitable habitat for special status species and would indirectly impact species using open space adjacent to the Project boundary. Potential impacts on coastal California gnatcatcher, least Bell's vireo, and active nests of migratory birds and/or raptors would also be similar and less than significant with implementation of development requirements. Project development requirements and mitigation measures would apply to this alternative.
Threshold 4.4-2 Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the	Less than significant impact with development requirements – Project would not directly impact riparian habitat or any other sensitive natural	Less than the proposed Project – No development proposed.	Same as the proposed Project – Alternative would not directly impact riparian habitat or any other sensitive natural community. Project	Same as the proposed Project – Alternative would not directly impact riparian habitat or any other sensitive natural community. Project	Same as the proposed Project – Alternative would not directly impact riparian habitat or any other sensitive natural community. Project

TABLE 5-5
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS

Impact Category	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 Single-Family	Alternative 3 Mixed-Use	Alternative 4 Age-Qualified/Multi-Family
California Department of Fish and Wildlife or U.S. Fish and Wildlife Services.	community. DR BIO-4 would apply.		development requirement would apply to this alternative.	development requirement would apply to this alternative.	development requirement would apply to this alternative.
Threshold 4.4-3 Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.	Less than significant impact with development requirements – No waters, including federally protected wetlands, under the jurisdiction of the USACE, the RWQCB, or the CDFW would be directly impacted by the Project. DRs HWQ-4 through HWQ-7 would apply.	Less than the proposed Project – No development proposed.	Same as the proposed Project – No wetlands or waters would be directly impacted. Project development requirements would apply to this alternative.	Same as the proposed Project – No wetlands or waters would be directly impacted. Project development requirements would apply to this alternative.	Same as the proposed Project – No wetlands or waters would be directly impacted. Project development requirements would apply to this alternative.
Threshold 4.4-4 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.	Less than significant impact with development requirements and mitigation measures – The Project is not expected to directly impact a wildlife corridor, but indirect impacts are potentially significant. DRs AES-1, AES-2, DR BIO-2, and MM BIO-1 would apply.	Less than the proposed Project – No development proposed.	Same as the proposed Project – No direct impacts, but potential for indirect impacts to a wildlife corridor. Project development requirements and mitigation measure would apply to this alternative.	Same as the proposed Project – No direct impacts, but potential for indirect impacts to a wildlife corridor. Project development requirements and mitigation measure would apply to this alternative.	Same as the proposed Project – No direct impacts, but potential for indirect impacts to a wildlife corridor. Project development requirements and mitigation measure would apply to this alternative.
Threshold 4.4-5 Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	No impact – Project would not conflict with applicable local ordinances protecting biological resources.	Same as the proposed Project – No development proposed.	Same as the proposed Project – No conflict with local ordinances.	Same as the proposed Project – No conflict with local ordinances.	Same as the proposed Project – No conflict with local ordinances.
Threshold 4.4-6 Conflict with the provisions of an adopted Habitat Conservation Plan,	No impact – Project would not conflict with provisions of the	Same as the proposed Project – No development proposed.	Same as the proposed Project – No conflict with provisions of the	Same as the proposed Project – No conflict with provisions of the	Same as the proposed Project – No conflict with provisions of the

TABLE 5-5
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS

Impact Category	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 Single-Family	Alternative 3 Mixed-Use	Alternative 4 Age-Qualified/Multi-Family
Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.	NCCP/HCP or a local habitat conservation plan.		NCCP/HCP or a local habitat conservation plan.	NCCP/HCP or a local habitat conservation plan.	NCCP/HCP or a local habitat conservation plan.
Cultural and Scientific Resources					
Threshold 4.5-1 Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5.	Less than significant impact with mitigation measure – Project would have low potential to cause a substantial adverse change in the significance of an archaeological resource. MM CULT-1 would apply.	Less than the proposed Project – No development proposed.	Same as the proposed Project – Low potential to cause a substantial adverse change in the significance of an archaeological resource. Project mitigation measure would apply to this alternative.	Same as the proposed Project – Low potential to cause a substantial adverse change in the significance of an archaeological resource. Project mitigation measure would apply to this alternative.	Same as the proposed Project – Low potential to cause a substantial adverse change in the significance of an archaeological resource. Project mitigation measure would apply to this alternative.
Threshold 4.5-2 Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	Less than significant impact with mitigation measure – Project would have low potential to directly or indirectly impact a unique paleontological resource or site or unique geologic feature. MM CULT-2 would apply.	Less than the proposed Project – No development proposed.	Same as the proposed Project – Low potential to directly or indirectly impact a unique paleontological resource or site or unique geologic feature. Project mitigation measure would apply to this alternative.	Same as the proposed Project – Low potential to directly or indirectly impact a unique paleontological resource or site or unique geologic feature. Project mitigation measure would apply to this alternative.	Same as the proposed Project – Low potential to directly or indirectly impact a unique paleontological resource or site or unique geologic feature. Project mitigation measure would apply to this alternative.
Threshold 4.5-3 Disturb any human remains, including those interred outside of formal cemeteries.	Less than significant impact with mitigation measure – Project would have low potential to disturb human remains. MM CULT-3 would apply.	Less than the proposed Project – No development proposed.	Same as the proposed Project – Low potential to disturb human remains. Project mitigation measure would apply to this alternative.	Same as the proposed Project – Low potential to disturb human remains. Project mitigation measure would apply to this alternative.	Same as the proposed Project – Low potential to disturb human remains. Project mitigation measure would apply to this alternative.

TABLE 5-5
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS

Impact Category	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 Single-Family	Alternative 3 Mixed-Use	Alternative 4 Age-Qualified/Multi-Family
Geology and Soils					
Threshold 4.6-1 Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: (i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42. (ii) Strong seismic ground shaking. (iii) Seismic-related ground failure, including liquefaction.	Less than significant impact with development requirements and compliance with regulations – Project is not included in Alquist-Priolo Earthquake Fault Zone and there are no known active faults traversing the site. Project would have less than significant impacts related to fault rupture, liquefaction, settlement, lateral spreading, and subsidence. DR GEO-1 would apply.	Less than the proposed Project – No development proposed.	Same as the proposed Project – Same footprint, not included in Alquist-Priolo Earthquake Fault Zone; no known active faults; less than significant impacts related to fault rupture, liquefaction, settlement, lateral spreading, and subsidence. Project development requirement would apply to this alternative.	Same as the proposed Project – Same footprint, not included in Alquist-Priolo Earthquake Fault Zone; no known active faults; less than significant impacts related to fault rupture, liquefaction, settlement, lateral spreading, and subsidence. Project development requirement would apply to this alternative.	Same as the proposed Project – Same footprint, not included in Alquist-Priolo Earthquake Fault Zone; no known active faults; less than significant impacts related to fault rupture, liquefaction, settlement, lateral spreading, and subsidence. Project development requirement would apply to this alternative.
Threshold 4.6-2 Result in substantial soil erosion or the loss of topsoil.	Less than significant impact with development requirements and compliance with applicable laws – Project would have less than significant impact on soil erosion and loss of topsoil. DRs HWQ-4 through HWQ-7 would apply.	Less than the proposed Project – No development proposed.	Same as the proposed Project – Same footprint, low potential for soil erosion and loss of topsoil. Project development requirements and compliance with applicable laws would apply to this alternative.	Same as the proposed Project – Same footprint, low potential for soil erosion and loss of topsoil. Project development requirements and compliance with applicable laws would apply to this alternative.	Same as the proposed Project – Same footprint, low potential for soil erosion and loss of topsoil. Project development requirements and compliance with applicable laws would apply to this alternative.

TABLE 5-5
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS

Impact Category	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 Single-Family	Alternative 3 Mixed-Use	Alternative 4 Age-Qualified/Multi-Family
Threshold 4.6-3 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.	Less than significant impact with development requirements and compliance with regulations – Project is not located in an area with landslides, and potential for collapse/subsidence and soil corrosion is low. DR GEO-1 would reduce potential impacts associated with unstable soils/site conditions, landslides, collapse/subsidence, and corrosion. Conformance with existing regulations would reduce potential impacts from liquefaction, seismically induced settlement, and lateral spreading.	Less than the proposed Project – No development proposed.	Same as the proposed Project – Same footprint, not located in an unstable unit susceptible to liquefaction, settlement, lateral spreading, and subsidence. Project development requirements and compliance with regulations would apply to this alternative.	Same as the proposed Project – Same footprint, not located in an unstable unit susceptible to liquefaction, settlement, lateral spreading, and subsidence. Project development requirements and compliance with regulations would apply to this alternative.	Same as the proposed Project – Same footprint, not located in an unstable unit susceptible to liquefaction, settlement, lateral spreading, and subsidence. Project development requirements and compliance with regulations would apply to this alternative.
Threshold 4.6-4 Be located on expansive soils, as defined in Table 18-1-B of the California Building Code (1994), creating substantial risks to life or property.	Less than significant impact with development requirements – Project soil has low to medium expansion potential; detailed evaluation of near-surface soils to be conducted and appropriate design measures recommended. DR GEO-1 would apply.	Less than the proposed Project – No development proposed.	Same as the proposed Project – Same footprint, medium expansion potential assumed; detailed evaluation of near-surface soils to be conducted and appropriate design measures recommended. Project development requirement would apply to this alternative.	Same as the proposed Project – Same footprint, medium expansion potential assumed; detailed evaluation of near-surface soils to be conducted and appropriate design measures recommended. Project development requirement would apply to this alternative.	Same as the proposed Project – Same footprint, medium expansion potential assumed; detailed evaluation of near-surface soils to be conducted and appropriate design measures recommended. Project development requirement would apply to this alternative.

TABLE 5-5
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Impact Category	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 Single-Family	Alternative 3 Mixed-Use	Alternative 4 Age-Qualified/Multi-Family
Greenhouse Gas Emissions					
Threshold 4.7-1 Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.	Significant and unavoidable for the 2030 SCAQMD efficiency threshold – Project's GHG emissions would exceed SCAQMD-recommended project-level efficiency threshold. DRs GHG-1 through DR GHG-4, DRs AQ-4 and AQ-5, and MM GHG-1 and GHG-2 would apply but would not reduce the impact to a level of less than significant.	Less than significant and less than the proposed Project – No development proposed.	Less than the proposed Project–Significant and unavoidable for the 2030 SCAQMD efficiency threshold. This alternative would have a lower GHG service population metric than the proposed Project; however, all categories of GHG emissions would be substantially reduced compared to the Project. Project development requirements and mitigation measures would apply to this alternative but would not reduce the impact to a level of less than significant.	Less than the proposed Project–Significant and unavoidable for the 2030 SCAQMD efficiency threshold. Though the total emissions for Alternative 3 would be higher than those associated with the proposed Project, Alternative 3's would have a lower GHG service population metric compared to the Project. Project development requirements and mitigation measures would apply to this alternative but would not reduce the impact to a level of less than significant.	Less than the proposed Project–Significant and unavoidable for the 2030 SCAQMD efficiency threshold. This alternative would have lower GHG emissions and a lower GHG service population metric than the proposed Project. Project development requirements and mitigation measures would apply to this alternative but would not reduce the impact to a level of less than significant.
Threshold 4.7-2 Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	Significant and unavoidable—The Project may conflict with regulations and policies adopted for the purpose of reducing GHG emissions. No additional mitigation is feasible.	Less than the proposed Project – No development proposed.	Same as the proposed Project – The Project may conflict with applicable plans, policy, or regulation adopted for the purpose of reducing GHG emissions.	Same as the proposed Project – The Project may conflict with applicable plans, policy, or regulation adopted for the purpose of reducing GHG emissions.	Same as the proposed Project – The Project may conflict with applicable plans, policy, or regulation adopted for the purpose of reducing GHG emissions.

TABLE 5-5
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS

Impact Category	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 Single-Family	Alternative 3 Mixed-Use	Alternative 4 Age-Qualified/Multi-Family
Hazards and Hazardous Materials					
Threshold 4.8-1 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 – Project would have low potential to create a significant hazard to the public or the environment through reasonably foreseeable upset or accident conditions involving the release of hazardous materials. Also, while the Project site is within a ¼-mile of Portola High School, the Project would not result in significant impacts due to emissions from or handling of hazardous materials on the Project site. Additionally, impact related to former agricultural use of the site would be less than significant without mitigation.	Less than the proposed Project – No development proposed.	Same as the proposed Project – Same footprint, low potential for impacts regarding upset and accident conditions involving hazardous materials release.	Same as the proposed Project – Same footprint, low potential for impacts regarding upset and accident conditions involving hazardous materials release.	Same as the proposed Project – Same footprint, low potential for impacts regarding upset and accident conditions involving hazardous materials release.
Threshold 4.8-2 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.	Potential hazardous soil impacts: less than significant impact with development requirements – Project would have impacts associated with unknown soil and hazardous materials and petroleum-hydrocarbon. DRs HAZ-1 through HAZ-3 would	Less than the proposed Project – No development proposed.	Same as the proposed Project – Same footprint, potential impacts regarding hazardous materials sites would be mitigated with implementation of project development requirements and mitigation measure.	Same as the proposed Project – Same footprint, potential impacts regarding hazardous materials sites would be mitigated with implementation of project development requirements and mitigation measure.	Same as the proposed Project – Same footprint, potential impacts regarding hazardous materials sites would be mitigated with implementation of project development requirements and mitigation measure.

TABLE 5-5
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS

Impact Category	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 Single-Family	Alternative 3 Mixed-Use	Alternative 4 Age-Qualified/Multi-Family
	apply. Magazine Road landfill: less than significant impact – The Project has low potential for impacts due to VOCs and methane in soil gas. Monitoring wells: less than significant impact with mitigation measure. Impacts to the groundwater monitoring well(s) associated with the groundwater TCE plume at IRP Site 2 are potentially significant without mitigation. MM HAZ-1 would apply.				
Threshold 4.8-3 Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.	Less than significant impact with Fuel Modification Plan – With implementation of the approved Fuel Modification Plan, development under the proposed Project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires. Additionally, the Project site is located adjacent to VHFHSZ, but there are no designated emergency evacuation	Less than the proposed Project – No development proposed.	Same as the proposed Project – Same footprint, low potential for impacts due to wildland fires. Fuel Modification Plan applies to this alternative. Similar to the Project, no impacts would occur to any designated evacuation routes.	Same as the proposed Project – Same footprint, low potential for impacts due to wildland fires. Fuel Modification Plan applies to this alternative. Similar to the Project, no impacts would occur to any designated evacuation routes.	Same as the proposed Project – Same footprint, low potential for impacts due to wildland fires. Fuel Modification Plan applies to this alternative. Similar to the Project, no impacts would occur to any designated evacuation routes.

TABLE 5-5
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS

Impact Category	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 Single-Family	Alternative 3 Mixed-Use	Alternative 4 Age-Qualified/Multi-Family
	routes on or immediately adjacent to the Project site. No impacts would occur to any designated evacuation routes.				
Hydrology and Water Quality					
Threshold 4.9-1 Violate any water quality standards or waste discharge requirements. **Threshold 4.9-5** Otherwise substantially degrade water quality.	Less than significant impact with development requirements – Project would not violate any water quality standards and waste discharge requirements nor would it otherwise substantially degrade water quality. DRs HWQ-4 through HWQ-7 would ensure that there would be no impacts to receiving waters from non-storm water flows during construction.	Greater than the proposed Project – Although Alternative 1 would not change the amount of existing pervious surfaces on the site, since it would not provide any control for the runoff content transported downstream via storm water, the impact downstream water bodies would be greater compared to the Project.	Same as the proposed Project – Water quality standards and waste discharge requirements would not be violated with appropriate BMPs; compliance with the Construction General Permit would ensure that there would be no impacts to receiving waters from non-storm water flows. Project development requirements would apply to this alternative.	Same as the proposed Project – Water quality standards and waste discharge requirements would not be violated with appropriate BMPs; compliance with the Construction General Permit would ensure that there would be no impacts to receiving waters from non-storm water flows. Project development requirements would apply to this alternative.	Same as the proposed Project – Water quality standards and waste discharge requirements would not be violated with appropriate BMPs; compliance with the Construction General Permit would ensure that there would be no impacts to receiving waters from non-storm water flows. Project development requirements would apply to this alternative.
Threshold 4.9-2 Substantially alter the existing drainage pattern of the site or area including the alteration of the course of a stream or river, in manner which would result in substantial erosion or siltation on- or off-site. **Threshold 4.9-3** Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or	Less than significant impact with development requirements – Project would not change the existing drainage pattern of the site in a manner that would result in substantial erosion or siltation, or increase the rate or amount of runoff resulting in flooding. Project would not exceed capacity of a stormwater drainage system or	Same as the proposed Project – The Project would maintain the existing hydrology patterns and hydrologic characteristics of the site and would not increase off-site storm water volume discharges similar to the No Project/No Development condition.	Same as the proposed Project – No alteration of existing drainage pattern of the site in a manner that would result in substantial erosion or siltation, or increase the rate or amount of runoff resulting in flooding. Alternative would not exceed capacity of a stormwater drainage system. Project development	Same as the proposed Project – No alteration of existing drainage pattern of the site in a manner that would result in substantial erosion or siltation, or increase the rate or amount of runoff resulting in flooding. Alternative would not exceed capacity of a stormwater drainage system. Project development	Same as the proposed Project – No alteration of existing drainage pattern of the site in a manner that would result in substantial erosion or siltation, or increase the rate or amount of runoff resulting in flooding. Alternative would not exceed capacity of a stormwater drainage system. Project development

TABLE 5-5
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS

Impact Category	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 Single-Family	Alternative 3 Mixed-Use	Alternative 4 Age-Qualified/Multi-Family
substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site. **Threshold 4.9-4** 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.	provide additional sources of polluted runoff. DRs HWQ-1 through HWQ-3 would apply.		requirements would apply to this alternative.	requirements would apply to this alternative.	requirements would apply to this alternative.
Land Use and Planning					
Threshold 4.10-1 Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the Project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.	Consistency with planning documents: significant and unavoidable impact with mitigation measure – Project is not subject to the City of Irvine General Plan and Zoning Ordinance. Project would be consistent with the goals and strategies of RTP/SCS, but it is not included in the OCP-2014 projection and is not included within the growth projections of regional planning programs. With implementation of MM LU-1, potential land use planning inconsistency impacts would be reduced to less	Less than the proposed Project – This alternative would be inconsistent with local and regional goals to provide housing near transit and major employment centers; however, the alternative would avoid the short-term significant impact associated with inconsistency with the regional planning programs.	Same as the proposed Project – Development would not be subject to City of Irvine General Plan and Zoning Ordinance. This alternative would be consistent with goals and strategies of RTP/SCS and would generally be compatible with surrounding uses, but is not included in OCP-2014. Project mitigation measure would apply to this alternative but short-term significant impact would remain.	Same as the proposed Project – Development would not be subject to City of Irvine General Plan and Zoning Ordinance. This alternative would be consistent with goals and strategies of RTP/SCS and would generally be compatible with surrounding uses, but is not included in OCP-2014. Project mitigation measure would apply to this alternative but short-term significant impact would remain.	Same as the proposed Project – Development would not be subject to City of Irvine General Plan and Zoning Ordinance. This alternative would be consistent with goals and strategies of RTP/SCS and would generally be compatible with surrounding uses, but is not included in OCP-2014. Project mitigation measure would apply to this alternative but short-term significant impact would remain.

TABLE 5-5
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS

Impact Category	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 Single-Family	Alternative 3 Mixed-Use	Alternative 4 Age-Qualified/Multi-Family
	than significant. However, in the interim, until these planning programs are amended, this impact would be significant and unavoidable. Compatibility with land uses: less than significant impact – Project would introduce land uses compatible with existing and planned land uses and would include buffers with adjacent existing and planned uses.				
Noise					
Threshold 4.11-1 Result in exposure of persons to or generation of noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies.	Less than significant impact with development requirements and mitigation measures – Construction would occur during hours consistent with City Noise Ordinances. Construction equipment noise would be less than significant with Mitigation Measures. Future traffic and event noise from Portola High School could create potential noise incompatibility impacts, which would be less than significant with mitigation measures. DR NOI-1 and MMs NOI-1	Less than the proposed Project – No development proposed.	Less than the proposed Project – Construction noise would be consistent with Noise Ordinances, would be similar to the Project but of shorter duration. Project-generated direct and cumulative traffic noise level increases at on- and off-site receptors would be less than the Project. Project development requirements and mitigation measures would apply to this alternative.	Slightly more than the proposed Project – Construction noise would be consistent with Noise Ordinances and would be similar to the Project in magnitude and duration. Project-generated direct and cumulative traffic related noise level increases at on and off-site receptors would be greater than the Project, but similar to the Project, traffic related noise impacts would be less than significant. Project development requirements and mitigation measures	Less than the proposed Project – Construction noise would be consistent with Noise Ordinances and would be similar to the Project in magnitude and duration. Direct and cumulative traffic noise level increases at on- and off-site receptors would be less than the Project, but the differences would be small. Project development requirements and mitigation measures would apply to this alternative.

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Impact Category	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 Single-Family	Alternative 3 Mixed-Use	Alternative 4 Age-Qualified/Multi-Family
	through NOI-3 would apply.			would apply to this alternative.	
Threshold 4.11-2 Result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.	Less than significant impact with mitigation measures – Project would result in vibration-generation construction impacts. Impacts due to annoyance, structural damage, and pile driving would be less than significant with MM NOI-4.	Less than the proposed Project – No development proposed.	Less than the proposed Project – Construction vibration would be shorter in duration. Similar to the Project, all noise and vibration impacts would be less than significant. Project mitigation measure would apply to this alternative.	Slightly more than the proposed Project – Construction vibration would be similar to the Project in magnitude and duration and less than significant. Project mitigation measure would apply to this alternative.	Same as the proposed Project – Construction vibration would be similar to the Project in magnitude and duration and less than significant. Project mitigation measure would apply to this alternative.
Threshold 4.11-3 Result in a substantial permanent increase in ambient noise levels in the Project vicinity above levels existing without the Project.	Less than significant impact with mitigation measures – Project-generated traffic noise increases at sensitive receptors and permanent ambient noise increases in the vicinity of site generated by on-site sources would be less than significant with MM NOI-1.	Less than the proposed Project – No development proposed.	Less than the proposed Project – There would be reduced building area and a reduced ADT with this alternative compared to the proposed Project. Project-generated direct and cumulative traffic noise level increases at on- and off-site receptors would be less than the Project. Project mitigation measure would apply to this alternative.	Greater than the proposed Project – There would be a similar building area and an increased ADT with this alternative. Project-generated direct and cumulative traffic related noise level increases at on and off-site receptors would be greater than the Project. Project mitigation measure would apply to this alternative.	Less than the proposed Project – There would be a similar building area and slight decrease in ADT with this alternative. Direct and cumulative traffic noise level increases at on- and off-site receptors would be less than the Project, but the differences would be small. Project mitigation measure would apply to this alternative.
Threshold 4.11-4 Result in a substantial temporary or periodic increase in ambient noise levels in the Project vicinity above levels existing without the Project.	Less than significant impact with mitigation measures – Temporary increase in ambient noise due to construction including rock crushing and pile driving would occur; however, the	Less than the proposed Project – No development proposed.	Less than the proposed Project – Construction noise would be the same but shorter in duration. Project mitigation measures would apply to this alternative.	Same as the proposed Project – Construction noise impacts would be similar to the Project in magnitude and duration. Project mitigation measures would apply to this alternative.	Same as the proposed Project – Construction noise impacts would be similar to the Project in magnitude and duration. Project mitigation measures would apply to this alternative.

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Impact Category	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 Single-Family	Alternative 3 Mixed-Use	Alternative 4 Age-Qualified/Multi-Family
	impact would be less than significant at off-site sensitive receptors due to distance, traffic noise, and MMs NOI-5 and NOI-6.				
Population and Housing					
Threshold 4.12-1 Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).	Significant and unavoidable impact – Project's population growth has not been incorporated into the current long-range planning programs, and it would result in direct growth-inducing impact. Indirect growth-inducing impacts would be less than significant, as the Project would not substantially extend infrastructure and other improvements beyond what is already planned in the area. Project would improve jobs/housing ratio in a jobs-rich area by introducing 803 dwelling units.	Less than the proposed Project – No development proposed.	Same as the proposed Project – Population growth under this alternative would be less than the proposed Project, but similar to the Project, this growth would not have been considered for the site in the long-range planning programs. Similar to the Project, this alternative would not result in indirect growth-inducing impacts. Similar to the Project, but to a substantially lesser degree, this alternative would improve the existing jobs/housing ratio in a jobs-rich area by introducing 198 dwelling units.	Greater than the proposed Project – Population growth under this alternative would be less than the proposed Project, but similar to the Project, this growth would not have been considered for the site in the long-range planning programs. Similar to the Project, this alternative would not result in indirect growth-inducing impacts. Similar to the Project, but to a substantially lesser degree, this alternative would improve the existing jobs/housing ratio in a jobs-rich area by introducing 573 dwelling units; however, it would not as effectively reduce the jobs/housing imbalance, as it would also add a total of 818 jobs to the area. As a result, it would contribute to the jobs/housing imbalance in the area.	Slightly less than the proposed Project – Population growth under this alternative would be less than the proposed Project, but similar to the Project, this growth would not have been considered for the site in the long-range planning programs. Similar to the Project, this alternative would not result in indirect growth-inducing impacts. Similar to the Project, but to a substantially lesser degree, this alternative would improve the existing jobs/housing ratio in a jobs-rich area by introducing 700 dwelling units; however, it would also contribute to jobs/housing imbalance by generating 90 jobs in the area.

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Impact Category	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 Single-Family	Alternative 3 Mixed-Use	Alternative 4 Age-Qualified/Multi-Family
Public Services					
Threshold 4.13-1 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:					
(i) Fire protection	Less than significant impact with development requirements – Project would create typical range of service calls for residential developments, including structural fires; emergency medical and rescue services; and hazardous materials inspections and response. No new or physically altered fire facilities that would result in substantial impacts would be required. DR HAZ-4 and DRs FIRE-1 through FIRE-5 would apply.	Less than the proposed Project – No development proposed.	Less than the proposed Project – Less demand for fire protection services due to reduced population. Project development requirements would apply to this alternative.	Same as the proposed Project – Fewer fire protection impacts due to reduced population, but added commercial uses would increase demand for fire protection services. Project development requirements would apply to this alternative.	Greater than the proposed Project – Fewer fire protection impacts due to reduced population, but potential for an increased number of emergency calls due to the age of the population. Project development requirements would apply to this alternative.
(ii) Police protection	Less than significant impact with development requirements – Project	Less than the proposed Project – No development proposed.	Less than the proposed Project – Less demand for police protection services	Same as the proposed Project – Fewer police protection impacts due to	Less than the proposed Project – Less demand for police protection services

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Impact Category	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 Single-Family	Alternative 3 Mixed-Use	Alternative 4 Age-Qualified/Multi-Family
	would increase demand for police protection services, but the increase would not require new facilities. DR FIRE-4 would apply.		due to reduced population. Project development requirement would apply to this alternative.	reduced population, but added commercial uses would increase demand for police protection services. Project development requirement would apply to this alternative.	due to reduced population. Project development requirement would apply to this alternative.
(iii) Schools	Less than significant impact with payment of State-mandated school fees – Project would generate students in the IUSD, but would be required to comply with payment of State-mandated school fees. Provision of portable classrooms may be required, but his would not exceed student capacity IUSD guidelines for new schools.	Less than the proposed Project – No development proposed.	Less than the proposed Project – Less demand for schools due to reduced population and fewer students generated as a result of this alternative. Alternative would comply with payment of State-mandated school fees.	Less than the proposed Project – Less demand for schools due to reduced population and fewer students generated as a result of this alternative. Alternative would comply with payment of State-mandated school fees.	Less than the proposed Project – Less demand for schools due to reduced population and fewer students generated as a result of this alternative (only Planning Area 2 would generate students, as Planning Area 1 would include age-qualified units). Alternative would comply with payment of State-mandated school fees.
(iv) Other Public Facilities	Less than significant impact – Project would generate an additional demand on the OC Public Library. But, the County has not established a service standard and no such standard has been set forth by the American Library Association. The focus is on incorporating electronic materials (e-materials). There are no plans to construct new	Less than the proposed Project – No development proposed.	Less than the proposed Project – Less impacts to other public services (libraries) due to reduced population and less demand for library services.	Less than the proposed Project – Less impacts to other public services (libraries) due to reduced population and less demand for library services.	Less than the proposed Project – Less impacts to other public services (libraries) due to reduced population and less demand for library services.

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Impact Category	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 Single-Family	Alternative 3 Mixed-Use	Alternative 4 Age-Qualified/Multi-Family
	libraries to serve the Project area. Therefore, the Project would not, in and of itself, trigger the construction of new or expanded library facilities.				
Recreation					
Threshold 4.14-1 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.	Significant and unavoidable impact (short-term) – Project would provide parkland in accordance with the provisions of the West Alton Parcel Development Plan (DR REC-1). But, there is potential for a temporary shortage of parkland should the development within Planning Area 1 occur prior to construction of the proposed park within the LIFOC area. Also, in the event of an interim shortfall of parkland, there would be no assurances that the Project would not result in a deterioration of the parkland in area. Since the County has no control on the issuance of FOST, this would be considered a potential short-term	Less than the proposed Project – No development proposed.	Less than the proposed Project – Reduced demand on parks and amenities due to reduced population. This alternative would provide parkland in accordance with the provisions of the West Alton Parcel Development Plan (DR REC-1). Unlike the Project, this alternative would not result in a shortage of parkland even if development in Planning Area 1 occurs prior to issuance of FOST and construction of the proposed park within the LIFOC area, as there is sufficient parkland to meet the demand.	Less than the proposed Project – Reduced demand on parks and amenities due to reduced population. This alternative would provide parkland in accordance with the provisions of the West Alton Parcel Development Plan (DR REC-1). Similar to the Project, there is potential for a temporary shortage of parkland should the development within Planning Area 1 occur prior to construction of the proposed park within the LIFOC area. Also, in the event of an interim shortfall of parkland, there would be no assurances that the Project would not result in a deterioration of the parkland in area. Since the County has no control on the issuance of FOST,	Less than the proposed Project – Reduced demand on parks and amenities due to reduced population. This alternative would provide parkland in accordance with the provisions of the West Alton Parcel Development Plan (DR REC-1). Similar to the Project, there is potential for a temporary shortage of parkland should the development within Planning Area 1 occur prior to construction of the proposed park within the LIFOC area. Also, in the event of an interim shortfall of parkland, there would be no assurances that the Project would not result in a deterioration of the parkland in area. Since the County has no control on the issuance of FOST,

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Impact Category	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 Single-Family	Alternative 3 Mixed-Use	Alternative 4 Age-Qualified/Multi-Family
	significant and unavoidable impact.			this would be considered a potential short-term significant and unavoidable impact.	this would be considered a potential short-term significant and unavoidable impact.
Threshold 4.14-2 Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.	Less than significant impact – Project would include recreational facilities and amenities through a system of parks and open space meeting the needs of future residents. No expansion of existing recreational facilities would occur.	Less than the proposed Project – No development proposed.	Less than the proposed Project – Reduced demand for parkland due to reduced residential population. No expansion of existing recreational facilities would occur. Project development requirement would apply to this alternative.	Less than the proposed Project – Reduced demand for parkland due to reduced residential population. No expansion of existing recreational facilities would occur. Project development requirement would apply to this alternative.	Less than the proposed Project – Reduced demand on due to reduced residential population. No expansion of existing recreational facilities would occur. Project development requirement would apply to this alternative.
Transportation/ Traffic					
CITY OF IRVINE **Threshold 4.15-1** In the City of Irvine outside the Irvine Planning Area, Irvine Business Complex (IBC), the Bake Parkway/I-5 ramp, the Alton Parkway/Irvine Boulevard intersection, the Bake Parkway/Irvine Boulevard intersection, the Lake Forest/I-5 SB Ramp, and the Lake Forest/Irvine Center Drive, the addition of Project-generated trips increases the ICU at a study intersection by 0.02 or more of capacity, causing the intersection to change from an acceptable LOS D to LOS E or LOS F. **Threshold 4.15-2** In the City of Irvine not addressed by Threshold 4.15-1, the addition of	Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, Post-2035 Plus Project, and Post-2035 Plus Project with Pending Project Scenario (Cumulative): no impact – No impact to City of Irvine thresholds of significance in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios. 2035 Plus Project with Pending Project Scenario (Cumulative): significant and unavoidable impact with development requirements and	Less than the proposed Project – Alternative 1 would have no impact under the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, Post-2035 Plus Project, and Post-2035 Plus Project with Pending Project scenarios, similar to the proposed Project. However, Alternative 1 would also have no impact under the 2035 Plus Project with Pending Project scenario, which would result in less impacts than the proposed Project.	Same as the proposed Project – No impact to City of Irvine thresholds of significance in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios.	Same as the proposed Project – No impact to City of Irvine thresholds of significance in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios.	Same as the proposed Project – No impact to City of Irvine thresholds of significance in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios.

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Project-generated trips increases the ICU at a study intersection by 0.02 or more of capacity, causing the intersection to change from an acceptable LOS E to LOS F. **Threshold 4.15-3** In the City of Irvine outside of the Irvine Planning Area, Irvine Business Complex (IBC), the Bake Parkway/I-5 ramp, the Alton Parkway/Irvine Boulevard intersection, the Bake Parkway/Irvine Boulevard intersection, the Lake Forest/I-5 SB Ramp, and the Lake Forest/Irvine Center Drive, the addition of project-generated trips increases the ICU by 0.02 or more at a study intersection operating at LOS E or F under baseline conditions. **Threshold 4.15-4** In the City of Irvine outside of those identified by Threshold T-3, the addition of project-generated trips increases the ICU by 0.02 or more at a study intersection operating at LOS F under baseline conditions. **Threshold 4.15-5** In the City of Irvine outside of PA33 (Irvine Spectrum Area) and PA36 (IBC), the addition of project generated trips increases the daily and peak hour V/C ratio on a roadway segment by more than 0.02 on a roadway segment, causing the	mitigation measures – Project would contribute to a significant cumulative impact at the Jamboree Road northbound ramps and Warner Avenue intersection. DR TRAN-3 and MMs TRAN-1 and TRAN-3 would apply.				

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roadway segment to change from an acceptable LOS D or better to LOS E or F. **Threshold 4.15-6** In the City of Irvine in PA33 (Irvine Spectrum Area) and PA36 (IBC), the addition of project generated trips increases the daily and peak hour V/C ratio on a roadway segment by more than 0.02 on a roadway segment, causing the roadway segment to change from an acceptable LOS E or better to LOS F. **Threshold 4.15-7** In the City of Irvine outside of PA33 (Irvine Spectrum Area) and PA36 (IBC), the addition of project generated trips increases the daily and peak hour V/C ratio on a roadway segment by more than 0.02 on a roadway segment operating at LOS E or F. **Threshold 4.15-8** In the City of Irvine in PA33 (Irvine Spectrum Area) and PA36 (IBC), the addition of project generated trips increases the daily and peak hour V/C ratio on a roadway segment by more than 0.02 on a roadway segment operating at LOS F. **Threshold 4.15-9** In the City of Irvine, the addition of project generated trips increases the V/C ratio on a freeway ramp to increase by more than 0.02, causing					

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the freeway ramp segment to change from an acceptable LOS E or better to LOS F. **Threshold 4.15-10** In the City of Irvine, the addition of project generated trips increases the V/C ratio on a freeway ramp to increase by more than 0.02, on a freeway ramp segment operating at LOS F.					
CITY OF TUSTIN **Threshold 4.15-11** In the City of Tustin, the addition of project-generated trips increases the ICU at a study intersection by 0.02 or more of capacity, causing the intersection to change from an acceptable LOS D to LOS E or LOS F. **Threshold 4.15-12** In the City of Tustin, the addition of project-generated trips increases the ICU by 0.02 or more at a study intersection operating at LOS E or F under baseline conditions. **Threshold 4.15-13** In the City of Tustin, the addition of project generated trips increases the daily and peak hour V/C ratio on a roadway segment by more than 0.02 on a roadway segment, causing the roadway segment to change from an acceptable LOS D or better to LOS E or F.	No impact – No impact to City of Tustin thresholds of significance in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios.	Same as the proposed Project – No development proposed.	Same as the proposed Project – No impact to City of Tustin thresholds of significance in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios.	Same as the proposed Project – No impact to City of Tustin thresholds of significance in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios.	Same as the proposed Project – No impact to City of Tustin thresholds of significance in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios.

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Impact Category	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 Single-Family	Alternative 3 Mixed-Use	Alternative 4 Age-Qualified/Multi-Family
Threshold 4.15-14 In the City of Tustin, the addition of project generated trips increases the daily and peak hour V/C ratio on a roadway segment by more than 0.02 on a roadway segment operating at LOS E or F. **Threshold 4.15-15** In the City of Tustin, the addition of project generated trips increases the V/C ratio on a freeway ramp to increase by more than 0.02, causing the freeway ramp segment to change from an acceptable LOS E or better to LOS F. **Threshold 4.15-16** In the City of Tustin, the addition of project generated trips increases the V/C ratio on a freeway ramp to increase by more than 0.02, on a freeway ramp segment operating at LOS F.					
CITY OF LAGUNA BEACH **Threshold 4.15-17** In the City of Laguna Beach, the addition of project-generated trips increases the ICU at a study intersection by 0.02 or more of capacity, causing the intersection to change from an acceptable LOS D to LOS E or LOS F. **Threshold 4.15-18** In the City of Laguna Beach, the addition of project-generated trips	No impact – No impact to City of Laguna Beach thresholds of significance in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios.	Same as the proposed Project – No development proposed.	Same as the proposed Project – No impact to City of Laguna Beach thresholds of significance in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios.	Same as the proposed Project – No impact to City of Laguna Beach thresholds of significance in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios.	Same as the proposed Project – No impact to City of Laguna Beach thresholds of significance in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios.

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COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS

Impact Category	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 Single-Family	Alternative 3 Mixed-Use	Alternative 4 Age-Qualified/Multi-Family
increases the ICU by 0.02 or more at a study intersection operating at LOS E or F under baseline conditions. **Threshold 4.15-19** In the City of Laguna Beach, the addition of project generated trips increases the daily and peak hour V/C ratio on a roadway segment by more than 0.02 on a roadway segment, causing the roadway segment to change from an acceptable LOS D or better to LOS E or F. **Threshold 4.15-20** In the City of Laguna Beach, the addition of project generated trips increases the daily and peak hour V/C ratio on a roadway segment by more than 0.02 on a roadway segment operating at LOS E or F. **Threshold 4.15-21** In the City of Laguna Beach, the addition of project generated trips increases the V/C ratio on a freeway ramp to increase by more than 0.02, causing the freeway ramp segment to change from an acceptable LOS E or better to LOS F. **Threshold 4.15-22** In the City of Laguna Beach, the addition of project generated trips increases the V/C ratio on a freeway ramp to increase by more than 0.02,					

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COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS

Impact Category	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 Single-Family	Alternative 3 Mixed-Use	Alternative 4 Age-Qualified/Multi-Family
on a freeway ramp segment operating at LOS F.					
CITY OF LAKE FOREST **Threshold 4.15-23** In the City of Lake Forest, the addition of Project-generated trips increases the ICU at a study intersection by 0.02 or more of capacity, causing the intersection to change from an acceptable LOS D to LOS E or LOS F. **Threshold 4.15-24** In the City of Lake Forest, the addition of Project-generated trips increases the ICU by 0.02 or more at a study intersection operating at LOS E or F under baseline conditions. **Threshold 4.15-25** In the City of Lake Forest, the addition of Project-generated trips increases the daily and peak hour V/C ratio by more than 0.02 on a roadway segment, causing the roadway segment to change from an acceptable LOS D or better to LOS E or F. **Threshold 4.15-26** In the City of Lake Forest, the addition of Project-generated trips increases the daily and peak hour V/C ratio by more than 0.02 on a roadway segment operating at LOS E or F.	No impact – No impact to City of Lake Forest thresholds of significance in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios.	Same as the proposed Project – No development proposed.	Same as the proposed Project – No impact to City of Lake Forest thresholds of significance in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios.	Same as the proposed Project – No impact to City of Lake Forest thresholds of significance in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios.	Same as the proposed Project – No impact to City of Lake Forest thresholds of significance in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios.

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COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS

Impact Category	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 Single-Family	Alternative 3 Mixed-Use	Alternative 4 Age-Qualified/Multi-Family
Threshold 4.15-27 In the City of Lake Forest, the addition of Project-generated trips increases the V/C ratio on a freeway ramp by more than 0.02, causing the freeway ramp segment to change from an acceptable LOS E or better to LOS F. **Threshold 4.15-28** In the City of Lake Forest, the addition of Project-generated trips increases the V/C ratio by more than 0.02 on a freeway ramp segment operating at LOS F.					
CITY OF LAGUNA HILLS **Threshold 4.15-29** In the City of Laguna Hills, the addition of Project-generated trips increases the ICU at a study intersection by 0.02 or more of capacity, causing the intersection to change from an acceptable LOS D to LOS E or LOS F. **Threshold 4.15-30** In the City of Laguna Hills, the addition of Project-generated trips increases the ICU by 0.02 or more at a study intersection operating at LOS E or F under baseline conditions. **Threshold 4.15-31** In the City of Laguna Hills, the addition of Project-generated trips increases the daily and peak hour	No impact – No impact to City of Laguna Hills thresholds of significance in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios.	Same as the proposed Project – No development proposed.	Same as the proposed Project – No impact to City of Laguna Hills thresholds of significance in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios.	Same as the proposed Project – No impact to City of Laguna Hills thresholds of significance in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios.	Same as the proposed Project – No impact to City of Laguna Hills thresholds of significance in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios.

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COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS

Impact Category	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 Single-Family	Alternative 3 Mixed-Use	Alternative 4 Age-Qualified/Multi-Family
V/C ratio on a roadway segment by more than 0.02, causing the roadway segment to change from an acceptable LOS D or better to LOS E or F. **Threshold 4.15-32** In the City of Laguna Hills, the addition of Project-generated trips increases the V/C ratio on a roadway segment by more than 0.02 operating at LOS E or F. **Threshold 4.15-33** In the City of Laguna Hills, the addition of Project-generated trips increases the V/C ratio on a freeway ramp by more than 0.02, causing the freeway ramp segment to change from an acceptable LOS E or better to LOS F. **Threshold 4.15-34** In the City of Laguna Hills, the addition of Project-generated trips increases the V/C ratio by more than 0.02 on a freeway ramp segment operating at LOS F.					
CITY OF LAGUNA WOODS **Threshold 4.15-35** In the City of Laguna Woods, the addition of Project-generated trips increases the ICU at a study intersection by 0.02 or more of capacity, causing the intersection to change from an acceptable LOS D to LOS E or LOS F.	No impact – No impact to City of Laguna Woods thresholds of significance in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios.	Same as the proposed Project – No development proposed.	Same as the proposed Project – No impact to City of Laguna Woods thresholds of significance in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios.	Same as the proposed Project – No impact to City of Laguna Woods thresholds of significance in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios.	Same as the proposed Project – No impact to City of Laguna Woods thresholds of significance in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios.

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COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS

Impact Category	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 Single-Family	Alternative 3 Mixed-Use	Alternative 4 Age-Qualified/Multi-Family
Threshold 4.15-36 In the City of Laguna Woods, the addition of Project-generated trips increases the ICU by 0.02 or more at a study intersection operating at LOS E or F under baseline conditions. **Threshold 4.15-37** In the City of Laguna Woods, the addition of Project-generated trips increases the daily and peak hour V/C ratio by more than 0.02 on a roadway segment, causing the roadway segment to change from an acceptable LOS D or better to LOS E or F. **Threshold 4.15-38** In the City of Laguna Woods, the addition of Project-generated trips increases the daily and peak hour V/C ratio by more than 0.02 on a roadway segment operating at LOS E or F. **Threshold 4.15-39** In the City of Laguna Woods, the addition of Project-generated trips increases the V/C ratio on a freeway ramp by more than 0.02, causing the freeway ramp segment to change from an acceptable LOS E or better to LOS F. **Threshold 4.15-40** In the City of Laguna Woods, the addition of Project-generated trips					

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Impact Category	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 Single-Family	Alternative 3 Mixed-Use	Alternative 4 Age-Qualified/Multi-Family
increases the V/C ratio by more than 0.02 on a freeway ramp segment operating at LOS F.					
CITY OF ALISO VIEJO **Threshold 4.15-41** In the City of Aliso Viejo, the addition of Project-generated trips increases the ICU at a study intersection by 0.02 or more of capacity, causing the intersection to change from an acceptable LOS D to LOS E or LOS F. **Threshold 4.15-42** In the City of Aliso Viejo, the addition of Project-generated trips increases the ICU by 0.02 or more at a study intersection operating at LOS E or F under baseline conditions. **Threshold 4.15-43** In the City of Aliso Viejo, the addition of Project-generated trips increases the daily and peak hour V/C ratio by more than 0.02 on a roadway segment, causing the roadway segment to change from an acceptable LOS D or better to LOS E or F. **Threshold 4.15-44** In the City of Aliso Viejo, the addition of Project generated trips increases the daily and peak hour V/C ratio by more than 0.02 on a roadway segment operating at LOS	No impact – No impact to City of Aliso Viejo thresholds of significance in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios.	Same as the proposed Project – No development proposed.	Same as the proposed Project – No impact to City of Aliso Viejo thresholds of significance in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios.	Same as the proposed Project – No impact to City of Aliso Viejo thresholds of significance in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios.	Same as the proposed Project – No impact to City of Aliso Viejo thresholds of significance in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios.

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Impact Category	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 Single-Family	Alternative 3 Mixed-Use	Alternative 4 Age-Qualified/Multi-Family
E or F. **Threshold 4.15-45** In the City of Aliso Viejo, the addition of Project-generated trips increases the V/C ratio on a freeway ramp by more than 0.02, causing the freeway ramp segment to change from an acceptable LOS E or better to LOS F. **Threshold 4.15-46** In the City of Aliso Viejo, the addition of Project-generated trips increases the V/C ratio by more than 0.02, on a freeway ramp segment operating at LOS F.					
CITY OF MISSION VIEJO **Threshold 4.15-47** In the City of Mission Viejo, the addition of Project-generated trips increases the ICU at a study intersection by 0.02 or more of capacity, causing the intersection to change from an acceptable LOS D to LOS E or LOS F. **Threshold 4.15-48** In the City of Mission Viejo, the addition of Project-generated trips increases the ICU by 0.02 or more at a study intersection operating at LOS E or F under baseline conditions. **Threshold 4.15-49** In the City of Mission Viejo, the	No impact – No impact to City of Mission Viejo thresholds of significance in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios.	Same as the proposed Project – No development proposed.	Same as the proposed Project – No impact to City of Mission Viejo thresholds of significance in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios.	Same as the proposed Project – No impact to City of Mission Viejo thresholds of significance in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios.	Same as the proposed Project – No impact to City of Mission Viejo thresholds of significance in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios.

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COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS

Impact Category	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 Single-Family	Alternative 3 Mixed-Use	Alternative 4 Age-Qualified/Multi-Family
addition of Project-generated trips increases the daily and peak hour V/C ratio by more than 0.02 on a roadway segment, causing the roadway segment to change from an acceptable LOS D or better to LOS E or F. **Threshold 4.15-50** In the City of Mission Viejo, the addition of Project-generated trips increases the daily and peak hour V/C ratio by more than 0.02 on a roadway segment operating at LOS E or F. **Threshold 4.15-51** In the City of Mission Viejo, the addition of Project-generated trips increases the V/C ratio on a freeway ramp by more than 0.02, causing the freeway ramp segment to change from an acceptable LOS E or better to LOS F. **Threshold 4.15-52** In the City of Mission Viejo, the addition of Project-generated trips increases the V/C ratio by more than 0.02 on a freeway ramp segment operating at LOS F.					
CITY OF ORANGE **Threshold 4.15-53** In the City of Orange, the addition of Project-generated trips increases the ICU at a study intersection by 0.02 or more of capacity, causing the	No impact – No impact to City of Orange thresholds of significance in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project	Same as the proposed Project – No development proposed.	Same as the proposed Project – No impact to City of Orange thresholds of significance in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and	Same as the proposed Project – No impact to City of Orange thresholds of significance in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and	Same as the proposed Project – No impact to City of Orange thresholds of significance in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and

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Impact Category	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 Single-Family	Alternative 3 Mixed-Use	Alternative 4 Age-Qualified/Multi-Family
intersection to change from an acceptable LOS D to LOS E or LOS F. **Threshold 4.15-54** In the City of Orange, the addition of Project-generated trips increases the ICU by 0.02 or more at a study intersection operating at LOS E or F under baseline conditions. **Threshold 4.15-55** In the City of Orange, the addition of Project-generated trips increases the daily and peak hour V/C ratio by more than 0.02 on a roadway segment, causing the roadway segment to change from an acceptable LOS D or better to LOS E or F. **Threshold 4.15-56** In the City of Orange, the addition of Project-generated trips increases the daily and peak hour V/C ratio by more than 0.02 on a roadway segment operating at LOS E or F. **Threshold 4.15-57** In the City of Orange, the addition of Project-generated trips increases the V/C ratio on a freeway ramp by more than 0.02, causing the freeway ramp segment to change from an acceptable LOS E or better to LOS F. **Threshold 4.15-58** In the City of Orange, the addition of Project-generated trips increases the V/C ratio by more than 0.02 on a	scenarios.		Post-2035 Plus Project scenarios.	Post-2035 Plus Project scenarios.	Post-2035 Plus Project scenarios.

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Impact Category	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 Single-Family	Alternative 3 Mixed-Use	Alternative 4 Age-Qualified/Multi-Family
freeway ramp segment operating at LOS F.					
COUNTY OF ORANGE **Threshold 4.15-59** In the County of Orange, the addition of Project-generated trips increases the ICU at a study intersection by 0.01 or more of capacity, causing the intersection to change from an acceptable LOS D to LOS E or LOS F. **Threshold 4.15-60** In the County of Orange, the addition of Project-generated trips increases the ICU by 0.01 or more at a study intersection operating at LOS E or F under baseline conditions. **Threshold 4.15-61** In the County of Orange, the addition of Project-generated trips increases the daily and peak hour V/C ratio by more than 0.01 on a roadway segment, causing the roadway segment to change from an acceptable LOS D or better to LOS E or F. **Threshold 4.15-62** In the County of Orange, the addition of Project-generated trips increases the daily and peak hour V/C ratio by more than 0.01 on a roadway segment operating at LOS E or F.	No impact – No impact to County of Orange thresholds of significance in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios.	Same as the proposed Project – No development proposed.	Same as the proposed Project – No impact to County of Orange thresholds of significance in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios.	Same as the proposed Project – No impact to County of Orange thresholds of significance in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios.	Same as the proposed Project – No impact to County of Orange thresholds of significance in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios.

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Impact Category	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 Single-Family	Alternative 3 Mixed-Use	Alternative 4 Age-Qualified/Multi-Family
Threshold 4.15-63 In the County of Orange, the addition of Project-generated trips increases the V/C ratio on a freeway ramp by more than 0.01, causing the freeway ramp segment to change from an acceptable LOS E or better to LOS F. **Threshold 4.15-64** In the County of Orange, the addition of Project-generated trips increases the V/C ratio by more than 0.01 on a freeway ramp segment operating at LOS F.					
CALTRANS **Threshold 4.15-65** The addition of Project-generated trips causes the LOS at a study intersection to degrade from LOS A, B, or C to D, E, or F (as measured by the application of the HCM methodologies). **Threshold 4.15-66** The addition of Project-generated trips causes any increase in delay at a study intersection (as measured by the application of HCM methodologies) where the intersection operates at LOS D, E, or F prior to the addition of Project traffic. **Threshold 4.15-67** The addition of Project-generated	Significant and unavoidable impacts – Impacts pursuant to Caltrans thresholds of significance in the Existing Plus Project scenario; impacts at one intersection and six mainline freeway segments. Year 2017 Plus Project: impact at three intersections (HCM). No impacts at freeway ramps and mainline segments. Year 2035 Plus Project: impact at eight intersections (HCM). One impact at mainline segments.	Less than the proposed Project – No development proposed.	Less than the proposed Project – Under Existing Plus Project/Alternative scenario, less impacts at one intersection (HCM), and same impact at freeway ramps and mainline segment for this alternative compared to the proposed Project. Under Year 2017 Plus Project/Alternative scenario, same impact at intersections (HCM), freeway ramps, and mainline segments for this alternative compared to the proposed Project. Under the Year 2035 Plus Project/Alternative scenario, same impact at	Greater than the proposed Project – Under Existing Plus Project/Alternative scenario, more impact at two intersections (HCM), and same impact at freeway ramps and mainline segment for this alternative compared to the proposed Project. Under Year 2017 Plus Project/Alternative scenario, more impact at one intersection (HCM) and same impact at freeway ramps and mainline segments for this alternative compared to the Project. Under the Year 2035 Plus	Less than the proposed Project – Under Existing Plus Project/Alternative scenario, less impact at one intersection (HCM) and same impact freeway ramps and mainline segments for this alternative compared to the proposed Project. Under Year 2017 Plus Project/Alternative scenario, less impact at one intersection (HCM), and same impact at freeway ramps and mainline segment for this alternative compared to the proposed Project. Under the Year 2035 Plus Project/Alternative

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Impact Category	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 Single-Family	Alternative 3 Mixed-Use	Alternative 4 Age-Qualified/Multi-Family
trips increases the V/C on a freeway mainline by more than 0.03, and causes the LOS to degrade from LOS A, B, C, D, or E to LOS F. **Threshold 4.15-68** The addition of project-generated trips increases the V/C on a freeway mainline by more than 0.03 on a facility operating at LOS F prior to the addition of Project traffic.	Post-2035 Plus Project: impact at eight intersections (HCM). No impacts at mainline segments. Year 2035 With Pending Projects and Post-2035 With Pending Projects: impacts at five and eight intersections (HCM), respectively; no freeway ramps; and no mainline segments.		intersections (HCM), freeway ramps, and mainline segments for this alternative compared to the proposed Project. Under Post-2035 Plus Project/Alternative scenario, less impact at three intersections (HCM), and same impacts at freeway ramps and mainline segments for this alternative compared to the proposed Project. Under the Year 2035 Plus Project/Alternative Plus Pending Projects scenario, less impact at one intersection (ICU); less impacts at two intersections (HCM); same impact at freeway ramps; and more impact at one mainline segment for this alternative compared to the proposed Project. Under the Post-2035 Plus Project/Alternative Plus Pending Projects scenario, less impacts at one intersection (HCM), and same impact at freeway ramps and mainline segments for	Project/Alternative scenario, less impact at two intersections (HCM), and same impact at freeway ramps and mainline segment for this alternative compared to the proposed Project. Under Post-2035 Plus Project/Alternative scenario, more impacts at two intersections (HCM); more impacts at one freeway ramp; and same impact at mainline segment for this alternative compared to the proposed Project. Under the Year 2035 Plus Project/Alternative Plus Pending Projects scenario, less impact at one intersection (ICU); less impact at four intersections (HCM); and same impact at one freeway ramp and mainline segments for this alternative compared to the proposed Project. Under the Post-2035 Plus Project/Alternative Plus Pending Projects scenario, less impacts at two intersections (HCM),	scenario, less impact at two intersections (HCM), and same impact at freeway ramps and mainline segment for this alternative compared to the proposed Project. Under the Post-2035 Plus Project/Alternative scenario, less impact at two intersections (HCM), and same impact at freeway ramps and mainline segments for this alternative compared to the proposed Project. Under the Year 2035 Plus Project/Alternative Plus Pending Projects scenario, less impact at one intersection (ICU), less impact at three intersections (HCM), and same impact at freeway ramps and mainline segment for this alternative compared to the proposed Project. Under the Post-2035 Plus Project/Alternative Plus Pending Projects scenario, more impacts at one at one intersection (HCM), and same impacts at freeway ramps and

TABLE 5-5
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Impact Category	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 Single-Family	Alternative 3 Mixed-Use	Alternative 4 Age-Qualified/Multi-Family
			this alternative compared to the proposed Project.	and same impact at freeway ramps and mainline segment for this alternative compared to the proposed Project.	mainline segments for this alternative compared to the proposed Project.
OCTA CMP **Threshold 4.15-69** The addition of Project-generated trips causes the LOS at a study intersection in the Orange County Transportation Authority Congestion Management Program to change from an acceptable LOS E to LOS F. **Threshold 4.15-70** The addition of Project-generated trips increases the ICU by 0.03 or more at a study intersection operating at LOS F under baseline conditions. **Threshold 4.15-71** The Project will not conflict with an applicable congestion management program, including, but not limited to LOS standard and travel demand measures, or other standards established by the County congestion management agency for designated roads or highways.	No impact – Project trips would not increase the ICU by 0.03 or more at a CMP study intersection operating at LOS F under baseline conditions. No conflict with applicable CMP standards.	Same as the proposed Project – No development proposed.	Same as the proposed Project – Project trips would not increase the ICU by 0.03 or more at a CMP study intersection operating at LOS F under baseline conditions. No conflict with applicable CMP standards.	Same as the proposed Project – Project trips would not increase the ICU by 0.03 or more at a CMP study intersection operating at LOS F under baseline conditions. No conflict with applicable CMP standards.	Same as the proposed Project – Project trips would not increase the ICU by 0.03 or more at a CMP study intersection operating at LOS F under baseline conditions. No conflict with applicable CMP standards.

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Impact Category	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 Single-Family	Alternative 3 Mixed-Use	Alternative 4 Age-Qualified/Multi-Family
CEQA THRESHOLDS **Threshold 4.15-72** The Project will not substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).	Less than significant impact with development requirements – With implementation of development requirements, Project traffic would not result in a significant hazards impact due to a design feature. Circulation Design Guidelines in the Development Plan would help reduce any potentially significant impacts. DRs TRAN-4 and TRAN-5 would apply.	Less than the proposed Project – No development proposed.	Same as the proposed Project – With implementation of development requirements, Project traffic would not result in a significant hazards impact due to a design feature. Circulation Design Guidelines in the Development Plan would help reduce any potentially significant impacts. Project development requirements would apply to this alternative.	Same as the proposed Project – With implementation of development requirements, Project traffic would not result in a significant hazards impact due to a design feature. Circulation Design Guidelines in the Development Plan would help reduce any potentially significant impacts. Project development requirements would apply to this alternative.	Same as the proposed Project – With implementation of development requirements, Project traffic would not result in a significant hazards impact due to a design feature. Circulation Design Guidelines in the Development Plan would help reduce any potentially significant impacts. Project development requirements would apply to this alternative.
Threshold 4.15-73 The Project will not result in inadequate emergency access.	Less than significant impact – Project planned to be consistent with applicable emergency access requirements.	Less than the proposed Project - No development proposed.	Same as the proposed Project – Project planned to be consistent with applicable emergency access requirements.	Same as the proposed Project – Project planned to be consistent with applicable emergency access requirements.	Same as the proposed Project – Project planned to be consistent with applicable emergency access requirements.
Threshold 4.15-74 The Project will not conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.	Less than significant impact with development requirements – No conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities or decrease performance or safety of such facilities. DR TRAN-2 would apply.	Less than the proposed Project – No development proposed.	Same as the proposed Project – No conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities or decrease performance or safety of such facilities. Project development requirement would apply to this alternative.	Same as the proposed Project – No conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities or decrease performance or safety of such facilities. Project development requirement would apply to this alternative.	Same as the proposed Project – No conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities or decrease performance or safety of such facilities. Project development requirement would apply to this alternative.

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Utilities and Service Systems					
Threshold 4.16-1 Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.	Less than significant impact – Project would be required to comply with all applicable wastewater discharge requirements, as enforced by the Santa Ana RWQCB, and it would not exceed wastewater treatment requirements.	Less than the proposed Project – No development proposed.	Less than the proposed Project – Reduced demand due to reduced population. Would comply with applicable requirements and would not exceed regional requirements.	Less than the proposed Project – Reduced demand due to reduced population. Would comply with applicable requirements and would not exceed regional requirements.	Less than the proposed Project – Reduced demand due to reduced population. Would comply with applicable requirements and would not exceed regional requirements.
Threshold 4.16-2 Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental impacts.	Less than significant impact – Project demand for potable and nonpotable water could be met by existing infrastructure. Wastewater generated by Project would exceed the capacity of the IRWD Reach B sewer line, which IRWD has identified as having an existing deficiency. A Water Supply Verification has been issued by IRWD indicating IRWD has sufficient capacity and will provide required water and wastewater services. Additionally, the deficiencies would be addressed by implementation of IRWD's Capital Improvement Program. Also, the Project would be	Less than the proposed Project – No development proposed.	Less than the proposed Project – Reduced demand due to reduced population. Construction of new facilities is not required. Similar to the Project, impact would be less than significant.	Less than the proposed Project – Reduced demand due to reduced population. Construction of new facilities is not required. Similar to the Project, impact would be less than significant.	Less than the proposed Project – Reduced demand due to reduced population. Construction of new facilities is not required. Similar to the Project, impact would be less than significant.

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Impact Category	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 Single-Family	Alternative 3 Mixed-Use	Alternative 4 Age-Qualified/Multi-Family
	required to construct sewer lines and local collection facilities. Wastewater flows from the Project would be accommodated.				
Threshold 4.16-3 Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which would cause significant environmental effects.	Less than significant impact with development requirements in Section 4.9, Hydrology and Water Quality – The Project would require construction of new storm drain systems, including private storm drain lines on-site and connection to existing storm drain lines off-site to provide adequate drainage for the Project site. Construction of new storm drain facilities would result in a less than significant impact. Development requirements in Section 4.9 would apply.	Less than the proposed Project – No development proposed.	Less than the proposed Project development requirements in Section 4.9, Hydrology and Water Quality – Reduced demand due to reduced population. Construction of new facilities is not required. Proposed development requirements apply to this alternative.	Less than the proposed Project development requirements in Section 4.9, Hydrology and Water Quality – Reduced demand due to reduced population. Construction of new facilities is not required. Proposed development requirements apply to this alternative.	Less than the proposed Project development requirements in Section 4.9, Hydrology and Water Quality – Reduced demand due to reduced population. Construction of new facilities is not required. Proposed development requirements apply to this alternative.
Threshold 4.16-4 Have insufficient water supplies available to serve the Project from existing entitlements and resources, or if are new or expanded entitlements are needed.	Less than significant impact – Project would require water supplies from IRWD. Per WSA, IRWD has available water supplies to meet the water demands of the Project for the next 20-years (through 2035). Additionally, a Water	Less than the proposed Project – No development proposed.	Less than the proposed Project – Reduced demand due to reduced population. Sufficient supplies exist to serve the development.	Less than the proposed Project – Reduced demand due to reduced population. Sufficient supplies exist to serve the development.	Less than the proposed Project – Reduced demand due to reduced population. Sufficient supplies exist to serve the development.

TABLE 5-5
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS

Impact Category	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 Single-Family	Alternative 3 Mixed-Use	Alternative 4 Age-Qualified/Multi-Family
	Supply Verification has been issued by IRWD indicating IRWD has sufficient capacity and will provide required water and wastewater services.				
Threshold 4.16-5 Result in a determination by the wastewater treatment provider, which serves or may serve the Project that it has inadequate capacity to serve the Project's projected demand in addition to the provider's existing commitments.	Less than significant impact with development requirement – IRWD would provide wastewater treatment service to the Project conditioned upon the County providing the construction of additional sewer trunk lines and local sewer collection facilities and necessary in-tract sewer mains. DR UTIL-1 would apply.	Less than to the proposed Project – No development proposed.	Less than the proposed Project – Reduced demand due to reduced population. Sufficient capacity exists to serve the projected demand. Project development requirement would apply to this alternative.	Less than the proposed Project – Reduced demand due to reduced population. Sufficient capacity exists to serve the projected demand. Project development requirement would apply to this alternative.	Less than the proposed Project – Reduced demand due to reduced population. Sufficient capacity exists to serve the projected demand. Project development requirement would apply to this alternative.
Threshold 4.16-6 Be served by a landfill with insufficient permitted capacity to accommodate the Project's solid waste disposal needs?	Less than significant impact – There is sufficient solid waste disposal capacity in existing landfills to meet the Project's demand for solid waste disposal.	Less than the proposed Project – No development proposed.	Less than the proposed Project – Less solid waste generated due to reduced population. Sufficient capacity exists in the existing landfills to meet the demand for solid waste disposal.	Greater than the proposed Project – Less solid waste generated due to reduced population, but more demand from commercial uses. Sufficient capacity exists in the existing landfills to meet the demand for solid waste disposal.	Less than the proposed Project – Less solid waste generated due to reduced population. Sufficient capacity exist in the existing landfills to meet the demand for solid waste disposal.

TABLE 5-5
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS

Impact Category	Proposed Project	Alternative 1 No Project/No Development	Alternative 2 Single-Family	Alternative 3 Mixed-Use	Alternative 4 Age-Qualified/Multi-Family
Threshold 4.16-7 Not comply with federal, state, and local statutes and regulations related to solid waste.	Less than significant impact with development requirement – Project would comply with applicable solid waste statues and regulations including waste diversion programs. DR UTIL-2 would apply.	Less than the proposed Project – No development proposed.	Same as the proposed Project – Would comply with the federal, State, and local statutes and regulations. Project development requirement would apply to this alternative.	Same as the proposed Project – Would comply with the federal, State, and local statutes and regulations. Project development requirement would apply to this alternative.	Same as the proposed Project – Would comply with the federal, State, and local statutes and regulations. Project development requirement would apply to this alternative.

5.5 REFERENCES

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6.0 LONG-TERM IMPLICATIONS OF THE PROJECT

6.1 SIGNIFICANT ENVIRONMENTAL EFFECTS THAT CANNOT BE MITIGATED

The environmental effects of the Proposed Project and Alternatives 1, 2, 3, and 4 are addressed in Sections 4.1 through 4.16 and Section 5.0 of this EIR. Implementation of the Project would result in potentially significant impacts for the following topical issues: air quality, land use and planning, population and housing, and transportation/traffic, as discussed in Sections 4.1 through 4.15 and summarized in Table 1-2.

6.2 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES THAT WOULD BE CAUSED BY THE PROJECT

Section 15126(c) of the State California Environmental Quality Act ("CEQA") Guidelines (14 *California Code of Regulations* ["CCR"]) requires that an EIR describe any significant irreversible environmental changes which would occur as a result of the proposed action should it be implemented. The environmental effects related to the implementation of the proposed Project are analyzed in Sections 4.1 through 4.16 of this EIR. Implementation of the proposed Project would convert existing previously developed land to the proposed medium-high density, multi-family residential and associated parks and open space uses with supporting infrastructure resulting in the long-term commitment of land resources to these uses. Construction and long-term operation of the Project would require the commitment and reduction of nonrenewable and/or slowly renewable resources, including petroleum fuels, and natural gas (for vehicle emissions, construction, lighting, heating, and cooling of structures); and lumber, sand/gravel, steel, copper, lead, and other metals (for use in the building construction, piping, and roadway infrastructure). Other resources that are slow to renew and/or recover from environmental stresses would also be impacted by Project implementation, such as air quality through the combustion of fossil fuels and production of greenhouse gases; and water supply through the increased potable water demands for drinking, cooking, cleaning, landscaping, and general maintenance needs. An increased commitment of public services and utilities (e.g., police, fire, schools, libraries, and sewer and water services) would also be required. Project development is an irreversible commitment of land, energy resources and public services. After the 50- to 75-year structural lifespan of the buildings is reached, it is improbable that the Project site would revert to its current use due to the large capital investment that will already have been committed.

6.3 GROWTH-INDUCING IMPACTS OF THE PROPOSED ACTION

Pursuant to Sections 15126(d) and 15126.2(d) of the CEQA Guidelines, this section is provided to examine: (1) ways in which the Project could foster economic or population growth and (2) the construction of additional development, either directly or indirectly, in the surrounding environment. Per Section 15126.2(d) of the State CEQA Guidelines, growth-inducing effects are not necessarily beneficial, detrimental, or of little significance to the environment. This issue is

presented to provide additional information on ways in which this Project could contribute to significant changes in the environment.

When considering growth-inducing impacts, it is important to consider the context and historical growth trends of the area. There are many factors that can affect the amount, location, and rate of growth in Orange County and the region in general. These factors include market demand for housing, employment, and commercial services; the acknowledged desirability of climate and living/working environment and commercial economy; the availability of other services/infrastructure; and the land use and growth management policies of local jurisdictions.

Orange County has experienced significant growth in population over the past 50 years. Population in the County has increased from 703,928 in 1960 to 3,010,232 in 2010 (CDR 2014). Concurrent with significant increases in population, the economic character of Orange County has dramatically changed. The predominately rural/agricultural character of Orange County has changed to a diversified commercial/industrial economy. High technology industries, biomedical facilities, retail commercial, light manufacturing, administrative and financial services, and tourism have become major components of the County's economy. In 1965, the employment-to-population ratio was 22 percent. By 2010, the ratio had increased to approximately 49 percent countywide (note this was down from 54 percent in 2008). Not only had the proportion of jobs to residents increased, but it was also based on a dramatically larger population. The growth in population and employment is projected to continue through 2040 and beyond. Based on the *Orange County Projections 2014*, developed by the CDR, between 2012 and 2040, an approximate 12.8 percent increase in population and a 24.4 percent increase in employment is projected to occur in Orange County (CDR 2014).

To address this issue, potential growth-inducing effects are examined through analysis of the following questions from CEQA Guidelines Section 15126.2(d):

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 result in generating approximately 1,598 residents. The Project does not include any employment-generating uses, and therefore, would not result in any permanent jobs on the Project site or the area.

   While the Project would have direct growth-inducing impacts, it functions as an in-fill development due to the fact that all required infrastructure is at the Project site boundary and its proximity to compatible existing or planned development. Backbone infrastructure would be provided to meet the needs of the Project but would not be extended in such a way that would induce growth in the area. Major infrastructure, beyond the improvements serving the Project site, either exists for the existing development in the area, or would be provided for the planned development projects in the area. No major extension of the infrastructure is anticipated to occur in the area beyond the Project's backbone infrastructure and what would be provided for the already planned projects. As contemplated by the Pre-Annexation Agreement, the Project includes a request that the City modify the City General Plan and Zoning, but

those changes would be specific to the proposed Project and would not remove obstacles to growth for the surrounding area.

The proposed development is in line with the collective growth within the area and part of the urbanization that has been trending toward higher density residential development. This type of growth is consistent with the general trend in the area and being promoted along Jamboree Corridor and elsewhere within the City of Irvine and in the County in general to meet the demographic and socioeconomic realities and fulfill the overall sustainability vision and goals consistent with the Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). Although the Project is not located within walking distance to the Irvine Station, it is approximately 1.7 miles northeast of Irvine Station, which can be easily accessed by way of Alton and Barranca Parkways, including via bus lines 188 and 480. This further supports the goals and policies of the RTP/SCS as a means of meeting the long-term growth demands of the region and minimizing the potential environmental impacts. The Project also helps with the area's jobs/housing imbalance by providing new affordable and market rate residential development in an area that is jobs rich.

Additionally, as the Development Plan and any regulatory changes proposed for the Project will apply exclusively to the Project site, the Project would not result in any modifications to land uses or land use policies that would facilitate the redevelopment of properties in the vicinity of the Project with more intense land uses.

2. Would this Project result in the need to expand one or more public services to maintain desired levels of service?

The proposed Project would result in a new residential population that would increase demand for public services. As discussed in Section 4.13, Public Services, the increased demand would be associated with Project demand and localized needs. However, the Project itself would not require physical improvements that would increase system-wide capacity, which could result in inducement of growth into currently undeveloped or under-served areas. Based on discussions with service providers, capacity exists and no additional facilities beyond those already planned for the area would be required as a result of the Project to maintain desired levels of service. This Project would not have significant growth-inducing consequences with respect to public services.

3. Would this Project encourage or facilitate economic effects that could result in other activities that could significantly affect the environment?

Project construction would result in a number of design, engineering, and construction-related jobs, which would last until Project construction is completed. This would provide economic stimulus in the area; however, these jobs are typically filled by existing residents of the region and would not be substantial enough to foster other activities (e.g., new-real estate development) that would have significant effects on the environment.

As discussed in Section 4.12, Population and Housing, the proposed Project would provide 1,535 new dwelling units and no jobs, as the Project does not propose any permanent employment-generating uses. This would result in a better jobs-housing

balance, as the City and region are jobs-rich. The City of Irvine and Regional Statistical Area (RSA) 44 currently exceed and are projected to continue to exceed the recommended target jobs/housing ratio. Thus, with the proposed 803 dwelling units the Project would improve the existing job/housing ratio in the City and the region by contributing to the City's housing stock and providing new affordable and market rate housing units located within a major employment-rich area (nearby Irvine Spectrum).

As the Project does not have a commercial component that would render the proposed community self-sufficient, the Project would partake of the existing and planned non-residential uses in the surrounding area, including retail, commercial, office, and recreation and entertainment uses. As stated above, the area is jobs-rich, and the existing and planned non-residential uses provide ample opportunity to meet the needs of the Project residents. Therefore, the Project is not expected to generate economic activity to the level that would necessitate an expansion of resources and supporting industry that would have significant effects on the environment, such as development of additional non-residential uses in the area. In fact, the Project would provide a housing opportunity for the employees in the area and would contribute to the City's housing stock. Therefore, this Project would not result in significant impacts in regards to facilitating economic effect leading to additional growth with environmental consequences.

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 Project is a medium-high density, multi-family residential development in the City, on a site owned by the County. Due to the medium-high density nature of the Project, Project components, including the provision of renewable energy, the location of the Project site in relation to existing infrastructure, and proximity of the Project site to the existing and planned uses in the area, including uses within the OCGP and Irvine Spectrum, the proposed Project is considered a sustainable development. The development is using the Project site efficiently by placing 803 units of multi-family development on a previously-disturbed Project site surrounded by existing and planned development. These existing and planned land uses provide retail, commercial, office, and recreational amenities, which support smart growth. Additionally, while the Irvine Station is not within walking distance of the Project site, the station is located approximately 1.7 miles southwest of the Project site and can be easily accessed by way of Barranca Parkway and Alton Parkway, which is the route for OCTA bus route numbers 188 and 480. This provides alternative transportation opportunities for the future residents of the Project. In addition, the Project's affordable and market rate residential use would result in a better jobs-housing balance in a jobs-rich City and region. As a sustainable, low-impact development, the Project would relieve pressure on greenfield sites at the edge of the City of Irvine and beyond.

The Project would not result in a precedent-setting action that could encourage and facilitate other activities beyond the Project limits that would significantly affect the environment. As noted in Section 4.01, Cumulative Impact Assumptions, the County is also processing a mixed-use project known as the El Toro, 100-Acre Parcel Development Plan. Both the West Alton Parcel and the 100-Acre Parcel are on part of

the former MCAS El Toro. However, neither of these projects would open new areas for development or result in unique opportunities that would encourage new development beyond the current planned growth associated with the redevelopment of MCAS El Toro. These projects do reflect the regional trend of intensifying development in locations that have been previously disturbed and are in close proximity to services. This development pattern is consistent with the 2016-2040 RTP/SCS overarching strategy of striving for more sustainable growth on a regional level by accommodating growth in the region in more compact developments in existing developed areas with infrastructure and services.

6.4 ENERGY ANALYSIS

Section 21100(b)(3) of the *California Public Resources Code* and Appendix F to the State CEQA Guidelines require a discussion of potential energy impacts of proposed projects. Appendix F states:

> The goal of conserving energy implies the wise and efficient use of energy. The means of achieving this goal include:
>
> (1) Decreasing overall per capita energy consumption,
>
> (2) Decreasing reliance on fossil fuels such as coal, natural gas and oil, and
>
> (3) Increasing reliance on renewable energy sources.

Appendix F of the State CEQA Guidelines also identifies 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".

By design, the development allowed by the proposed Project would be sustainable because of its density, location on a previously disturbed site, proximity to major employment centers, provision of affordable units, and the incorporation of solar facilities as part of the development. The Project provides medium-high density residential uses in proximity to existing employment opportunities, public transit (i.e., existing bus routes on Alton Parkway and the Irvine Station approximately 1.7 miles to the southwest of the Project site), adequate infrastructure, and recreational amenities of the OCGP. This type of efficient land use development would reduce vehicle trips and their associated energy use. By providing additional residential in an area that is jobs rich, it provides an opportunity for people of different income levels to live in proximity to their jobs. As discussed in Section 3.3, Project Objectives, development of a sustainable development is integrated into the Project Objectives. The following are specific objectives which pertain to sustainability and would serve to reduce energy usage:

Objective 2: Create a development that would fully maximize mutual benefits from proximity to the area's employment opportunities and recreational amenities.

Objective 4: Promote efficient use of land through construction of a medium to high density residential development.

Objective 5: Take advantage of the ability to develop the Project site without the requirement for the extension of major infrastructure to support the development.

Furthermore, the Development Plan, Section 2.9, Private Realm-Sustainability, identifies a framework to promote a variety of site-specific design solutions to encourage improvements that would optimize energy efficient systems. Solar applications of 1.25 kW per dwelling unit are required by the Development Plan. In addition to the roof-top solar zones, potential locations for solar PV panels include expanded solar zones on parking shade structures in surface lots, pool shading structures, picnic area shading and trellis features. The Development Plan also addresses heat island effect by providing parking in structures, significantly reducing the amount of paving on the Project site.

The analysis in this section utilizes the data from air quality and gas emissions (GHG) analyses evaluated in Section 4.3, Air Quality and Section 4.7, Greenhouse Gas Emissions. Because the California Emissions Estimator Model (CalEEMod) program does not display the amount and fuel type for construction-related sources, additional calculations were conducted and are summarized below.

6.4.1 SHORT-TERM CONSTRUCTION

Project construction would require the use of construction equipment for grading, hauling and building activities; all off-road construction equipment is assumed to use diesel fuel. Construction also includes the vehicles of construction workers and vendors traveling to and from the Project site and on-road haul trucks for the export of materials from site clearing and the transport of cut material from Planning Area 2 to Planning Area 1 to balance the grading on the Project site.

Off-road construction equipment use was calculated from the equipment data (mix, hours per day, horsepower, load factor, and days per phase) provided in the CalEEMod construction output files included in Appendix C of this EIR. The total horsepower hours for the Project was then multiplied by fuel usage estimates per horsepower-hour included in Table A9-3-E of the SCAQMD's CEQA Air Quality Handbook.

Fuel consumption from construction worker, vendor, and delivery/haul trucks was calculated using the trip rates and distances provided in the CalEEMod construction output files. Total vehicle miles traveled (VMT) was then calculated for each type of construction-related trip and divided by the corresponding Orange County-specific miles per gallon factor using California Air Resources Board's (CARB's) EMFAC 2014 model. EMFAC provides the total annual VMT and fuel consumed for each vehicle type. Consistent with CalEEMod, construction worker trips include 50 percent light duty gasoline auto and 50 percent light duty gasoline trucks. Construction vendor and delivery/haul trucks were evaluated as heavy-duty diesel trucks.

For dust control, it is estimated that 5,000 gallons of recycled water per day, totaling approximately 865,000 gallons of water would be used during site preparation and grading activities. For the building phases, it is estimated that 2,500 gallons of recycled water per day, totaling approximately 1.75 million gallons of water would be used.

As shown in Table 6-1, approximate totals of 381,202 gallons of diesel fuel, 202,099 gallons of gasoline, and 5.48 MWh of electricity from water consumption are estimated to be consumed during Project construction. It should be noted that reclaimed water would be used for dust control, (see DR-UTIL-1) resulting in an estimated 81 percent savings in electricity use as well as the savings of potable water.

TABLE 6-1
ENERGY USE DURING CONSTRUCTION

Source	HP-hours	VMT	Diesel Fuel - gallons	Gasoline - gallons	MWh
Off-road Construction Equipment	5,451,915	--	272,596	--	--
Worker commute	--	5,479,587	--	202,099	--
Vendors	--	1,155,888	96,809	--	--
On-road haul	--	67,200	11,797	--	--
Water - dust control	--	--	--	--	5.48
Totals	**5,451,915**	**6,702,675**	**381,202**	**202,099**	**5.48**

HP-hrs: Horsepower hours; VMT: Vehicle miles traveled; MWh: Megawatt hours; (--): not applicable to this category
Sources: BOE 2015a, 2015b; CEC 2015

Fuel energy consumed during construction would be temporary in nature and there are no unusual Project characteristics that would necessitate the use of construction equipment that would be less energy-efficient than at comparable construction sites in other parts of the region or State. To decrease overall per capita energy consumption and use of fossil fuel, the Project would implement Development Requirement (DR) AQ-4, stated in detail in Section 4.3, Air Quality. DR AQ-4 would require the use of utility electrical power for construction equipment instead of diesel or gasoline-fueled generators, establish truck traffic plans to reduce truck operating time, and encourage construction workers to ride share and use Metrolink for commuting. It would be speculative to estimate the fuel and energy savings that would result from implementing DR AQ-4; thus Table 6-1 represents a maximum-use condition. The proposed construction activities would not result in inefficient, wasteful, or unnecessary fuel consumption.

6.4.2 TRANSPORTATION

As described in Section 4.15, Transportation/Traffic, the Project would promote connections to the Class II bike lanes in each direction on Irvine Boulevard. These Class II bike lanes connect to the City of Irvine's regional bike network, including the planned Class I bike trails located within the OCGP, just west of the Project site. The Project also includes pedestrian connectivity through the Project site so that pedestrians may connect to the public sidewalk and walk to the nearby bus stops on Alton Parkway. The Guidelines provided in the Development Plan promote this connectivity to alternative modes of travel through provision of sidewalks on at least one side of all streets, sharrows (a shared vehicle and bike lane) on internal streets and/or internal paseos. Those Guidelines also encourage provision and use of shared community bicycles

and/or electric bikes, ample bicycle and pedestrian amenities, and fee-based EV charging stations within common parking structures.

Currently, OCTA bus service is provided to the east of the Project site on Alton Parkway and Irvine Boulevard. Bus service includes lines 188 and 480, which provide service to Irvine Station, allowing future residents of the Project to use Metrolink, Amtrak, and other OCTA bus lines for commuting, trips to Anaheim Stadium, and other locations. The provision of transit service is beyond the scope of the Project or jurisdiction of the County. However, the Project would not preclude future opportunities to improve transit access at the Project site. This can include bus stops along Irvine Boulevard for future OCTA service along this corridor. With the opening of Portola High School and development of the nearby Great Park neighborhoods, there may be additional bus service in the future; however, there is no commitment at this time.

To facilitate non-vehicular travel, the project would include bicycle parking facilities. Additionally, as described in Section 4.2, Air Quality of this EIR, mitigation measures (MMs) have been proposed to reduce vehicle emissions. MM GHG-1 requires electric vehicle (EV) charging facilities, preferential visitor parking for alternative-fueled vehicles and bicycle parking for residential buildings and parking facilities. MM GHG-2 requires a commuter information area or multiple areas within or near each building that provides information current maps, routes and schedules for buses, Metrolink, and Amtrak and a means for sharing information for ride-sharing.

Project-generated vehicle trips would result in an estimated 17 million VMT per year. Gasoline and diesel consumption rates were calculated using estimated miles per gallon factors derived from EMFAC2014 Orange County data for 2022. It is estimated that the Project-generated traffic would use 116,800 gallons of diesel fuel, and 552,000 gallons of gasoline per year. There would be additional reduced trips, VMT, and fossil fuel use with the use of bicycle and bus transportation and implementation of MM GHG-1 and MM GHG-2 described above, but the effectiveness of these measures is not reasonably quantified. Fuel consumption associated with vehicle trips generated by the proposed Project would not be considered inefficient, wasteful, or unnecessary.

6.4.3 ENERGY DEMAND

As identified in Section 4.6, Greenhouse Gas Emissions, Title 24 of the *California Code of Regulations* (CCR, specifically, Part 6) is California's Energy Efficiency Standards for Residential and Non-residential Buildings. Title 24 was established by the California Energy Commission (CEC) in 1978 in response to a legislative mandate to create uniform building codes to reduce California's energy consumption and to provide energy efficiency standards for residential and non-residential buildings. The current applicable standards are the 2013 Standards, effective July 1, 2014. The 2013 standards were 25 percent more efficient for residential use and 30 percent more efficient for nonresidential buildings than the previous 2008 code.

The 2013 California Green Building Standards Code (24 CCR, Part 11), also known as the CALGreen code, contains mandatory requirements for new residential and nonresidential buildings (including buildings for retail, office, public schools, and hospitals) throughout California. The development of the CALGreen Code is intended to (1) cause a reduction in GHG emissions from buildings; (2) promote environmentally responsible, cost-effective, healthier

places to live and work; (3) reduce energy and water consumption; and (4) respond to the directives by the Governor. In short, the code is established to reduce construction waste; make buildings more efficient in the use of materials and energy; and reduce environmental impact during and after construction.

The proposed Project would promote building energy efficiency through compliance with energy efficiency standards (Title 24 and CALGreen). Analysis by the California Energy Commission (CEC) concludes that the 2016 energy efficiency standards will be at least 28 percent more efficient than the current 2013 standards for single family residential use (CEC 2015). The CEC also states that the 2016 standards update nonresidential and multi-family residential energy efficiency requirements. Based on the CalEEMod data shown in Appendix G, the electricity demand from the Project would be approximately 4.32 million kilowatt hours per year (kWh/year) and the natural gas consumption would be approximately 4.74 billion British Thermal Units per year (BTU/year) or 47,460 therms per year. The electricity use associated with the Project water consumption is estimated to be approximately 428,000 kWh per year. Orange County's total electrical and natural gas consumption in 2014 was approximately 20,700 million KWh and 550 million therms (CEC 2016). At full build-out, Project's electricity use would be approximately 0.02 percent of the existing (2014) electricity use in Orange County and natural gas use would be approximately 0.009 percent of the existing (2014) natural gas use in Orange County. The residential electrical and natural gas energy use for the Project is estimated at 1,526 kWh per year per resident and 26.2 therms per year per resident, respectively. These energy use rates are substantially less than the estimated Orange County 2014 rates of 2,250 kWh per year per resident and 102 therms per year per resident, indicating the anticipated energy efficiency of Project residences. The proposed Project would not result in excessive long-term operational energy demand.

As described in Section 4.16, Utilities, the Project would require the use of recycled water for irrigation. Based on data from the CAPCOA publication, *Quantifying Greenhouse Gas Mitigation Measures*, the use of recycled water reduces the energy required to supply and deliver water by approximately 81 percent compared to imported potable water (CAPCOA 2010).

In summary, the Project's proximity to existing employment opportunities (i.e., existing and planned employment uses in OCGP, the County's 100-Acre Parcel development, and Irvine Spectrum in addition to other existing office uses in the area), public transit (i.e., Bus Route 480, which has a stop at Irvine Boulevard and Musick extends down Alton Parkway to the Irvine Station approximately 1.7 miles to the southwest of the site), and recreational amenities on-site and in OCGP; the circulation system and Project features that promote non-vehicular transportation; the Project buildings that would be built to the latest and most efficient energy codes; and the use of recycled water result in a Project that would avoid inefficient, wasteful and unnecessary consumption of energy.

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7.0 PERSONS AND ORGANIZATIONS CONSULTED

7.1 COMMUNITY OUTREACH

Extensive community outreach and coordination with stakeholders and other entities involved took place during the course of Project planning and environmental review. Outreach occurred from 2013 to 2015 in the form of multiple meetings held with representatives from the County of Orange, the Orange County Transportation Authority, the City of Irvine, the Irvine Company, Five Point Communities, the Orange County Great Park, and the Lowe Enterprises Project Team. Meetings covered different aspects of the Development Plan; the topics covered at each of these meetings are listed in Table 7-1, Community Outreach Summary.

TABLE 7.1-1
COMMUNITY OUTREACH SUMMARY

Meeting Date	Summary
January 29, 2014	County formally announced assignment of Lowe Enterprises as the Developer for the County's El Toro parcels (notice published in *Orange County Register*).
February 27, 2014	City staff, County staff, and Lowe met to discuss the draft Memorandum of Understanding that the County proposed regarding preparation of Master Land Use Plans for County Property. The attendees included the following: Eric Tolles (City of Irvine), Manual Gomez (City of Irvine), Tim Gehrich (City of Irvine), Jeff Melching (City of Irvine), James Campbell (County of Orange), Mike McNerney (Lowe), Rob Reitenour (Lowe)
April 28, 2014	Supervisor Nelson sent a letter to Mayor Choi. The letter discussed the partnership with Lowe and the important issues that needed to be discussed with the City regarding the Project; it also requested the formation of a City/County committee.
May 30, 2014	The County met with City staff to present the latest conceptual Master Land Use Plan that was prepared for the County Property, commonly referred to as the 'West Alton Parcel'.
July 22, 2014	A presentation was made to the County Board of Supervisors on the proposed Land Use Concept Plans for the County's El Toro parcels. The Board of Supervisors gave direction to proceed on the Project's environmental process.
July 25, 2014	County staff, Lowe, and the City of Irvine met to discuss City and County coordination on the West Alton Parcel Project. The attendees included the following: Eric Tolles (City of Irvine), Mike Ellzey (City of Irvine), Manuel Gomez (City of Irvine), Jeff Melching (City of Irvine), Scott Mayer (County of Orange), James Campbell (County of Orange), Zoila Finch (County of Orange), Channary Gould (County of Orange), Mike McNerney (Lowe), Rob Reitenour (Lowe), John Moreland (KTGY), and Kathleen Brady (BonTerra Psomas).
August 4, 2014	The County sent a letter to Sean Joyce, Irvine City Manager, regarding the County's Conceptual Master Land Use Plans and the schedule for the County-owned property at the Marine Corps Air Station El Toro. Enclosures included a set of the conceptual Master Land Use Plans that the County was planning to use to prepare future documents for entitlement and development of the West Alton Parcel and a corresponding schedule with estimated timeframes.

TABLE 7.1-1
COMMUNITY OUTREACH SUMMARY

Meeting Date	Summary
August 21, 2014	The Irvine Ranch Water District held the Planning Area 51 Sub-Area Master Plan Update Initial Stakeholder Meeting. The attendees included the following: the County of Orange, City of Irvine, the Irvine Company, and Five Point Communities.
September 17, 2014	County staff, Lowe, and the City of Irvine met for a preliminary review of the Initial Study/Notice of Preparation for the West Alton Parcel. The attendees included the following: Manual Gomez (City of Irvine), Eric Tolles (City of Irvine), Mike Ellzey (City of Irvine), Jeff Melching (City of Irvine), James Campbell (County of Orange), Channary Gould (County of Orange), Mat Miller (County of Orange), Brian Fish (Dentons), Mike McNerney (Lowe), Rob Reitenour (Lowe), John Moreland (KTGY), and Kathleen Brady (BonTerra Psomas).
September 24, 2014	The County Team, including Fehr & Peers and Lowe, met with City staff regarding the Traffic Study Scoping Process for the environmental Traffic Studies for the County's El Toro parcels. Potential site access points for the West Alton Parcel were identified. The attendees included the following: Kerwin Lau (City of Irvine), James Campbell (County of Orange), Channary Gould (County of Orange), Mike McNerney (Lowe), Rob Reitenour (Lowe), Geoff Graney (KTGY), John Moreland (KTGY), Chris Gray (Fehr & Peers), Todd Schmieder (Tait), Kathleen Brady (BonTerra Psomas).
September 25, 2014	County staff, Lowe, and Five Point Communities met for a Planning Charrette. The attendees included the following: Haddad (Five Point Communities), Jennifer Bohen (Five Point Communities), Kory Lynch (Five Point Communities), Lynn Jochim (Five Point Communities), Mike Alvarado (Five Point Communities), Patrick Strader (Five Point Communities), Tom Martin (Five Point Communities), Scott Mayer (County of Orange), James Campbell (County of Orange), Mat Miller (County of Orange), Mike McNerney (Lowe), Rob Reitenour (Lowe), Ken Ryan (KTGY), Geoff Graney (KTGY).
October 29, 2014	County staff and Lowe Enterprises met with the City of Irvine to discuss the Initial Study/Notice of Preparation and processing of the County's entitlements on the West Alton Parcel ahead of public release. The attendees included the following: Eric Tolles (City of Irvine), Tim Gehrich (City of Irvine), Shohreh Dupuis (City of Irvine), James Campbell (County of Orange), Channary Gould (County of Orange), Rob Reitenour (Lowe), and John Moreland (KTGY).
November 13, 2014	County team, including Fehr & Peers and Lowe, met for the second time with City staff regarding West Alton Parcel access points. The City requested additional technical information and traffic modeling. The attendees included the following: Barry Curtis (City of Irvine), Kerwin Lau (City of Irvine) Sun-Sun Murillo (City of Irvine), Shohreh Dupuis (City of Irvine), James Campbell (County of Orange), Rob Reitenour (Lowe), Geoff Graney (KTGY), Chris Gray (Fehr & Peers), and Todd Schmieder (Tait).
December 2014	The Irvine Ranch Water District formally requested that the County, Five Point Communities, the City of Irvine, the Orange County Great Park, and the Irvine Company provide potential development information for developments within and surrounding Planning Area 51 (Heritage Fields, the Orange County Great Park, County El Toro Parcels, and the Irvine Company development east of State Route 133) prior to the Planning Area 51 Sub-Area Master Plan Update Kickoff Meeting (scheduled for January 13, 2015).
December 22, 2014	The Irvine Ranch Water District held the Planning Area 51 Sub-Area Master Plan Update Stakeholder Land-Use Review Meeting. The County of Orange, the City of Irvine, the Irvine Company, and Five Point Communities were present.

TABLE 7.1-1
COMMUNITY OUTREACH SUMMARY

Meeting Date	Summary
January 9, 2015	The County held the West Alton Parcel Notice of Preparation Scoping Meeting. Four people signed in at the meeting, including Barry Curtis (the City of Irvine), Joe Schoening (Second Harvest), and Jesse Barron and Lorrie Ruiz (Irvine Unified School District).
January 13, 2015	The Irvine Ranch Water District held the Planning Area 51 Sub-Area Master Plan Update Kickoff Meeting between the Irvine Ranch Water District's Consultant Stantec and attendees from the County, Five Point Communities, the Irvine Company, the City of Irvine, and the Orange County Great Park.
	The Irvine Ranch Water District held the Planning Area 51 Sub-Area Master Plan Update Stakeholder Meeting. The County of Orange, City of Irvine, the Irvine Company, and the Five Point Communities were present.
July 2, 2015	The Irvine Ranch Water District held the Planning Area 51 Sub-Area Master Plan Update Stakeholder 75 percent Draft Status Meeting. The County of Orange, the City of Irvine, the Irvine Company, and Five Point Communities were present.
October 23, 2015	The County held a Notice of Preparation Scoping Meeting for the West Alton Parcel. Lisa Thai, Tim Gehrich, and Susan Emery from the City of Irvine attended this meeting.

7.2 AGENCY COORDINATION

7.2.1 DEPARTMENT OF THE NAVY

Tony Megliola ..... Base Closure Manager

7.2.2 FEDERAL BUREAU OF INVESTIGATION

Thomas Brown ..... Special Agent

7.2.3 CALIFORNIA DEPARTMENT OF TRANSPORTATION, DISTRICT 12

Maureen El Harake ..... Branch Chief, Local Development/Intergovernmental Review

Leila Carver ..... Associate Transportation Planner

7.2.4 ORANGE COUNTY FIRE AUTHORITY

Bret Anderson ..... Fire Prevention Analyst, Planning and Development Section

Shawn Fraley ..... Senior Fire Prevention Specialist, Community Risk Reduction Department

7.2.5 ORANGE COUNTY FLOOD CONTROL DISTRICT

Mehdi Sobhani ..... Manager, OC Public Works Flood Program Support

7.2.6 ORANGE COUNTY PUBLIC LIBRARY

Julia Butler ..... Librarian, Heritage Park Library
Helen Fried ..... County Librarian

7.2.7 ORANGE COUNTY TRANSPORTATION AUTHORITY

Kenneth Phipps ..... Deputy Chief Executive Officer

7.2.8 ORANGE COUNTY WASTE AND RECYCLING

John Arnau ..... CEQA and Habitat Program Manager

7.2.9 CITY OF ALISO VIEJO

Michele Vernotico ..... Planning Technician

7.2.10 CITY OF IRVINE

City Council Coordination

Beth Krom ..... City Council

Jeffrey Lalloway ..... City Council

Christina Shea ..... City Council

City Staff Coordination

Sean Joyce ..... City Manager

Eric Tolles ..... Assistant City Manager for the Orange County Great Park

Susan Emery ..... Director of Community Development

Manuel Gomez ..... Director of Public Works

Tim Gehrich ..... Deputy Director of Community Development

Shohreh Dupuis ..... Deputy Director of Public Works

Barry Curtis ..... Manager of Planning and Development Services

Gregg Gipe ..... Project Administrator, Public Works

Kerwin Lau ..... Project Development Administrator
Sun-Sun Murillo ..... Supervising Transportation Analyst

Steven Sherwood ..... Senior Civil Engineer
Lisa Thai ..... Senior Transportation Analyst

Tran Tran, PE ..... Senior Transportation Engineer

7.2.11 CITY OF LAGUNA BEACH

Ann Larson.....Assistant Director, Community Development
Scott Drapkin.....Principal Planner
Wendy Jung.....Senior Planner
Martina Speare.....Senior Planner
Anthony Viera.....Assistant Planner

7.2.12 CITY OF LAKE FOREST

Amanda Lauffer.....Assistant Planner

7.2.13 IRVINE UNIFIED SCHOOL DISTRICT

Donna Jordan.....Facilities Technician

7.3 ORGANIZATIONS CONSULTED

7.3.1 CENTER FOR DEMOGRAPHIC RESEARCH

Deborah Diep.....Director

7.3.2 CONCORDIA UNIVERSITY, IRVINE LIBRARY

Ramez Mikhail.....Information Services Librarian

7.3.3 IRVINE RANCH WATER DISTRICT

Eric Akiyoshi.....Senior Engineer
Kevin Burton.....Executive Director, Engineering and Water Quality
Kelly Lew.....Senior Engineer
Kellie Welch.....Water Resources Manager

7.3.4 IN8 SPECIALISTS

John Leonard.....Principal Engineer

7.3.5 SOUTHERN CALIFORNIA EDISON

John Morton, C.E.P.E., C.G.P. .....Offer Manager, Residential New Construction Energy Efficiency

7.3.6 STANTEC

Robert Reid.....Senior Associate

7.3.7 UNIVERSITY OF CALIFORNIA, DAVIS

Michael Siminovitch ..... Professor, Department of Design, Rosenfeld Chair in Energy Efficiency, Director – CLTC, Associate Director, Energy Efficiency Center

8.0 LIST OF PREPARERS

8.1 COUNTY OF ORANGE

8.1.1 CEO REAL ESTATE/LAND DEVELOPMENT

James Campbell ..... Manager of Land Development

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Eric E. Hull, AICP ..... Real Estate Manager

Zoila Finch ..... Real Estate Manager

Yasie Malek ..... Staff Specialist

8.1.2 ORANGE COUNTY PUBLIC WORKS

Richard Boon ..... Manager, OC Storm Water

Isaac Alonso Rice, P.E., T.E. ..... County Traffic Engineer

J.T. Yean, Ph.D., P.E., D.WRE, CFM ..... Civil Engineer

8.2 LOWE ENTERPRISES

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Michael McNerney ..... Senior Vice President

Keri Dionizio ..... Assistant Project Manager

8.3 CONSULTANTS

8.3.1 BONTERRA PSOMAS

Kathleen Brady, AICP ..... Principal

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Ashley McCoy ..... Environmental Planner

Jeffrey Gershon ..... Environmental Analyst

Julia R. Black ..... Technical Writer

Sheryl A. Kristal ..... Senior Word Processor

8.3.2 EPT DESIGN

Matthew Durham ..... Managing Principal

Nord Eriksson ..... Design Principal

Matthew Hall ..... Design Principal

Kevin Kennedy ..... Project Manager

Jennifer Chung ..... Project Captain

Luis Isiordia ..... Project Captain

8.3.3 FEHR & PEERS

Christopher J. Gray ..... Principal

Steve Brown ..... Principal

Michael Sahimi ..... Transportation Planner

8.3.4 GEOSYNTEC

Eric Smalstig, PE ..... Senior Principal

Mike Reardon, PE ..... Principal

Matt Thomas, PhD ..... Project Engineer

Laura Vezzoli ..... Project Geologist

8.3.5 JEANETTE C. JUSTUS ASSOCIATES

Jeanette C. Justus ..... President

Olga Bevz ..... Associate

8.3.6 KTGY GROUP, INC.

Ken Ryan ..... Principal

John Moreland ..... Project Manager

Geoff Graney ..... Design Director

Brian Kosier ..... Project Planner

Andrew Levins ..... Planning Associate

Casey Roberts ..... Assistant Planner

8.3.7 SCHWEITZER + ASSOCIATES, INC.

Judi Schweitzer ..... Principal

8.3.8 TAIT & ASSOCIATES, INC.

Todd Schmieder ..... Senior Project Manager

David Sloan, PE ..... Senior Project Engineer

Michael Delagarza, PE ..... Project Engineer

Ryan Haskins, EIT ..... Design Engineer

Katie Grimard, EIT ..... Design Engineer

Andrew Christiansen ..... Senior Project Engineer

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